

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

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The year 2024 saw the Technology sector continue to surprise to the upside, resulting in strong gains for the Nasdaq-100 Index® (NDX®). The index has outperformed other broad-based indexes including the S&P 500, Dow Jones Industrial Average and Russell 1000 on a trailing 3-year, 5-year, 10-year time period. Momentum from AI, which buoyed the Nasdaq-100 higher in 2023, has continued to drive the index up into 2024. While many skeptics questioned whether the AI rally will continue its run into 2024, the rally has sustained momentum. Despite concerns over high inflation, high interest rates and geopolitical risks, markets rallied largely driven by a few major players capitalizing on the artificial intelligence wave. AI giants including Nvidia, Microsoft, Apple, Amazon, Meta Platforms, Alphabet and Broadcom have made significant contributions to the rally, with Nvidia dominating the market narrative.

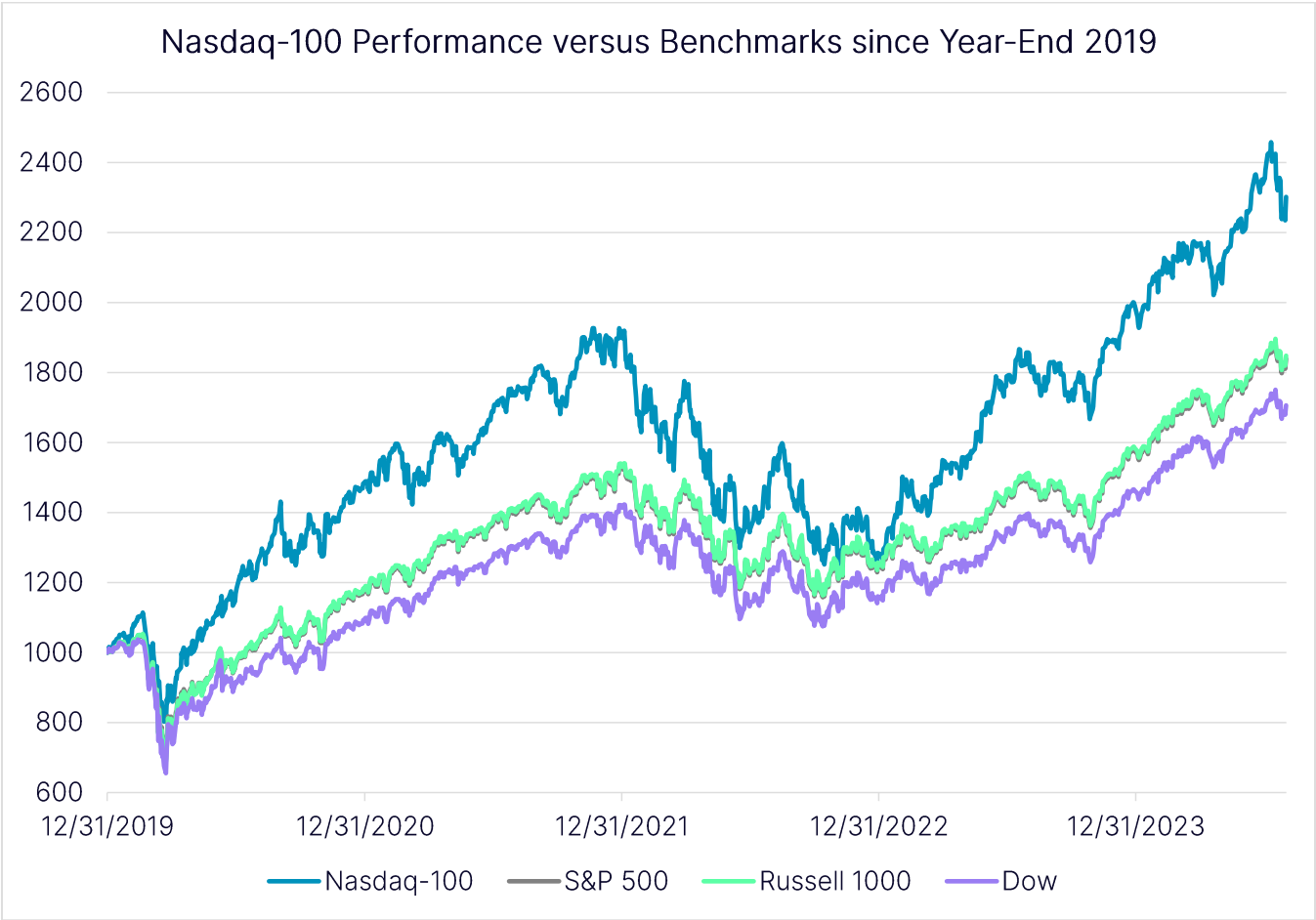
For the long-term, investors have reasons to be optimistic, as the secular growth story behind many technology companies remains intact. As demonstrated in recent years, the Nasdaq-100 has shown resiliency during major crises such as the Covid-19 pandemic. During the pandemic, the Nasdaq-100 rallied, as demand for digital technologies soared. In response to the crisis, the Fed lowered interest rates and stepped in to keep credit flowing, which minimized the economic fallout. Markets remained on an upward trend till the end of 2021. In 2022, the Nasdaq-100 had a major drawdown, down 33.3%, as investors were concerned about broader risks in the macroeconomic environment including the war in Ukraine and supply chain constraints. Since early 2023, these headwinds have largely receded, with investors shifting their focus to the AI narrative.

