WisdomTree
RESEARCH

The 10 Commandments of Currency Hedging

JEREMY SCHWARTZ, CFA: Global Chief Investment Officer and
BRIAN MANBY, CFA: Senior Associate, Research

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Key Takeaways:

- Despite common assumptions, unhedged foreign currency exposure has historically increased portfolio volatility while offering poor compensation, making it a risky default for international equity investors.
- Currency hedging not only mitigates risk but can enhance returns through interest rate carry, especially in developed markets like Japan, where Buffett's strategy underscores its value.
- With evolving dynamics in emerging markets and opportunities for dynamic hedging, investors can tactically manage currency risk rather than relying on passive exposure that may undermine long-term performance.

Foreign currency exposure imposes a dilemma for international equity investors.

Many hold no particularly strong view on whether a currency should strengthen endlessly versus the dollar and prefer to avoid speculating on currencies altogether.

But paradoxically, investors routinely play currency roulette with their international equity allocations with non-currency-hedged "bets."

Warren Buffett, arguably the world's longest-running and greatest investor, is wise to currency's impact. In 2019, Buffett purchased equity in several Japanese trading firms using the proceeds from a bond issuance denominated in yen. His motives for the yen bond issuance and desire to hedge the uncertain effects from currency were elucidated in his 2024 annual letter:

> *"Neither Greg [Abel] nor I believe we can forecast market prices of major currencies. We also don't believe we can hire anyone with this ability."*

At his 2025 annual meeting, he expanded on currency views and said in his 60 years running Berkshire, only once did they have a particularly strong view on the direction of the dollar and bought a basket of foreign currencies. But Japan presented a unique place where he could earn some higher returns due to the low borrowing costs in yen. We will return to this carry-trade argument later in the paper.

It's a profound stance from Buffett, given that he views Japan as a *long-term opportunity,* and many believe currency effects offset over the long run.

WisdomTree believes investors bet on currencies much more often than they should in their default allocations. We prefer currency-hedged investments for at least half of overall strategic, international equity allocations. Our skepticism toward permanent currency bets or "exposure" is rooted in the same uncertainty that dissuaded Buffett.

Currency exposure frequently adds incremental risk to equity portfolios, for which investors are poorly or even negatively compensated. We believe currencies deviate from fair value over prolonged periods, and exchange rates are notoriously difficult to predict in the short run. Ultimately, we doubt most investors have an informational advantage when trying to speculate and trade on currencies too often.

We've written these **"10 Commandments"** of currency hedging to elaborate on our views:

1. Currency markets are hypersensitive to policy influences, capital flows and speculative positioning, which often leads to prolonged mispricing and inefficiency.
2. Over the short term, currency performance is notoriously difficult to predict.
3. Over longer periods, foreign currency exposure penalizes portfolio risk.
4. Currency exposure routinely adds incremental risk that is often poorly compensated.
5. Currency exposure is an inadequate diversifier of the risks inherent to other portfolio assets.
6. Hedging currency exposure can prevent investors from compounding the weak dollar bias embedded in U.S. large-cap earnings.
7. Hedging is not universally expensive. In the developed world, it can regularly enhance returns via positive interest rate carry.
8. In recent years, the cost to hedge emerging market currencies has decreased substantially.
9. Active currency management can exploit tactical opportunities by considering timing, hedge ratios and individual exposures.
10. Currency hedging presents an opportunity to follow Buffett into Japan.

#1: Currency markets are hypersensitive to policy influences, capital flows and speculative positioning, which often leads to prolonged mispricing and inefficiency.

Due to its size and scope, currency is one of the most reactive asset classes in global markets.

Global foreign exchange transactions account for $7.5 trillion in volume per day.[1] Spot market transactions service roughly one-third of transaction volumes, while hedging activity involving currency (FX) swaps, forwards and options comprises the rest. The U.S. dollar is involved in nearly 90% of all FX transactions.

Every day, exchange rates are shaped by governments, institutions, central banks, long-term investors, short-term speculators and multinational businesses, who guide them in conflicting directions.

Their diverging intentions can create mispricing and worsen the deviations from fundamental value. Given the magnitude and volume of trades needed to restore a misvalued currency to equilibrium, these discrepancies can persist longer than expected.

All asset markets can temporarily deviate from fair value, but currencies are especially vulnerable due to the structural imbalances and inefficiencies imposed by participants. They have a distinct sensitivity to monetary and fiscal forces, geopolitics, economic growth prospects, hedging activity, capital flows and speculative positioning.

These forces underlie academic models that explain the volatility in currency markets. The overshooting model, popularized by German economist Rüdiger Dornbusch, theorizes that exchange rates tend to overshoot long-term fundamental values in the short run due to different adjustment speeds between financial and goods markets.

[1] Bank for International Settlements, *Triennial Central Bank Survey,* 2022.

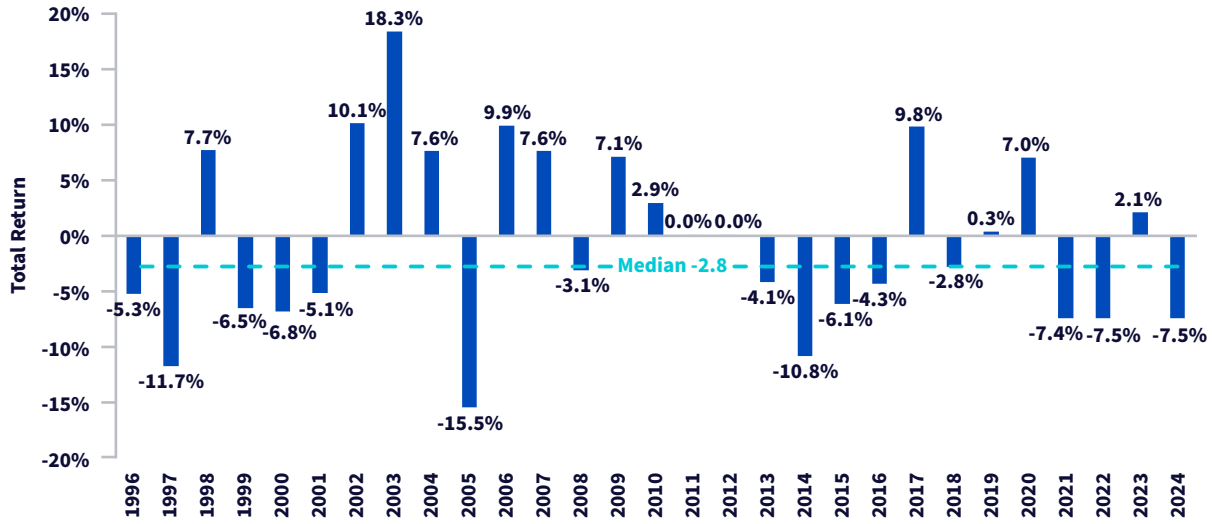
In the short term, it suggests that currency markets quickly overreact to the prevailing, dominant influence. It may take years for them to stabilize around some longer-term, fundamental value, prolonging the inefficiency introduced by the initial news flow.

A consistent theme among the remaining commandments is that currency exposure entails additional volatility from these deviations, which can be avoided altogether by hedging.

#2: Over the short term, currency performance is notoriously difficult to predict.

While foreign exchange is the largest and most liquid asset class within global markets, its performance is extremely difficult to accurately predict. Recent history illustrates this well.

Calendar Year Returns from EAFE FX - 1996–2024



Currency Returns Are Effectively a Coin Flip for U.S. Investors								
Regional FX	Median FX Return	When FX Return > 0			When FX Return < 0			Volatility
		# of Years	% of Time	Avg. Return	# of Years	% of Time	Avg. Return	
EAFE	-2.8%	14	48.3%	6.5%	15	51.7%	-7.0%	8.0%

Sources: WisdomTree, MSCI, as of 12/31/24. Currency performance represents the difference in net total returns for the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. **Past performance is not indicative of future results. You cannot invest directly in an index.**

Over the past three decades, developed market FX performance has effectively been a coin flip for U.S. investors.

On an annual basis, the MSCI EAFE Index currency basket (EAFE FX) weakened versus the dollar 52% of the time, with an average loss of 7% during declines. During the 48% of the time that it strengthened, it gained 6.5%, on average.

Many of the most pronounced movements coincided with turbulent markets, which demonstrates how exogenous volatility is contagious for currencies. Likewise, they often present the early symptoms of an imminent crisis.

For example, in the early 2000s, the burst of the tech bubble and subsequent fallout weighed heavily on the dollar as share prices declined and global capital fled the U.S. Shortly after, the Global Financial Crisis (GFC) had a similar effect. The disproportionate impact on the U.S. financial system triggered capital outflows that sank the dollar relative to international currencies during the aftermath and initial recovery.