While the AI narrative continues to boost investor sentiment in 2024, there remain some headwinds broadly weighing on markets including a slowing economy, concentration risk and geopolitical concerns. Investors domiciled outside the U.S. face an additional headwind in terms of foreign exchange risk. This risk arises due to currency fluctuations. Should there be changes in the relative value of the currencies, the local currency return can significantly deviate from the US Dollar (USD) return of the Nasdaq-100. For investors interested in mitigating currency risk from investing in the Nasdaq-100, Nasdaq offers an index solution that uses forward exchange contracts to manage currency risk.

Thus far this year, the dollar has continued to demonstrate strength versus other major currencies due to sticky inflation, a resilient U.S. economy and high yields. The re-pricing of Fed rate cuts has further boosted the dollar to year-to-date highs. The outlook for the dollar is constructive for the rest of the year, as there is less likelihood for global macroeconomic divergence. Some of the current optimism surrounding the dollar may be offset by improving global growth forecasts as the appeal of the dollar tends to decline during times of higher global growth.

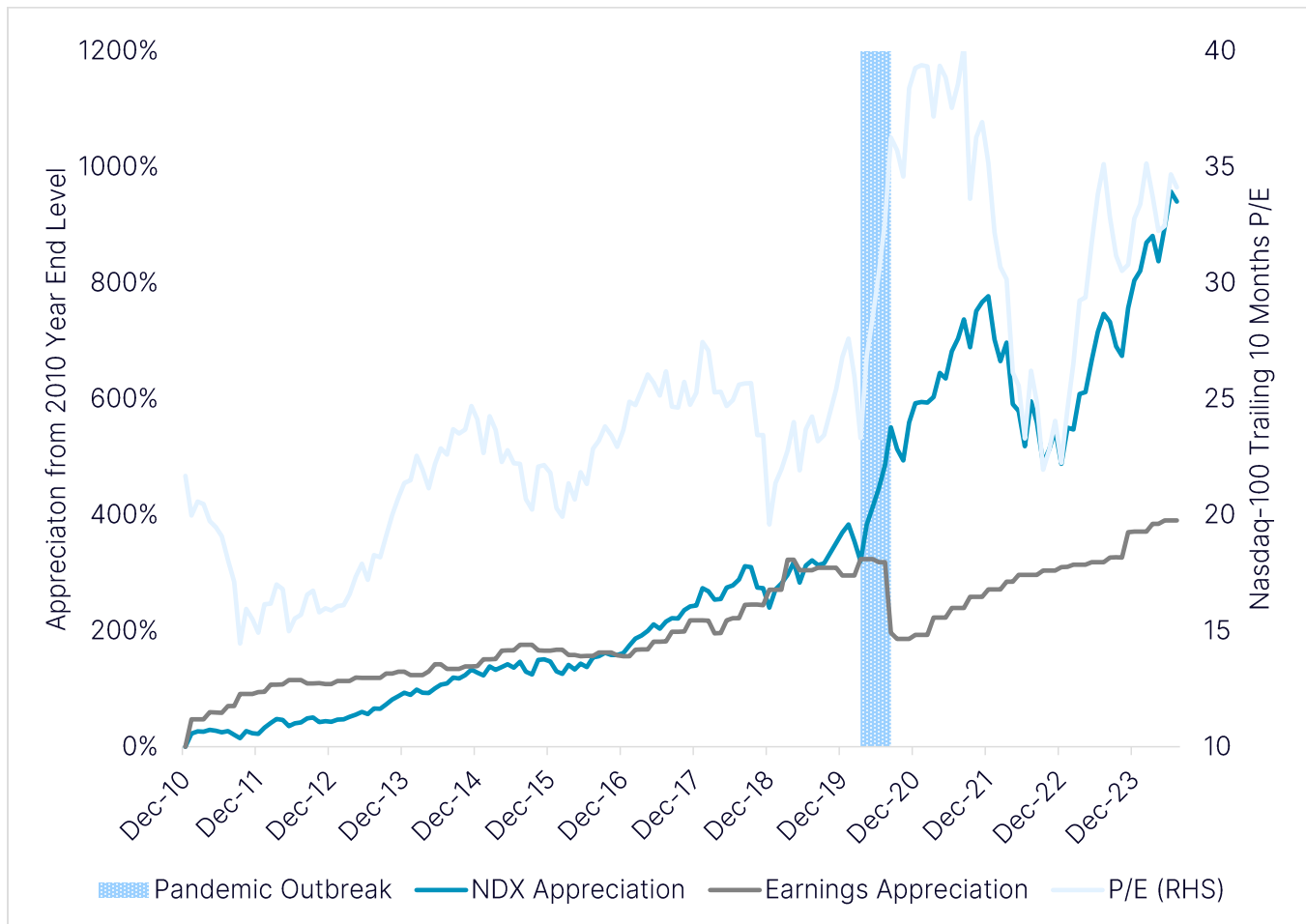
Canadian investors looking to mitigate foreign currency risk can benefit from tracking two Nasdaq Indexes, both the hedged and unhedged Nasdaq-100 Indexes, specifically, the Nasdaq-100 Canadian dollar (CAD) Total Return™ Index (XNDXCAD™) and the Nasdaq-100 Currency Hedged CAD Total Return™ Index (XNDXCADH™). Whether to invest in a hedged or unhedged index would ultimately depend upon the specific circumstances of the investor including investment horizon (short-term, medium-term or long-term), risk appetite (risk-averse, risk-neutral or risk-acceptant), and state of the currency markets. While hedged indexes can mitigate currency risk in certain circumstances, underlying equity risk remains.

Nasdaq-100 Performance vs. Benchmarks since Year-End 2019



Source: Bloomberg data as of July 31, 2024

Nasdaq-100 Long-Term Valuation

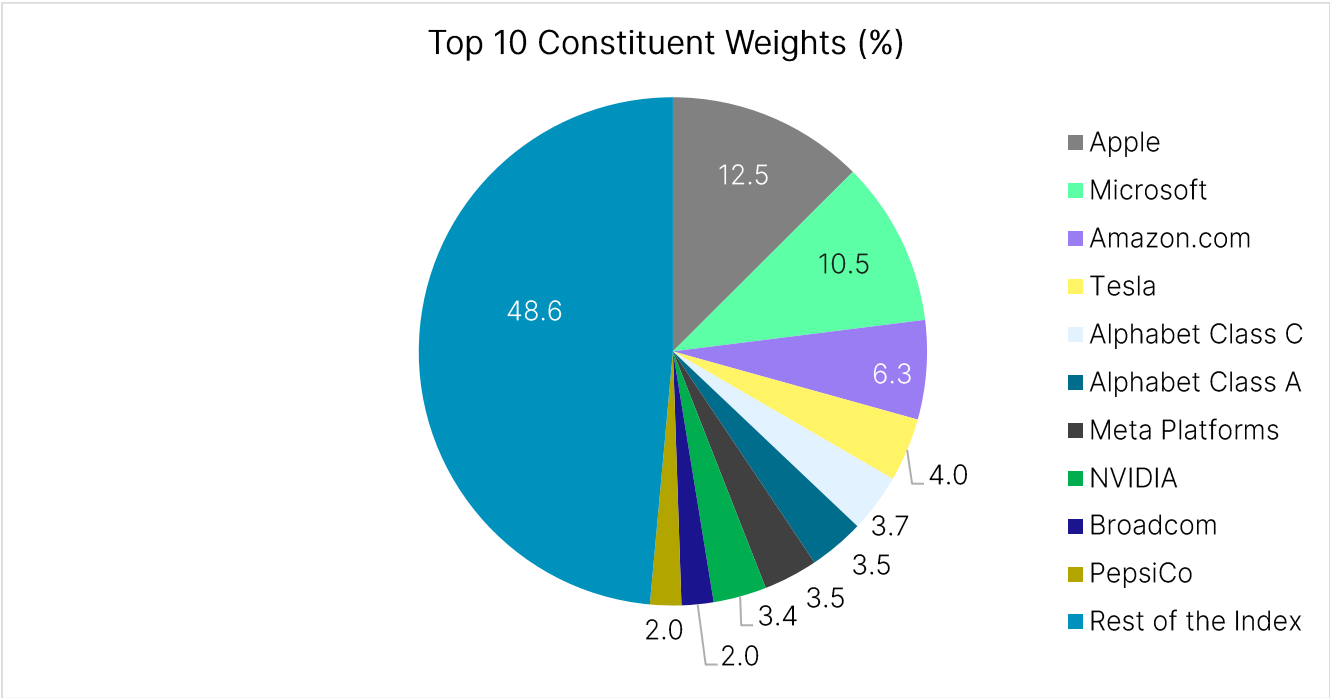


Nasdaq-100 at a Glance

The Era of Tech Mega-Caps

- Of the top ten NDX components, eight companies represent the era of Tech Mega-Caps, and are at the forefront of technological innovation – whether they operate in the Consumer space, Enterprise, or both
- Six out of these eight companies are formally classified as Technology as per ICB (Apple, Microsoft, Google, Meta Platforms, Nvidia, Broadcom)
- Two companies are classified as Consumer Discretionary (Amazon, Tesla)
- Collectively, these eight companies contribute about 50% of the index weight
- Average market cap for the eight companies as of June 28, 2024, was \$2.02 trillion
- Total revenue for the eight companies for the year 2023 was \$1.81 trillion
- Total annual R&D expense for the eight companies for the year 2023 was \$242 billion

Top 10 Constituent Weights (%)



Source: Nasdaq as of July 31, 2024

Nasdaq-100 Performance through the Lens of Global Investors

The Nasdaq-100 has been closely tracked by global investors as it offers exposure to some of the most influential technology companies such as Apple, Alphabet, Amazon, and Meta Platforms. These companies have revolutionized the way individuals and businesses operate. They have been central to the artificial intelligence boom and have become synonymous with innovation. In 2024, the Magnificent 7 became the market’s most crowded trade, which points to the strength of their fundamentals and investor optimism¹.