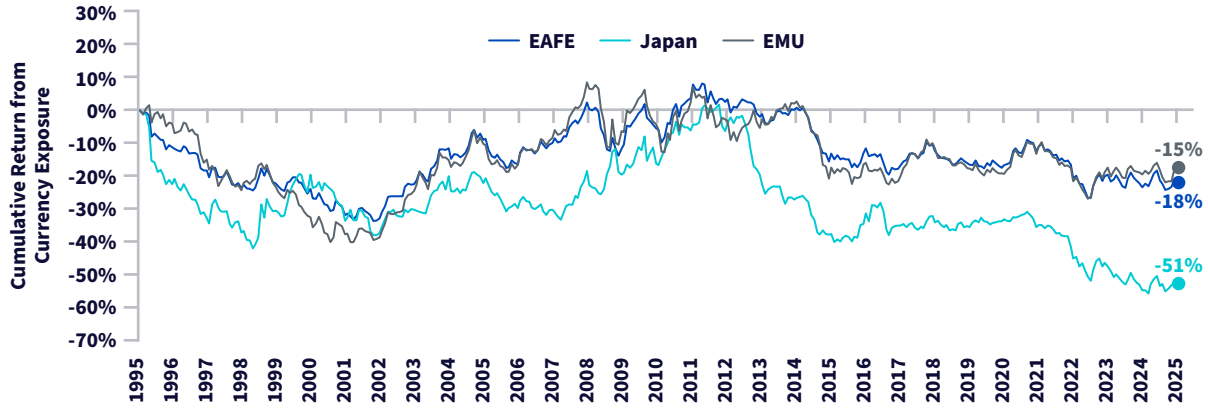
Over the entire 29-year period, the median EAFE FX experience provided a 2.8% loss in a calendar year. Cumulatively, EAFE FX lost 21% during these three decades, for an annualized loss of 80 basis points (bps) per year.

However, prior performance does not imply that developed market currencies will always weaken versus the dollar. But unhedged currency exposure over multi-year investment horizons is unlikely to provide a smooth, steady experience. The past 30 years exemplify currencies' erratic behavior, which challenges conclusions about directionality and our confidence in long-term forecasting and ultimately discourages a default unhedged exposure.

#3: Over longer periods, foreign currency exposure penalizes portfolio risk and return.

Foreign currency depreciation is not a recent phenomenon, either. Over 30 years of data history, the Japanese, EAFE and European Monetary Union (EMU) currency baskets drastically weakened on a cumulative basis versus the dollar. The yen (JPY) fared even worse than the latter two, losing more than half its value since April 1995.

Unhedged FX Exposure Has Been a Drag for the Last 30 Years



Sources: WisdomTree, MSCI, as of 4/30/25. Series begins April 1995. EAFE FX performance represents the difference in net total returns for the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. Japan FX performance represents the difference in net total returns for the MSCI Japan (USD) and MSCI Japan (Local) Indexes. EMU FX performance represents the difference in net total returns for the MSCI European Monetary Union (EMU) (USD) and MSCI European Monetary Union (EMU) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

The cumulative losses translate to annualized declines of 0.66% for EAFE, 2.33% for Japan and 0.52% for EMU. In a single year, such declines are survivable and perhaps even negligible for a U.S. investor. But over longer holding periods, they erode portfolio value.

During the 2000s, all three currency baskets strengthened versus the dollar as the U.S. navigated the collapse of the tech bubble and GFC, but their success was temporary. All three broke positive versus the dollar on a cumulative basis as the early recovery from the GFC materialized before resuming their decade of decline that persists today.

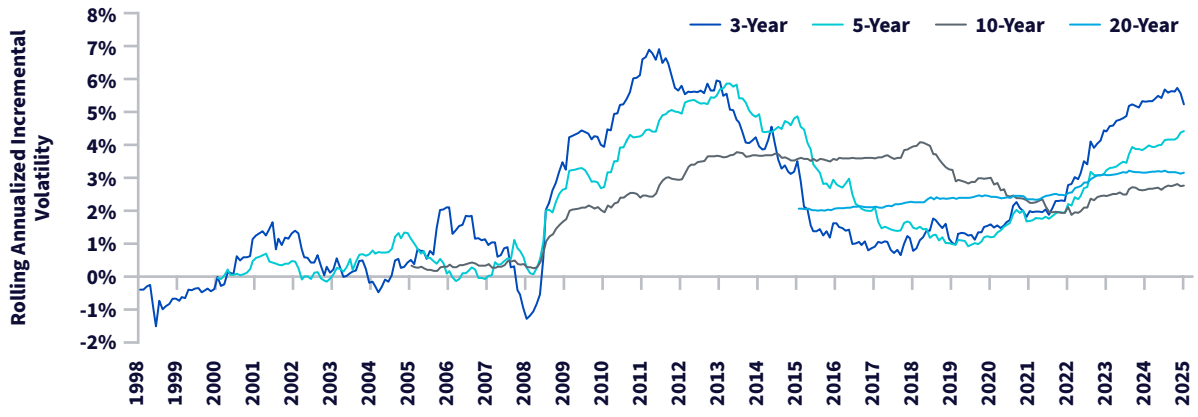
Monthly Currency Return Observations since April 1995								
Regional FX	Avg. Monthly Return	When FX Return Is Positive			When FX Return Is Negative			Ann. Volatility
		# of Months	% of Time	Avg. Return	# of Months	% of Time	Avg. Return	
EAFE	0.0%	168	47%	1.7%	192	53%	-1.5%	7.2%
Japan	-0.2%	168	47%	2.2%	192	53%	-2.3%	10.4%
EMU	0.0%	176	49%	2.1%	184	51%	-2.0%	9.2%

Sources: WisdomTree, MSCI, as of 4/30/25. Series begins April 1995. EAFE FX performance represents the difference in net total returns for the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. Japan FX performance represents the difference in net total returns for the MSCI Japan (USD) and MSCI Japan (Local) Indexes. EMU FX performance represents the difference in net total returns for the MSCI European Monetary Union (EMU) (USD) and MSCI European Monetary Union (EMU) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

#4: Currency exposure routinely adds incremental risk that is often poorly compensated.

Currency's effect on portfolio risk is more predictable than its performance impact. Throughout our data history, the EAFE FX basket routinely made international equity allocations more volatile over common measurement periods.

EAFE FX Exposure Tends to Add More Risk than Reward for U.S. Investors



Sources: WisdomTree, MSCI, as of 4/30/25. Series begins April 1995. Incremental volatility is based on the annualized standard deviation of the difference in net total returns for the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. You cannot invest directly in an index.

Over the 3-, 5-, 10- and 20-year periods, currency exposure added between 2.2% and 2.5% incremental volatility, on average, and became more consistent over longer timeframes.

It added volatility to international equity exposures over every rolling 10- and 20-year observation, along with 94% of 5-year observations. The shorter-term periods were not immune either, with additional volatility at least 75% of the time.

Regional FX	% of Rolling Periods Where Currency Added Volatility to Equity Exposure				
	1-Year	3-Year	5-Year	10-Year	20-Year
EAFE	76%	87%	96%	100%	100%

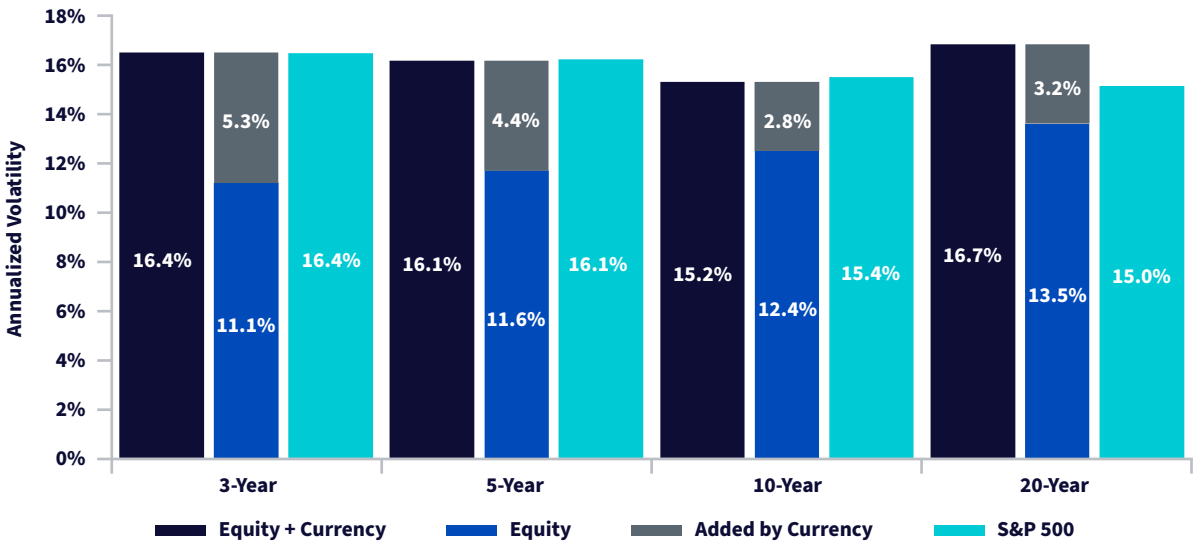
Sources: WisdomTree, MSCI, as of 4/30/25. Series begins April 1995. Incremental volatility is based on the annualized standard deviation of the difference in net total returns for the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. You cannot invest directly in an index.

The volatility pickup also makes international equities appear as erratic as the S&P 500 in the U.S.

Over the medium and long term, local equity markets were consistently less risky than the U.S. benchmark by about 3%–5%, which introduced valuable diversification benefits. But when investors endured currency risks in tandem with their international positions, the total risk from the allocation climbed significantly higher and resembled the volatility of the S&P 500.

Currency added about 4% to total volatility, on average, which made international equity risk almost indistinguishable from the S&P 500's over the 3-, 5- and 10-year periods. Over 20 years, the pickup was high enough to cause volatility to exceed the S&P 500, which returned about 10.3% per year, while the MSCI EAFE only returned 5.5% annually after dollarization.

Currency Exposures Makes International Equity Volatility Resemble the S&P 500



Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI EAFE (USD) Index. Equity represented by the net total returns of the MSCI EAFE (Local) Index. Currency represented by the difference between the net total returns of the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

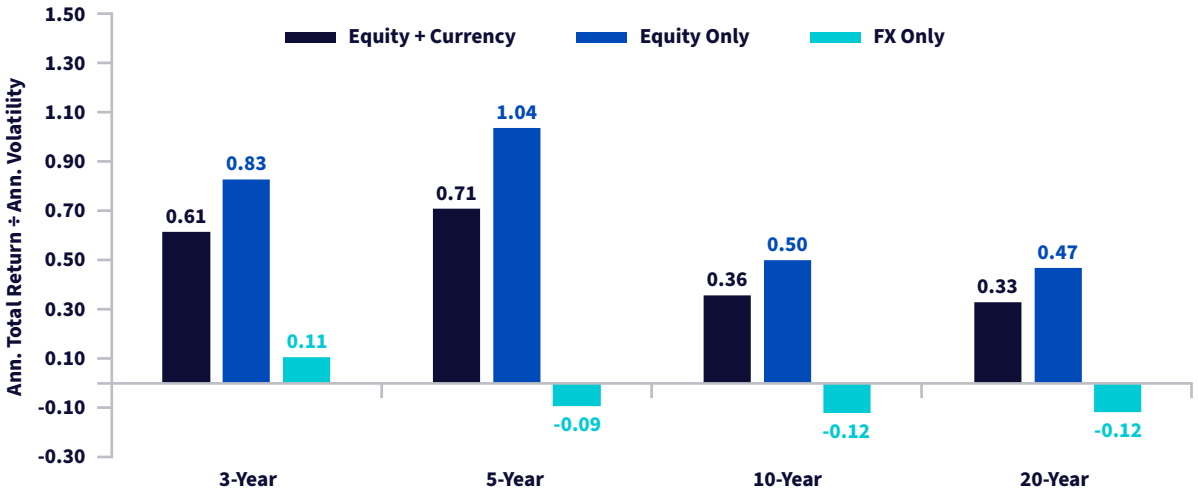
The incremental volatility from currency would be palatable if it were accompanied by additional return compensation, but the EAFE FX basket depreciated against the dollar in each period, leading to *negative* risk-adjusted returns when coupled with added volatility.

Period	Annualized Returns				Annualized Volatility				Incremental Volatility (in Std. Dev.)	Incremental Volatility (% Increase)
	Equity + Currency	Equity Only	FX	S&P 500	Equity + Currency	Equity Only	FX	S&P 500		
3-Year	10.1%	9.2%	0.9%	12.2%	16.4%	11.1%	8.1%	16.4%	+5.3%	47.3%
5-Year	11.4%	12.0%	-0.7%	15.6%	16.1%	11.6%	7.6%	16.1%	+4.4%	38.2%
10-Year	5.4%	6.2%	-0.8%	12.3%	15.2%	12.4%	6.5%	15.4%	+2.8%	22.4%
20-Year	5.5%	6.4%	-0.8%	10.3%	16.7%	13.5%	7.1%	15.0%	+3.2%	23.8%

Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI EAFE (USD) Index. Equity represented by the net total returns of the MSCI EAFE (Local) Index. Currency represented by the difference between the net total returns of the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

Equity exposures in isolation steadily maintained the best risk-adjusted returns over the medium and long term. Currency was a consistent detriment, however, and dampened equities' favorable measures. By itself, currency exposure negatively compensated investors over the last 3-, 5-, 10- and 20-year periods.

Risk-Adjusted Returns (Return ÷ Volatility)



Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI EAFE (USD) Index. Equity represented by the net total returns of the MSCI EAFE (Local) Index. Currency represented by the difference between the net total returns of the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

The recent periods are even more concerning. Currency's risk contribution has steadily increased in the post-pandemic environment, implying that today's currency markets are more volatile and less rewarding.

The historical risk-return profile discourages the notion that a portfolio stands to benefit from unhedged currency exposures. In our view, foreign currency routinely makes portfolios less efficient from a risk-adjusted return standpoint by increasing volatility without sufficient compensation.

#5: Currency exposure is an inadequate diversifier of the risks inherent to other portfolio assets.

Proponents of unhedged currency exposures often argue that diversification benefits are obtained from non-dollar positions in a portfolio. We think this is a fallacy.

Portfolio diversification is predicated on uncorrelated assets, and its efficacy depends on the direction and magnitude of the assets' correlative relationships.

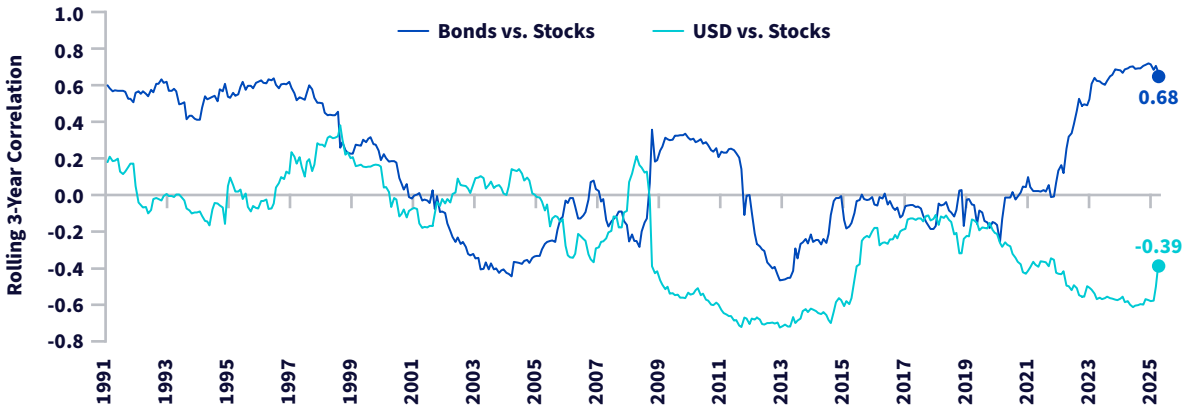
For most U.S. investors, domestic equities are the bedrock of their portfolios and, therefore, their primary risk exposure. Effective diversification requires mitigating their attendant risks through assets that have lower sensitivity to U.S. equities and the countless factors that influence them.

Historically, bonds were an effective hedge for U.S. equities. Growth slowdowns and recessionary concerns that hurt earnings and stock prices tend to lower interest rates, causing bonds to climb during equity declines. This was the classic risk-on versus risk-off dynamic that prevailed during the 2000s.

But in the post-pandemic environment, this relationship reversed. Measured using trailing three-year data, U.S. stocks and bonds are as positively correlated as they have been in the last three decades.

As rate levels rise, bonds could become a better hedge, once again, if recessionary fears materialize. But the protective benefit of bonds was virtually nonexistent over the last three years.

USD Continues to Diversify U.S. Equity Risk More than Bonds



Sources: WisdomTree, S&P, FactSet, as of 4/30/25. Stocks represented by the total returns of the S&P 500. USD represented by the returns of the Bloomberg U.S. Dollar Index. Bonds represented by the total returns of the Bloomberg U.S. Aggregate Bond Index. You cannot invest directly in an index.

The deterioration of the stock-bond relationship also created an inflection point for the dollar. Recently, its correlation with equity markets became deeply negative and near its lowest and most diversifying point since the recovery from the GFC.

The implication for portfolio diversification is significant: **Bonds' efficacy as a hedge against U.S. equity risk has been supplanted by the dollar.** Currency *hedging* thus provides a directional advantage for diversification when compared with unhedged allocations.

Unhedged positions are inherently directional and bearish bets on the dollar since they benefit when foreign currencies strengthen. **But this scenario *complicates* diversification efforts since it *amplifies* the dollar-bearish bets already inherent to U.S. earnings and equity markets.**

By currency hedging, investors tip the currency scale back to neutral. It negates the inherent bearish dollar bet so that the allocation is insulated from strong dollar headwinds that may also accompany falling U.S. equity markets.

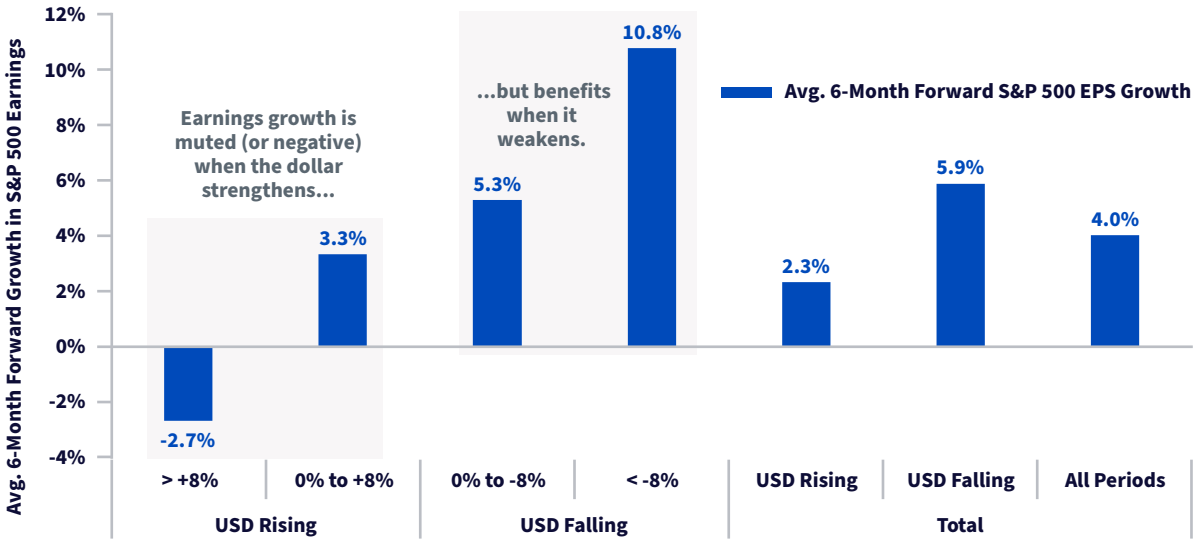
#6: Hedging currency exposure can prevent investors from compounding the weak dollar bias embedded in U.S. large-cap earnings.