For investors domiciled outside the U.S seeking exposure to the Nasdaq-100, there are several local currency denominated Nasdaq-100 indexes. For example, Canadian investors can benefit from the NDXCAD™ (the Canadian dollar version of the Nasdaq-100), European investors can benefit from the NDXEUR™ (the Euro version of the Nasdaq-100), and Japanese investors can benefit from the NDXJPY™ (the Japanese Yen version of the Nasdaq-100). By offering these indexes in local currencies, Nasdaq broadens the pool of available investors who can benefit from gaining exposure to prominent technology trends.

Investing in local currency denominated Nasdaq-100 indexes is not free of risk, as investment returns when converted to local currencies can differ from returns in USD. These differences may be due to changes in the relative value of the currencies involved. For descriptive purposes, we have listed the annualized local returns for XNDXCAD™, XNDXEUR™ and XNDXJPY™.

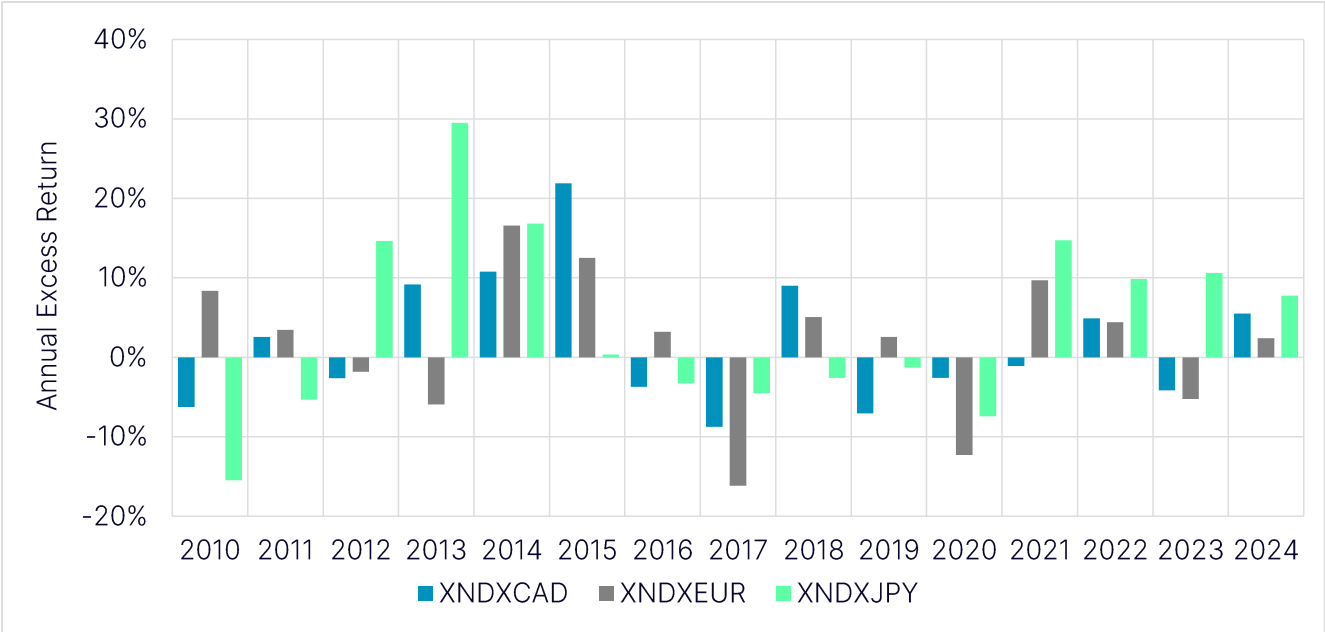
¹ <https://www.morningstar.com/news/marketwatch/2024061853/long-magnificent-seven-is-now-one-of-the-most-crowded-trades-on-record-new-poll-shows>

Annual Total Return of Nasdaq-100 in Local Currencies

Year	XNDX	XNDXCAD	XNDXEUR	XNDXJPY
2010	20.1%	13.9%	28.5%	4.7%
2011	3.7%	6.2%	7.1%	-1.7%
2012	18.4%	15.7%	16.5%	33.0%
2013	36.9%	46.1%	31.0%	66.4%
2014	19.4%	30.2%	36.0%	36.2%
2015	9.8%	31.6%	22.3%	10.1%
2016	7.3%	3.6%	10.5%	4.0%
2017	33.0%	24.3%	16.8%	28.4%
2018	0.0%	9.0%	5.1%	-2.6%
2019	39.5%	32.4%	42.0%	38.1%
2020	48.9%	46.3%	36.6%	41.4%
2021	27.5%	26.4%	37.2%	42.2%
2022	-32.4%	-27.5%	-28.0%	-22.5%
2023	55.1%	51.0%	49.9%	65.7%
2024*	15.6%	21.1%	18.0%	23.4%

Source: Nasdaq, 2022 data as of July 31, 2024

Annualized Local Excess Return of Nasdaq-100 against the USD Total Return



Source: Nasdaq as of July 31 2024

Foreign exchange risk management becomes critical in an environment of fluctuating exchange rates

Exchange rate fluctuations affect the performance of investments. Investors buying foreign stocks typically do so in local currency, with returns translated into local currency terms based on the relative exchange rate. The risk that arises due to the difference in realized returns in local currency from nominal returns in base currency is referred to as currency risk or exchange rate risk. This currency risk can be mitigated by entering into foreign exchange contracts to limit losses. As detailed in our previous report, a foreign exchange contract is a special type of contractual agreement entered into by two parties to exchange a pair of currencies in the future. The contract must be executed at the expiration date at the agreed upon exchange rate. The parties involved in the contract are interested in hedging against unexpected changes in currencies. The downside of such a contract is that it must be executed at the agreed upon price, irrespective of changes in views of the currency².