A fundamental reason for the negative correlation of the dollar and equity markets is that currency movements directly affect multinational businesses and operating results.

Today, the U.S. comprises about two-thirds of global equity market capitalization, and many U.S. investors allocate an even greater share in a display of home country bias. The S&P 500 is comprised of the largest and most globalized companies in the world. The S&P 500 generates about 60% of its revenue domestically while the remaining 40% comes from abroad. Because foreign profit margins are often higher than those in the U.S., more than half of the S&P 500's earnings likely come from abroad (disclosures and reporting on foreign earnings are not as robust as on sales).

Our study of earnings environments showcases a **notable weak-dollar bias embedded in U.S. multinationals' earnings that is evident across decades.**

Dollar Fluctuations Have Implications for S&P 500 Earnings



Sources: WisdomTree, FactSet, S&P, as of 4/30/25. Data points in the chart represent 12/31/1994 through 10/31/2024, because 10/31/2024 is the most recent date for which we can calculate six-month forward (4/30/25) Earnings per share (EPS) growth for the S&P 500. You cannot invest directly in an index. **Past performance is not indicative of future results.**

Over the past 30 years, S&P 500 earnings benefited disproportionately from dollar weakening versus strengthening. A falling dollar was more additive for future earnings growth than strengthening, while sharp rallies precipitated earnings declines.

Between all rising and falling dollar periods, average six-month forward S&P 500 earnings grew 3.7% more during weakening regimes than strengthening ones.

Across the entire 30-year history, S&P 500 earnings preferred stable, muted dollar movements that enabled growth to be driven by business fundamentals over currency movements. The best results coincided with a falling dollar, with the steepest declines over 8% providing nearly 11% earnings growth in the subsequent six months. When the dollar strengthened, earnings growth was not as strong, and sharp upward moves often led to nearly 3% earnings declines.

Companies often discuss the dollar's effects on operating results in their earnings announcements. During its Q4 2024 earnings release, Amazon President and CEO Andrew Jassy cited dollar strength as an obstacle that had a material impact on revenue.[2]

> *"Given the way the dollar strengthened throughout the quarter, we saw* ***$700 million more of foreign exchange headwind*** *than we anticipated in guidance. Without that headwind,* ***revenue would have been 11% year-over-year*** *and exceeded the top end of our guidance."*

Amazon's currency headwind wasn't a temporary phenomenon, either. In its annual report for 2024, it noted a $3.33 billion loss in its consolidated income statement due to foreign currency translation adjustments, exceeding the $2.5 billion loss due to currency effects in 2022. Over the prior three years, currency translation adjustments eroded nearly $5 billion from Amazon's reported net income, which coincided with additional conversion headwinds in cash, cash equivalents and marketable equity securities.[3]

The Coca-Cola Company's results were also vulnerable to unfavorable currency conditions. Year-over-year, 2024 consolidated net operating revenues declined 5% due to exchange rate fluctuations.[4] During its earnings call, President and Chief Financial Officer John Murphy elaborated on its effects on margins.[5]

> *"Bottler refranchising had a greater benefit to comparable gross margin and currency headwinds had a larger impact to comparable operating margins. Putting it all together, fourth quarter comparable EPS of $0.55 was up 12% year-over-year,* ***despite 11% currency headwinds*** *and 4% headwinds from bottler refranchising."*

He also anticipated currency effects to be an impediment for 2025:

> *"Based on current rates and our hedge positions,* ***we anticipate an approximate 3-point to 4-point currency headwind to comparable net revenues and an approximate 6-point to 7-point currency headwind to comparable earnings per share*** *for full year 2025."*

Paradoxically, U.S. equity investing becomes an indirect, layered bet on dollar weakness due to its influence on earnings. If the dollar strengthens, U.S.-based investors should theoretically benefit, since their financial livelihoods are denominated in dollars. But if the dollar weighs on company earnings, which in turn restrains share prices, then portfolios may suffer.

Currency hedging, however, can help offset this contradiction by negating currency effects and isolating performance results to the stocks themselves, particularly when contrasted with a default unhedged position.

By hedging, the investor can eliminate the compounded bet on U.S. stocks and currency so that performance is dictated by company fundamentals, as intended. This may serve the dual purpose of reducing portfolio risk and diversifying across market scenarios, as well.

[2] Amazon.com, Inc., *Q4 2024 Earnings Call Transcript.*
[3] Amazon.com, Inc., *Fiscal Year 2024 10-K, p. 38.*
[4] The Coca-Cola Company, *Fiscal Year 2024 10-K, p. 47.*
[5] The Coca-Cola Company, *Q4 2024 Earnings Call Transcript.*

#7: Hedging is not universally expensive. In the developed world, it can regularly enhance returns via positive interest rate carry.

Currency hedging indirectly influences portfolios by reducing volatility, enhancing diversification and avoiding long foreign currency exposures, but it also explicitly adds another return component: interest rate carry.

A carry trade entails borrowing money at low interest rates and subsequently investing in an asset that earns a higher rate of return. These are common in currency markets where investors exploit prevailing differentials in policy rates between two countries and their central banks. The spread between the rate at which the funds are borrowed and the rate at which they're paid by investing the proceeds is the investor's return.

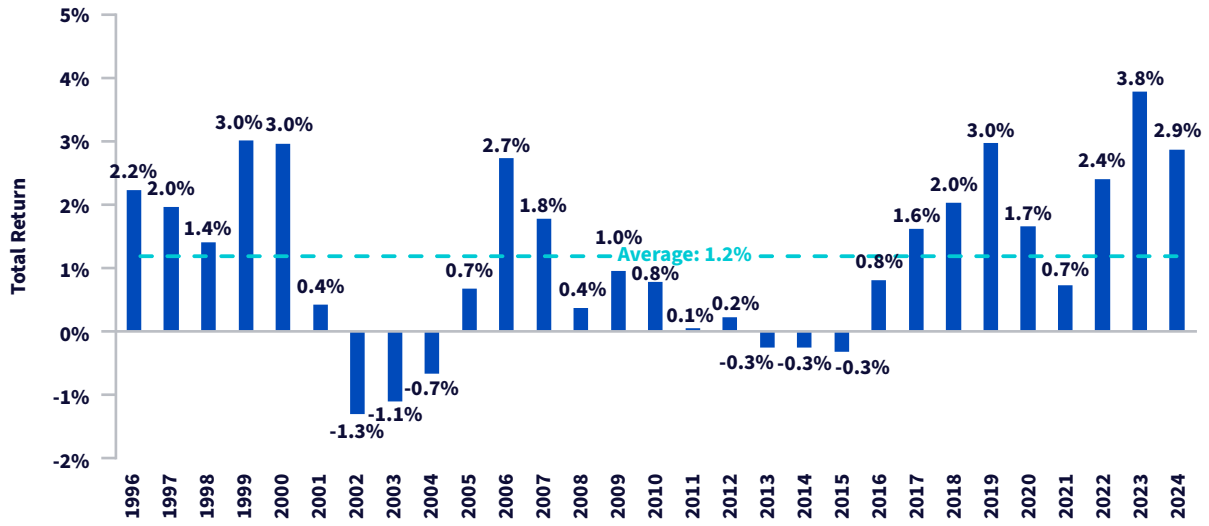
Consider the monetary policy dichotomy between Japan and the United States in the post-pandemic environment.

The Bank of Japan (BOJ) kept interest rates near 0% for several years, enabling investors to borrow yen and pay almost nothing to their lender at the end of their borrowing term. In the U.S., the Federal Reserve (Fed) hiked rates at the fastest pace in decades between 2022 and 2023 to combat record inflation. The Federal Funds Rate peaked at 5.5% while Japan idled its overnight call rate, creating a disparity of more than 500 bps.

Investors crowded the yen carry trade as a result, borrowing yen and paying virtually nothing to invest it in U.S. securities toting attractive yields. Once the interest paid, they converted their proceeds back into yen at prevailing exchange rates and fulfilled their loan obligations, pocketing the difference as profit.

But carry opportunities have not solely been a recent occurrence, either. For most of the past 30 years, U.S. investors had plenty of opportunities to earn incremental returns from carry when currency hedging international equities.