The movement in the Japanese yen in recent years offers an interesting illustration of the nature and impact of exchange rate fluctuations. The yen has been on a continual slide since 2021, with its decline particularly pronounced since the beginning of 2024. It has been on a decline due to a combination of factors including the strong macroeconomic environment in the US, which has reduced the attractiveness of the yen versus the dollar, and recent actions by the Bank of Japan. This depreciation of the yen versus the dollar has made it more attractive for Japanese investors to invest abroad than for US investors to invest in Japan³.

Exchange rate fluctuations affect another sub-group besides investors, namely international trade practitioners including importers and exporters of goods. They are key players in the foreign exchange markets. Since buyers and sellers operate in different countries and rarely use the same currency, there is a risk associated with the transaction they enter into. Any currency change has implications on prices and profit margins. When two parties enter a contract to trade goods or currencies, FX risk arises due to fluctuations in exchange rates. Further, when a party is set to receive money from another country whose currency has depreciated against their local currency, the party stands to lose as they receive less in local currency terms. Factors that cause a currency to depreciate include interest rate differentials, political instability, weakening economic fundamentals, high current account deficits and high inflation⁴.

Besides currency risk, investors must mitigate other risks to their investments including political risk, macroeconomic risk, and asset risk. In the current environment, investors are dealing with fears about an excessive slowdown in the US economy driven by delayed rate cuts from the Fed, uncertainty about the upcoming US elections, and geopolitical risks in the Middle East, among others. What is worth noting is that these risks can have a minimal impact on returns, if mitigated. In the case of foreign exchange risk, for example, investors can enter foreign exchange contracts to limit losses.

Predicting the future and timing of currency movements is particularly challenging. Hedging against currency risk, therefore, becomes more difficult in practice, and has to be tailored to the environment in which investors are operating. Investors may choose between hedging and remaining unhedged depending upon the country in which they are operating and the movement between their local currency and the US dollar⁵.

² <https://indexes.nasdaqomx.com/docs/NDXCADH%20Research.pdf>

³ <https://www.goldmansachs.com/insights/articles/the-japanese-yen-will-likely-remain-weak-for-months-to-come>

⁴ <https://indexes.nasdaqomx.com/docs/NDXCADH%20Research.pdf>

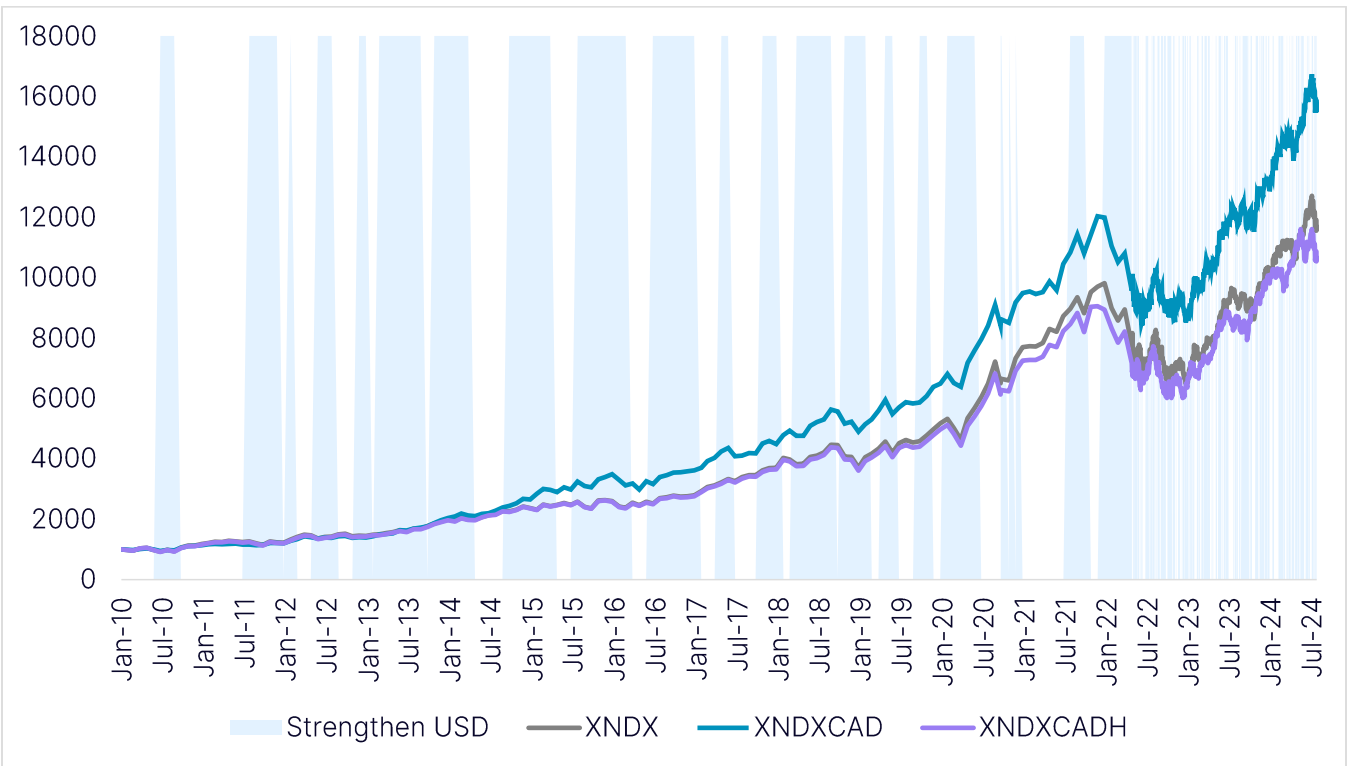
⁵ <https://www.sscitech.com/blog/why-currency-hedging-is-hard-and-getting-harder>