Annual Carry Benefit from Hedging EAFE FX - 1996–2024

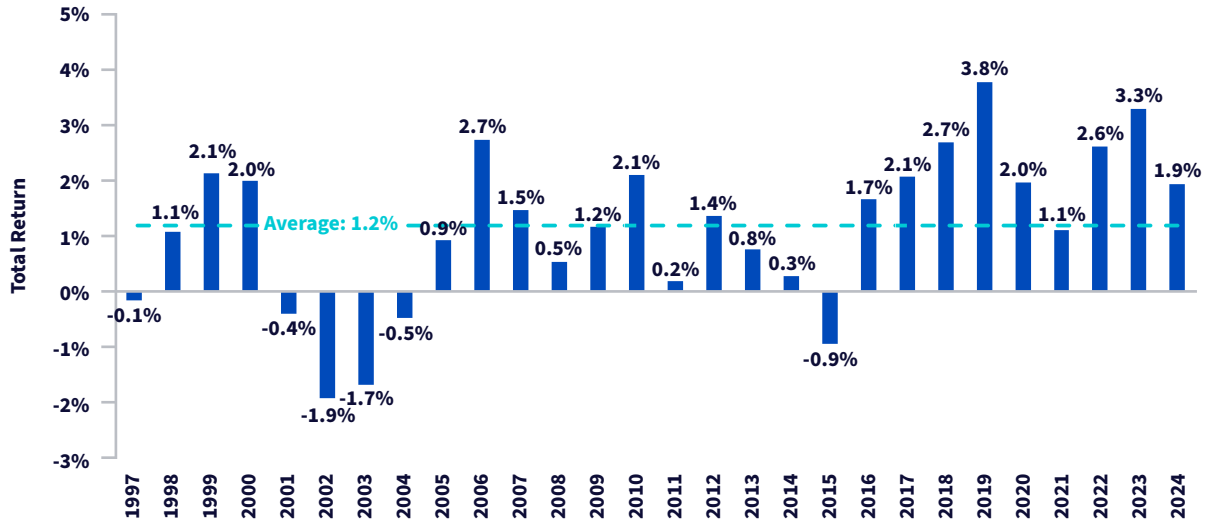


Sources: WisdomTree, Bloomberg, as of 12/31/24. Performance represents the difference in net total returns for the MSCI EAFE (100% USD-Hedged) and MSCI EAFE (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

Hedging EAFE FX exposures provided an average 1.2% boost to the local equity market's return across calendar years. Hedging back to the dollar hurt U.S. investors through negative carry during 6 of the 29 periods, yet those declines were often outweighed by positive carry reversals shortly after.

Europe offered a similar experience, as hedging the euro rewarded U.S. investors with an average 1.2% pickup from carry.

Annual Carry Benefit from Hedging EMU FX - 1997–2024



Sources: WisdomTree, Bloomberg, as of 12/31/24. Performance represents the difference in net total returns for the MSCI European Monetary Union (EMU) (100% USD-Hedged) and MSCI European Monetary Union (EMU) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

Sizable policy rate gaps between the U.S. and developed market central banks persist today, prolonging the opportunity to earn positive carry returns from currency-neutral positions.

Currency carry trades are not riskless, and investors should understand how they can backfire. Narrowing policy rates between central banks can erode the prevailing rate cushions that enticed investors to the trade and ultimately discourage the strategy.

Likewise, volatile FX markets that prompt sharp, spontaneous reversals in exchange rates can cause carry trades to combust, especially if lenders require earlier or greater payments or investors unwind their positions earlier to avoid deeper losses.

The latter occurred during August 2024 when an otherwise modest rate hike from the Bank of Japan spooked investors into believing that the spoils of the yen-dollar carry trade were disappearing in real time. The yen rallied versus the dollar, and carry traders simultaneously unwound their positions, exacerbating the punishment from the reversal and benefiting unhedged investors.

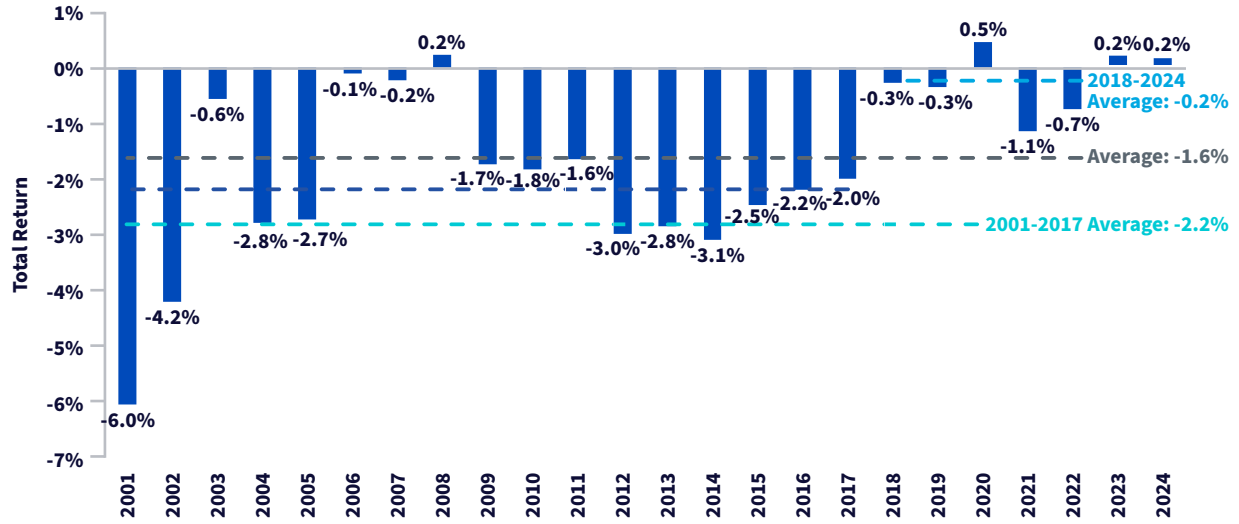
Ultimately, however, carry opportunities can be an attractive feature of an investor's decision to currency-hedge their international exposures.

#8: In recent years, the cost to hedge emerging market currencies has decreased substantially.

Historically, hedging emerging market currencies was less enticing for U.S. investors than hedging developed market currencies due to the higher embedded costs of hedging. Emerging markets exhibited higher interest rates than the U.S., resulting in negative carry effects that presented a higher hurdle to break even.

For the past two decades, the MSCI EM Index currency basket (EM FX) hedges imposed an average calendar year carry decline of 1.6%. But this was split between two different carry regimes, and the most recent period is becoming more favorable. From 2001 to 2017, interest rate differentials produced a carry loss of 2.2% in a calendar year. From 2017 through 2024, however, the carry headwind shrank to only -20 bps.

Annual Carry Benefit from Hedging EM FX - 2001–2024



Sources: WisdomTree, Bloomberg, as of 12/31/24. Performance represents the difference in net total returns for the MSCI Emerging Markets (EM) (100% USD-Hedged) and MSCI Emerging Markets (EM) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

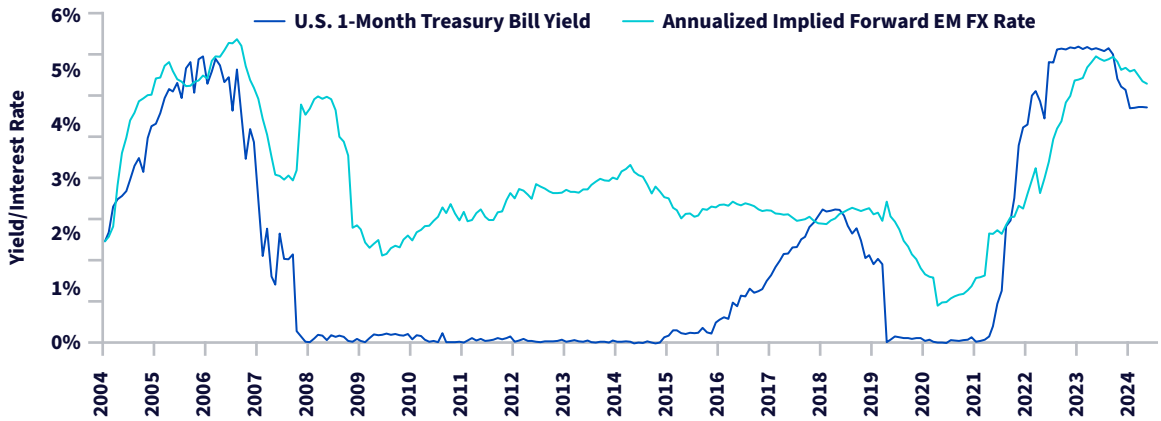
The EM FX basket was historically dominated by currencies from countries that offered high rates, which contrasted with the prevailing monetary policy environment in the U.S.

China's benchmark one-year lending rate fluctuated between 4% and 7.5% during the period but registered about 5.7% on average. Brazil's rates were even higher, eclipsing 25% at one point in mid-2003 and bringing the average Selic rate close to 14%.

Meanwhile, the U.S. confronted the burst of the 2001 tech bubble and the GFC shortly after, which forced the Fed to slash the Federal Funds Rate to 1% or below at the bottom of each cutting cycle. The average rate over these 17 years was a measly 1.55%, which virtually eliminated the possibility of earning consistent, positive carry by hedging EM FX.

Today, the spread is much less negative than its historical precedent, and it has even broken positive within the last two years.

Narrowing Interest Rate Spreads Reduce the Hesitation to Hedge EM FX

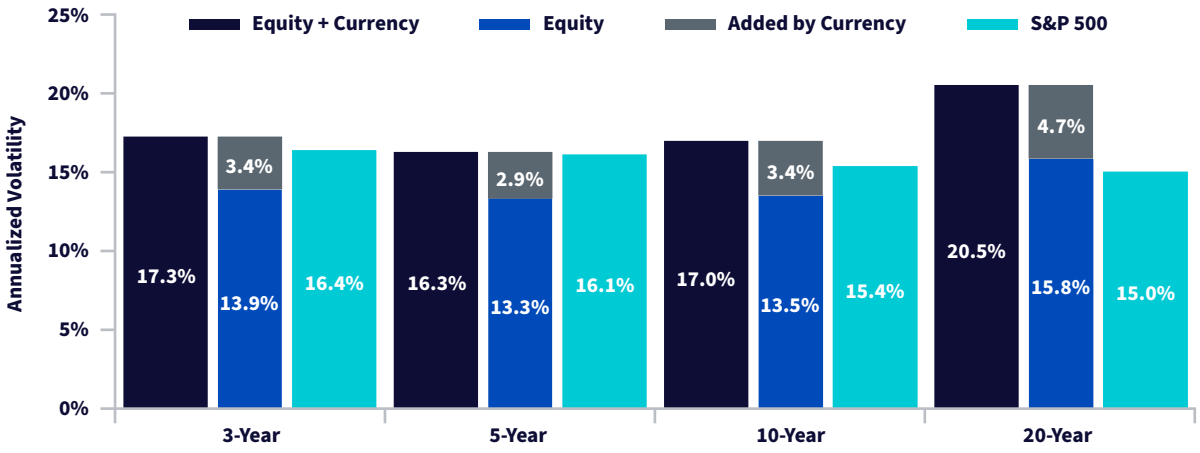


Sources: WisdomTree, Bloomberg, MSCI, as of 4/30/25. Using monthly data. The annualized, implied forward EM FX rate is approximated as the difference in net total returns between the MSCI Emerging Markets (EM) 100%-USD Hedged Index and the MSCI Emerging Markets (EM) (Local) Index to derive the carry rate. The carry rate is then annualized and subtracted from the annualized U.S. 1-Month Treasury Bill Yield to derive the Implied Forward EM FX Rate. The plotted series depicts a 12-month moving average of the Annualized Implied Forward EM FX Rate to smooth the volatile effects of annualizing a monthly data point.

Of course, emerging market currencies were even more volatile than developed market currencies.

Over the past 3-, 5- and 10-year periods, local EM equity volatility comfortably trailed the S&P 500. But currency effects consistently increased the total risk from the allocation by an extra 3%–3.5%, exceeding the volatility of the S&P 500 in each observation.

EM Equity Volatility: A Function of Equity & Currency Risk

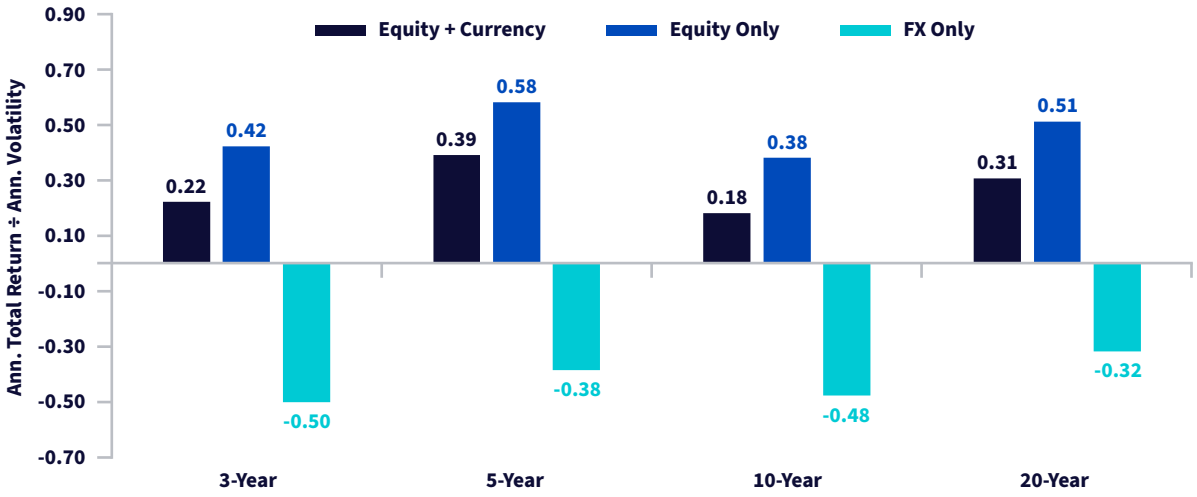


Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI Emerging Markets (EM) (USD) Index. Equity represented by the net total returns of the MSCI Emerging Markets (EM) (Local) Index. Currency represented by the difference between the net total returns of the MSCI Emerging Markets (EM) (USD) and MSCI Emerging Markets (EM) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

The 20-year period had the greatest impact on equity risk. EM FX added 4.7% to stock volatility, which further elevated the risk of an EM allocation that already surpassed the S&P 500. Over each period, currency volatility consistently delivered a 20%–30% increase to innate EM equity risk.

The volatility pickup accompanied weakening EM FX, as unhedged exposure led to annualized losses between 2% and 3% in each period.

Risk-Adjusted Returns (Return ÷ Volatility)

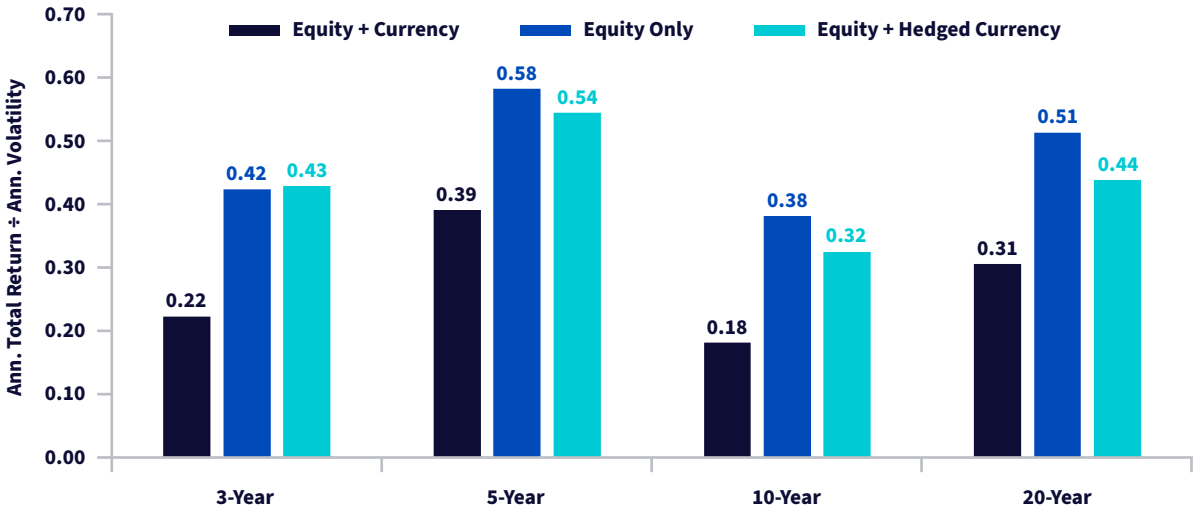


Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI Emerging Markets (EM) (USD) Index. Equity represented by the net total returns of the MSCI Emerging Markets (EM) Index. Currency represented by the difference between the net total returns of the MSCI Emerging Markets (EM) (USD) and MSCI Emerging Markets (EM) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

This raises an important question about the decision to currency-hedge an EM allocation: **Is it better to hedge and potentially collect negative carry or remain unhedged to retain any opportunity for currency appreciation?**

If history is any indication, investors essentially must select the lesser of two evils. Our baseline view is to utilize a dynamic approach that can minimize the cost of hedging by doing so only when it's particularly valuable.

Risk-Adjusted Returns (Return ÷ Volatility)



Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI Emerging Markets (EM) (USD) Index. Equity represented by the net total returns of the MSCI Emerging Markets (EM) Index. Equity + Hedged Currency represented by the net total returns of the MSCI Emerging Markets (EM) 100% USD-Hedged Index. **Past performance is not indicative of future results.** You cannot invest directly in an index.

Although the measures for the hedged exposure trailed those for the pure equity approach because of negative carry effects, they still significantly improved upon the unhedged equity allocation. **The implication is that negative carry effects were historically less painful for U.S. investors than the uncertain returns and volatility of unhedged EM FX exposure.**

We believe currency hedging is becoming more attractive in emerging markets due to converging interest rate policies.

#9: Active currency management can exploit tactical opportunities by considering timing, hedge ratios and individual exposures.

For investors eager to capitalize on currency volatility and tolerant of additional risk, active currency management may be a suitable alternative to completely hedged and unhedged allocations.

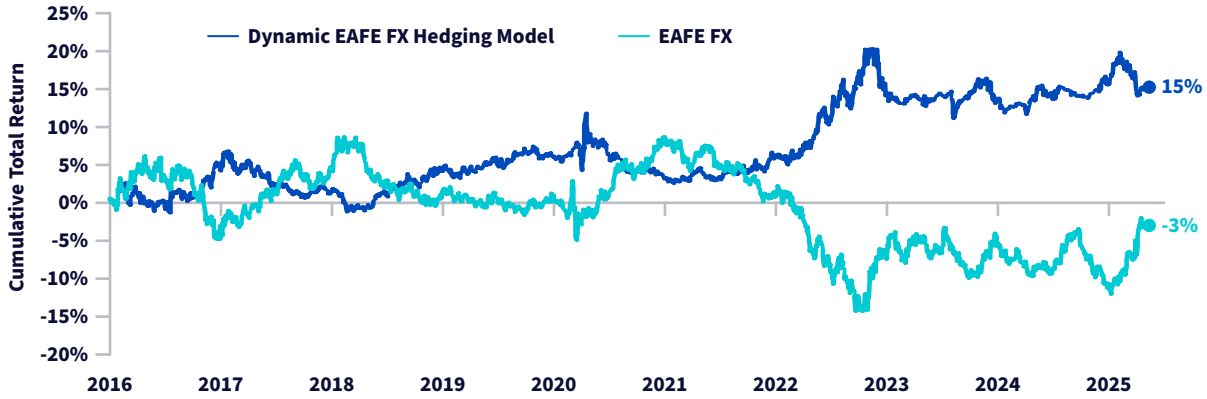
Dynamic hedges differ from static hedges by maintaining the flexibility to tactically change the hedge ratios applied to different currencies in response to quantitative signals. They exist between completely hedged and unhedged approaches along the hedging spectrum, while retaining the capability to opportunistically migrate toward either end.

Active currency management enables the investor to systematically evaluate and target specific currencies for alpha generation. Decisions are driven by quantitative models and signals that intend to maintain some degree of exposure to currencies expected to strengthen while hedging exposure to those that may depreciate.