Introducing the Nasdaq-100 Currency Hedged CAD Total Return™ Index

Canadian investors interested in gaining exposure to the Nasdaq-100 and earning returns in Canadian dollars can invest in two leading indexes, namely the Nasdaq-100 Canadian Dollar Total Return Index (XNDXCAD) and the Nasdaq-100 Currency Hedged CAD Total Return Index (XNDXCADH). These two indexes represent returns of the Nasdaq-100 in Canadian dollars. The Nasdaq-100 Canadian Total Return Index (XNDXCAD) is a currency-unhedged strategy, where the investor earns returns in Canadian dollars, but is not protected from currency risk. The Nasdaq-100 Currency Hedged CAD Total Return Index (XNDXCADH) is a currency-hedged strategy, where the investor earns returns in Canadian dollars, and is protected from currency risk. Recall that currency risk refers to changes in the relative value of currencies. This strategy is implemented by selling forward exchange contracts at 100% of index values. Investors can lock in an exchange rate, thereby mitigating the exchange rate risk of their investment. Should the US dollar depreciate against the Canadian dollar, then the investor will benefit from the decision to hedge.

If we closely examine the historical lookback window between January 8, 2010, and July 31, 2024, the XNDXCAD Index, our unhedged strategy, returned 1490% or an equivalent of 20.9% annualized. The XNDXCADH, our currency-hedged strategy, returned 987%, or an equivalent of 17.8% annualized. As with our findings in our previous study, the hedged strategy XNDXCADH continues to closely track the XNDX, further validating the effectiveness of our hedged strategy in mitigating currency risk. The unhedged strategy outperformed both the hedged strategy and the NDX, suggesting that the advantage of a hedged strategy is limited to certain specific conditions.

Cumulative performance of XNDXCAD and XNDXCADH



Source: Nasdaq, Total Return Time Horizon from January 8, 2010, to July 31, 2024

When reviewing the performance by calendar year, the hedged strategy (XNDXCADH) outperformed the unhedged strategy (XNDXCAD) six out of eight calendar years when the USD weakened. This indicates that the currency hedged strategy largely worked as intended and can effectively protect investors against a weakening USD. When the CAD weakened and the USD strengthened, the unhedged strategy (XNDXCAD) outperformed the hedged index (XNDXCADH) all seven periods, including the partial-year period ending July 31, 2024. Consistent with the findings in our previous study, the hedging strategy largely works to mitigate currency risk when the dollar weakens and will limit the gains if the currency moves in an unexpected direction.

	XNDX	XNDXCAD	XNDXCADH	USDCAD
Cumulative Return	1091%	1490%	987%	33%
Annualized Total Return	18.5%	20.9%	17.8%	2.0%
Annualized Volatility	20.7%	20.5%	21.0%	7.8%

Source: Nasdaq, Total Return Time Horizon from January 8, 2010, to July 31, 2024

Calendar Year Total Return Performance

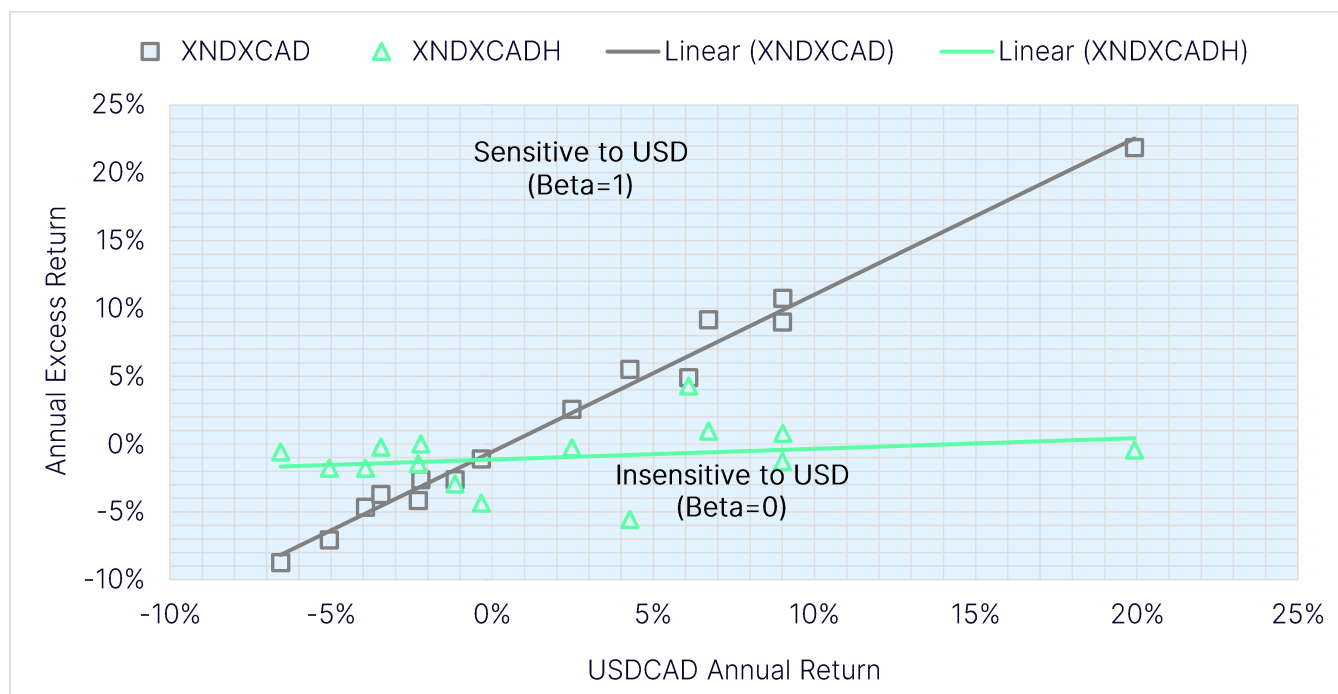
USDCAD column represents the U.S. dollar currency returns measured in terms of Canadian dollars. White rows mark the years with a strengthening Canadian dollar while blue rows mark the years with a strengthening US dollar.

Year	XNDX	XNDXCAD	XNDXCADH	USDCAD
2010*	18.1%	13.4%	16.3%	-3.1%
2011	3.7%	6.2%	3.4%	2.3%
2012	18.4%	15.7%	18.4%	-2.9%
2013	36.9%	46.1%	37.9%	7.1%
2014	19.4%	30.2%	20.2%	9.4%
2015	9.8%	31.6%	9.3%	19.1%
2016	7.3%	3.6%	7.1%	-2.9%
2017	33.0%	24.3%	32.4%	-6.5%
2018	0.0%	9.0%	-1.2%	8.5%
2019	39.5%	32.4%	37.7%	-4.7%
2020	48.9%	46.3%	45.9%	-2.0%
2021	27.5%	26.4%	23.1%	-0.7%
2022	-32.4%	-27.5%	-28.1%	7.3%
2023	55.1%	51.0%	53.7%	-2.3%
2024*	15.6%	21.1%	10.1%	4.3%

Source: Nasdaq, Total Return Time Horizon from January 8, 2010, to July 31, 2024

Currency-Hedging (XNDXCADH) largely removed sensitivity to currency (USDCAD)

In the chart below, we plot annual excess returns of hedged and unhedged indexes on the Y-axis against currency returns on the X-axis. We plot a regression line to analyze the relationship between excess returns and currencies. We closely look at the beta coefficient to understand how sensitive the index is to currency movements. The unhedged index (XNDXCAD) has a beta of 1 and is sensitive to currency risk. The hedged index (XNDXCADH) has a beta of 0 and is insensitive to currency risk. It follows that should there be currency fluctuations, an investor can benefit from tracking the hedged index as it is largely insensitive to currency risk.



Source: Nasdaq, Total Return Time Horizon from January 8, 2010, to July 31, 2024

To hedge or not hedge would depend upon movements in USDCAD rates

For Canadian investors looking to invest in the US stock market, it becomes critical to have a strategy to mitigate currency risk. For the lookback period, the unhedged (XNDXCAD) has significantly outperformed the hedged index (XNDXCADH). It is also safe to conclude that during periods when the dollar depreciates against the Canadian dollar, an investor would benefit from a hedged strategy.

Prior to the financial crisis and going back to early 2000, the Canadian dollar strengthened against the USD buoyed by a strong economy and higher oil prices. During the 2008-2009 financial crisis, there was a flight to safety with the US dollar viewed as a safe haven. Oil prices also declined dramatically from approximately \$134 in June 2008 to \$39 in February 2009. With the decline in oil prices, the Canadian dollar weakened. There was also a strong demand for the US dollar as the financial obligations of the banks had to be honored. Also, post the financial crisis, almost all central banks resorted to a liberal monetary stance to improve liquidity in their domestic markets which led to further appreciation of the dollar.