Certain signals that assess currency momentum, relative value, volatility, interest rates and broader trends have been effective hedge determinants over time.

For example, WisdomTree's dynamic model for EAFE currency hedging unifies these into one strategy that has produced positive cumulative returns since inception in 2016 and an additional 2.3% when annualized.

Cumulative Return of Dynamic EAFE FX Hedging Model - 2016–2025

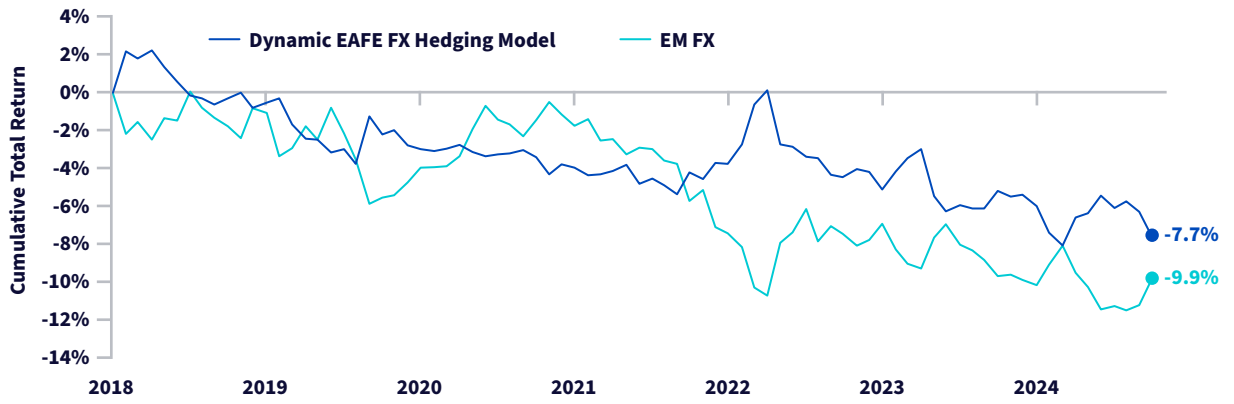


Source: WisdomTree, as of 4/30/25. Dynamic EAFE FX Hedging Model performance represents the cumulative difference in total returns between the WisdomTree Dynamic Currency-Hedged International Equity Index and the WisdomTree International Equity Index to isolate the effects of our hedging model. EAFE FX performance represents the cumulative difference in net total returns between the MSCI EAFE (USD) and MSCI EAFE (Local) Indexes. Series begins 1/6/16. **Past performance is not indicative of future results.** You cannot invest directly in an index.

Unhedged EAFE FX, however, delivered a double-digit cumulative loss coupled with greater variance. The currency basket fell versus the dollar by about 80 bps per year with 6.3% annualized volatility. Our dynamic hedging model trimmed volatility to an annualized 4.2%, or a 33% reduction versus unhedged currency exposure.

Our version for emerging market currencies also outperformed unhedged exposure, despite negative carry effects partially reducing the incentive to hedge. Since its launch in 2018, EM FX diminished returns from emerging market allocations by a cumulative 11.6%. The dynamic model cut the decline in half and delivered nearly 6% alpha versus unhedged exposure.

Cumulative Return of Dynamic EM FX Hedging Model - 2018–2025



Source: WisdomTree, as of 4/30/25. Dynamic EM FX Hedging Model performance represents the cumulative difference in monthly net asset value (NAV) returns between the WisdomTree Emerging Markets Multifactor Fund (EMMF) and an unhedged version of its equity basket to isolate the effects of our hedging model. EM FX performance represents the cumulative difference in returns between the MSCI EM (USD) and MSCI EM (Local) Indexes. Series begins August 2018. **Past performance is not indicative of future results.** You cannot invest directly in an index.

It also reduced risk, which was especially valuable while EM currencies weakened. Over the three- and five-year periods, EM FX added 4.1% and 3.7% annualized volatility, respectively, compared to 3.6% and 3.2% for our dynamic model. Since its inception, it has reduced volatility by 70 bps compared to unhedged EM FX, a 20% reduction.

Between the two regions, both dynamic currency hedging models preserved the risk-adjusted return benefits that are essential to the hedging decision.

In our view, the difference in risk-adjusted returns between the two approaches substantiates active currency management for investors who prefer to maintain some authority over currency decisions. It may be a viable option for currency-attentive and risk-conscious investors or those evaluating performance against benchmarks with varying degrees of currency exposure.

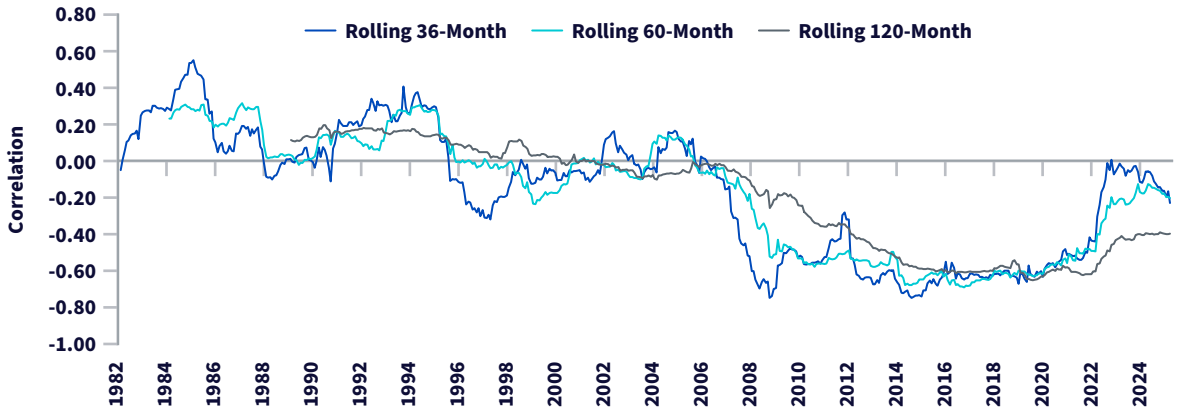
#10: Currency hedging presents an opportunity to follow Buffett into Japan.

Buffett has simultaneously become one of the largest proponents of buying Japanese companies, with his purchase of five trading companies, while also hedging the yen. Buffett is the ultimate long-term investor, so it's important to highlight both his time horizon and his decision to remove currency risk.

On a quantitative basis, the yen and stocks were so deeply inversely related over much of the last few decades that hedging yen exposure enhanced volatility.

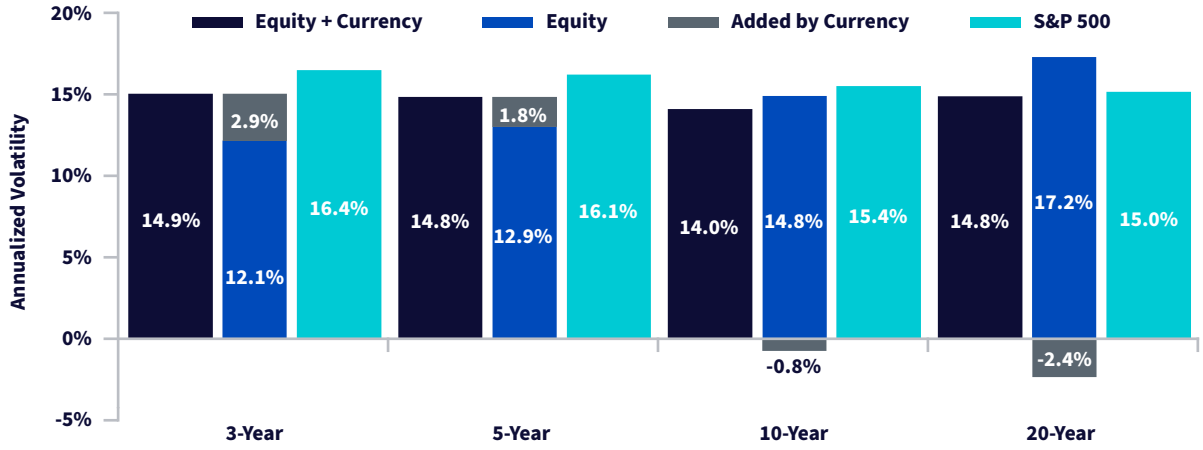
The yen and stocks often moved opposite each other, as a stronger yen weakened the profit outlook of Japan exporters, while a weaker yen was associated with stronger earnings and positive equity markets.

Correlation Between JPY & MSCI Japan (Local) Index



Sources: WisdomTree, Bloomberg, as of 4/30/25. You cannot invest directly in an index.

Currency Exposure Can Dampen Volatility During Periods with Deeply Negative Yen-Equity Correlations



Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI Japan (USD) Index. Equity represented by the net total returns of the MSCI Japan (Local) Index. Currency represented by the difference between the net total returns of the MSCI Japan (USD) and MSCI Japan (Local) Indexes. **Past performance is not indicative of future results**. You cannot invest directly in an index.

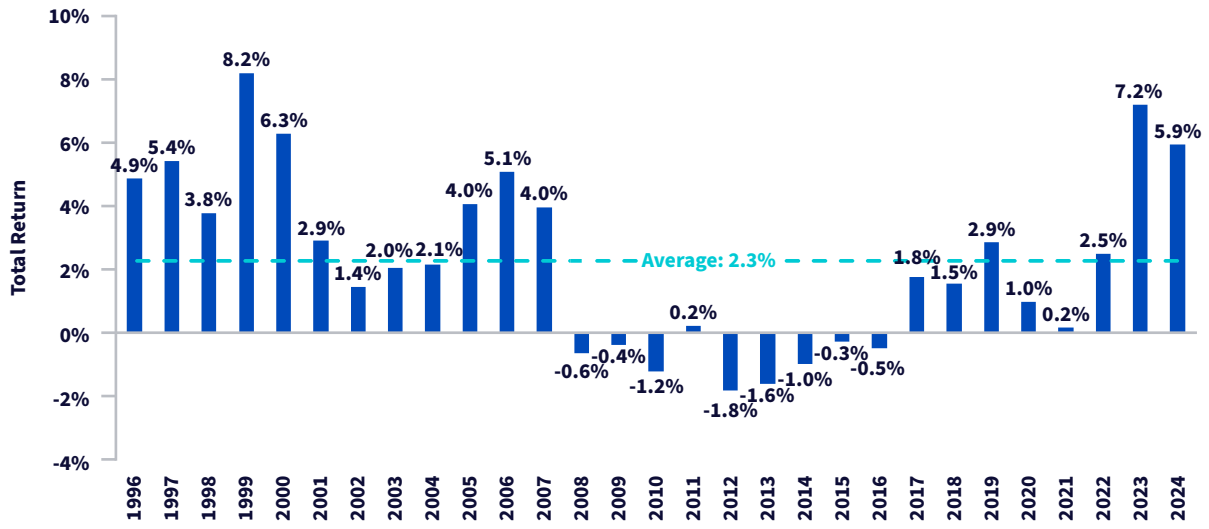
But recently, the volatility profile has begun to reflect the more traditional international dynamic, with currency adding incremental risk.

The relationship depends on the magnitude of the negative correlation. Over the past 10-, 15- and 20-year periods, when yen exposure diminished equity volatility, the correlation ranged between -0.40 and -0.50.

The correlation "breakpoint," or the level where the joint volatility of equity and currency equals that of standalone equities, is approximately -0.30. When the observed correlation is less negative than that, yen exposure increases total volatility, and when it's more negative, it reduces total volatility.

But we think the verdict is still clear. **Over the longer term, currency is a source of uncertainty and, ultimately, risk. Hedging the yen generates positive carry returns that help offset the incremental volatility.**

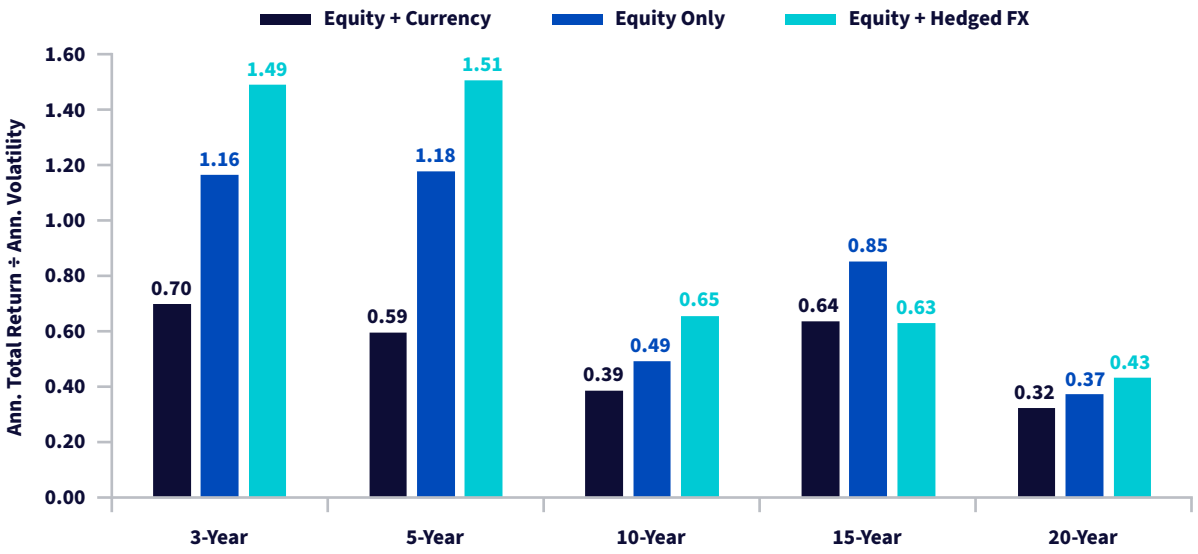
Annual Carry Benefit from Hedging Japan FX - 1996–2024



Sources: WisdomTree, Bloomberg, as of 12/31/24. Performance represents the difference in net total returns for the MSCI European Monetary Union (EMU) (100% USD-Hedged) and MSCI European Monetary Union (EMU) (Local) Indexes. **Past performance is not indicative of future results.** You cannot invest directly in an index.

For the past 30 years, the monetary policy gap between the U.S. and Japan produced a 2.3% average boost to local equity market returns by hedging yen exposure. The carry pickup made a difference over the short term and long term, as yen-hedged Japanese equity exposure consistently prevailed over unhedged exposure on a risk-adjusted basis.

Risk-Adjusted Returns (Return ÷ Volatility)



Sources: WisdomTree, MSCI, S&P, as of 4/30/25. Equity + Currency represented by the net total returns of the MSCI Emerging Markets (EM) (USD) Index. Equity represented by the net total returns of the MSCI Emerging Markets (EM) Index. Equity + Hedged Currency represented by the net total returns of the MSCI Emerging Markets (EM) 100% USD-Hedged Index. **Past performance is not indicative of future results.** You cannot invest directly in an index.

CONCLUSION

Rethinking International Baselines with Currency-Hedged Exposures.

Along with equity selection and risk management, prudent currency management is paramount to a comprehensive investment strategy and an enduring financial plan.

We view currency-hedged international equity exposures as an efficient method to avoid unintended currency bets that could otherwise compound biases among existing positions, aggravate risk factors and potentially handicap returns.

They can also be surprisingly easy to implement. For example, large equity funds can usually obtain hedges and maintain ratios more inexpensively than bespoke positions due to scale advantages. In an exchange-traded fund (ETF), fund operations teams work behind the scenes to set and maintain the hedges, often adjusting them intramonth to accommodate creations and redemptions. This is typically done by rebalancing the hedging instruments on a predefined basis so that the notional principal exposure equals the total assets invested in the fund, thus offsetting the foreign currency exposures.

Contrary to prevailing wisdom, currency hedges can also be cost-effective. Most developed market currencies have sufficient liquidity to command narrow bid-ask spreads on the forward contracts used to hedge. In an ETF vehicle, investors' costs are usually limited to the expense ratio charged for the product without incurring additional fees for hedge maintenance.

Coupled with the ease of implementation and cost benefits, currency market uncertainty persuades us to advocate for at least some amount of currency-hedged equity exposure in a global portfolio. If the past provides any prologue, international allocations that default to unhedged exposures may likely diminish long-term riskadjusted returns, whether investors know it or not. More importantly, the unintended consequences from unhedged positions can have gradual effects that erode portfolio value and challenge their ability to achieve their financial goals.

Instead, we believe that baseline international equity allocations should begin with hedged positions and retain room to actively deviate from a complete hedge as tactical opportunities arise and risk tolerance allows. If nothing else, it may help investors sidestep the pitfalls from unhedged international exposures that can be detrimental to their financial futures.

Please see the WisdomTree Glossary for definitions of terms and indexes.

Index Definitions

Bloomberg U.S. Aggregate Bond Index: A broad-based benchmark measuring the performance of the U.S. investment-grade, fixed-rate, taxable bond market. **Bloomberg U.S. Dollar Index:** An index tracking the value of the U.S. dollar relative to a basket of major foreign currencies. **MSCI EAFE (100% USD-Hedged) Index:** Represents the performance of the MSCI EAFE Index (covering developed markets in Europe, Australasia, and the Far East) with currency exposures hedged 100% to the U.S. dollar. **MSCI EAFE (Local) Index:** Measures the performance of the MSCI EAFE Index in local currencies. **MSCI EAFE (USD) Index:** Tracks the performance of the MSCI EAFE Index with all returns measured in U.S. dollars. **MSCI Emerging Markets (EM) (100% USD-Hedged) Index:** Captures the performance of the MSCI Emerging Markets Index with currency exposures fully hedged to the U.S. dollar. **MSCI Emerging Markets (EM) (Local) Index:** Reflects the performance of the MSCI Emerging Markets Index in local currencies. **MSCI Emerging Markets (EM) (USD) Index:** Measures the performance of the MSCI Emerging Markets Index with returns measured in U.S. dollars. **MSCI Emerging Markets (EM) Index:** A benchmark index capturing large and mid-cap representation across 24 emerging market countries. **MSCI European Monetary Union (EMU) (Local) Index:** Tracks the performance of large and mid-cap equities across EMU countries, with returns measured in local currencies. **MSCI European Monetary Union (EMU) (USD) Index:** Measures the performance of large and mid-cap equities across EMU countries, with returns measured in U.S. dollars. **MSCI Japan (Local) Index:** Captures the performance of large and mid-cap segments of the Japanese market, with returns measured in Japanese yen.**MSCI Japan (USD) Index:** Reflects the performance of large and mid-cap segments of the Japanese market, with returns measured in U.S. dollars. **S&P 500 Index:** A market-capitalization-weighted index comprising 500 leading publicly traded companies in the U.S. **WisdomTree Dynamic Currency-Hedged International Equity Index:** An index designed to provide exposure to developed international equity markets while dynamically hedging currency exposure based on quantitative signals, aiming to reduce the impact of currency fluctuations on returns. **WisdomTree International Equity Index:** A broad-based index measuring the performance of dividend-paying companies in developed international markets, excluding the U.S. and Canada.