During the period 2010-2015, there was a steady appreciation of the dollar due to a relatively strong US economy (making it a more attractive destination for foreign capital), a strong trade balance (which acted as a

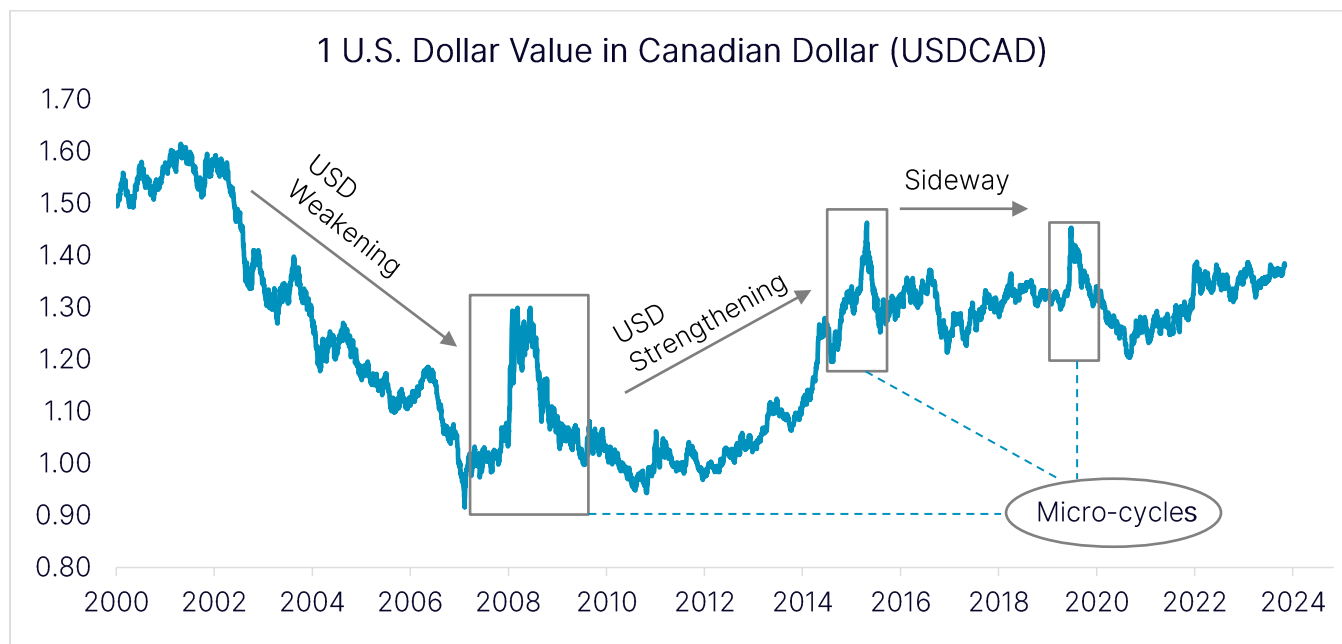
tailwind for the dollar), improving budget deficits, and higher interest rates relative to the German 10-year yield and 10-year Japanese government bond yield. Other factors that led to an appreciation of the dollar included concerns about a Greek debt crisis and struggles in the EU to boost economic growth, which made the dollar relatively more attractive versus other currencies.

In 2015, there was a spike in the dollar again, as the Fed announced that it was ending its quantitative easing program and raising rates, which led to fears of a slowdown. Economic reforms slowed growth in China in 2015, which pushed investors to invest in the dollar. Also, oil prices collapsed which led to a weakening of the Canadian dollar. Again, the dollar was attractive relative to other currencies. Post 2015, the USD and CAD moved largely in lockstep up until the recent pandemic. During the period 2016-2020, the value of the US dollar repeatedly fluctuated versus other currencies due to uncertainty around the trade wars and policies of the Trump Administration. From 2020 onwards, the US dollar strengthened again as investors looked for safety amid concerns surrounding the pandemic.

In 2022, the CAD weakened against the USD due to a combination of factors including cooling oil prices and a weaker economy after trading in a steady range in the first quarter of the year. Additionally, the adoption of a more aggressive monetary policy stance by the Federal Reserve relative to the Eurozone and Japan resulted in the dollar trading with relative strength versus other major currencies. Since then, the exchange rate has experienced some short-term fluctuations in both directions but mostly remained unchanged, as both the Federal Reserve and Bank of Canada have maintained some of the most restrictive central bank policy rates in the developed world, with Canada very recently enacting its first cut and the US Fed expected to soon follow.

Thus far this year, the Canadian dollar has weakened against the USD due to weak manufacturing data globally, geopolitical tensions and support for the USD from a strong economy.

The currency market is filled with mega trends and micro-cycles



Source: FactSet, Nasdaq from October 2000 to July 2024

Inflation in the US and in many parts of the world reached levels unseen in more than four decades post-pandemic, but have been on a mostly downward trajectory since the peak in 2022. With recent economic data supporting a slowing U.S. economy, market participants now expect the Federal Reserve to cut rates at least once this year and at most three times. Despite the prospect for rate cuts in the second half of the year, the dollar is likely to hold up relatively strong as there is less likelihood for global macroeconomic divergence. While market conditions currently favor USDCAD strengthening, this could potentially change should US and global growth prospects differ from current expectations. Canadian investors who are confident that USD appreciation will work in their favor may choose to track the unhedged Nasdaq-100 Index, but for all others, the hedged option offers a conservative, time-tested solution to limit the impact of currency fluctuations on their returns.

Sources: Nasdaq Global Indexes, FactSet, Bloomberg

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