

Currency Hedging: A Free Lunch?

April 2009

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Introduction

Recent volatility in the foreign exchange markets has focused considerable attention on currency hedging. As Table 1 shows, currency returns and volatilities have often matched or exceeded those of the equity markets. Unfortunately, currency losses have multiplied negative equity losses. For example, a USD based investor in the New Zealand equity market lost 24% in the last six months in local currency terms but an additional 28% in USD terms, more than doubling the equity market losses. In this situation, currency hedging would have effectively halved the total losses.

But does currency hedging pay off? More precisely, is hedging really a “free lunch,” as some have proclaimed? Contrary to some prior studies, we find that for the equity investor, the answer is “no.” Prior studies recommending hedging base their conclusions on risk reduction, zero expected returns, or both. This combination is characterized by Perold and Schulman (1988) as the “free lunch.” Using a dataset of MSCI indices with a broader scope than previously used, we find that hedging does not always reduce risk, nor are mean returns zero.¹ As a result, we find there is no free lunch for the equity investor. Instead, we conclude that the usual, intuitive relationships hold: less risk usually means lower returns, and more risk, higher returns.

Our results demonstrate that whether hedging pays off depends on: (1) the investor’s goals -- risk reduction or return/risk maximization, (2) base currency, (3) market of investment, and (4) time horizon. The investor needs to carefully consider these variables before deciding whether to hedge. However, because there is no free lunch, the two goals of risk reduction and return/risk maximization can sometimes lead to contradictory results; risk reduction may show hedging was beneficial for a particular set of circumstances, but may also show lower return relative to risk for the same circumstances. In this case, we argue that return/risk maximization leads to more reasonable results in terms of the standard objectives of modern portfolio management.

In Section I we examine the arguments in favor of hedging. In Section II we provide the results of our own study.

Table 1: Equity and Currency Market Returns and Risk, USD Based Investor, Past Six Months

MSCI Index	Returns		Risk	
	Equity Market	Currency v. USD	Equity Market	Currency v. USD
MSCI Australia	-31.8%	-25.0%	2.6%	2.5%
MSCI EMU	-41.2%	-13.7%	3.0%	1.5%
MSCI UK	-31.0%	-21.5%	3.0%	1.5%
MSCI Japan	-39.5%	11.2%	3.4%	1.2%
MSCI New Zealand	-24.3%	-28.1%	1.9%	2.0%

¹ Expected returns are often estimated by mean realized returns. In this paper, we use the term, “mean returns,” and the term refers to the mean of realized returns over a specified period.

I. Why Hedge?

A. Risk Reduction

According to previous studies, the primary reason for currency hedging is risk reduction. The basic rationale is that currency hedging instruments, such as forward contracts, guarantee a fixed rate of exchange; fixed means no fluctuation, and no fluctuation means no risk, as traditionally defined by volatility.²

Many studies emphasize risk reduction over return considerations. For example, both Black (1989, 1990) and Adler and Dumas (1983) point out that risk reduction should be an important consideration even if hedging is “zero sum” between two investors in different countries or for one investor over time. As Adler and Dumas (1983) state, “It is wrong to base on reasoning dealing with averages the theoretical argument that risk avoidance is irrelevant.”³

In practice, risk reduction requires a measure relative to a benchmark, and different studies use different benchmarks. The basic rationale provided above usually considers foreign currencies in isolation as foreign cash relative to domestic cash. Other studies consider the portfolio’s total risk, taking into account correlations between asset and currency risk. In this respect, Black (1989) posits that hedging returns are negatively correlated with asset returns, and therefore, hedging reduces total portfolio risk. Other studies, such as Perold and Schulman (1988), and Shead (2008), rely on empirical results that show hedging reduces risk relative to benchmarks of unhedged equity portfolios.

Not everyone agrees that currency hedging reduces risk all the time.⁴ For example, Froot (1993) argues that hedging can theoretically increase risk over the long run. Since purchasing power parity (PPP) holds over long horizons, currencies are naturally hedged, and no excess real returns exist. Consequently, he argues, the act of hedging itself can result in excess real returns, thereby increasing the volatility of real returns. Froot bolsters his theoretical arguments with empirical data of UK investors in the US equity market during 1801-1991. His results show that hedging does, indeed, increase risk for horizons of greater than five years.

Campbell, Serfaty-de Medeiros, and Viceira (2007) also find that hedging does not always reduce risk. They find that 100% hedging is not a risk minimizing strategy due to correlations of equity and currency markets. Specifically, they find that investors should more than fully hedge currencies negatively correlated with local equity markets, such as the USD, and less than fully hedge currencies positively correlated with local equity markets, such as the CAD. Their main argument is that the USD, EUR, and CHF are reserve currencies that experience a “flight to quality” during periods of risk aversion. As a result, the three currencies tend to benefit while the corresponding equity markets decline during an equity sell-off.

Taken together, these studies suggest that risk reduction is an important consideration that may depend on base currency, equity market, and hedging horizon. In line with this summary, we demonstrate later in the paper that risk may not always be reduced through hedging and that risk reduction depends on the investor’s circumstances.

² For a simple, clear discussion, see Brealey, Myers and Allen (2006), pp. 765-68.

³ Adler and Dumas (1983), p. 970.

⁴ For empirical results that show hedging can increase risk, see Abken and Shrikhande (1997).

B. Zero Expected Returns

Another frequently cited reason for hedging is that of zero expected returns over the long run. In a widely cited paper, Perold and Schulman (1988) argue that foreign exchange is essentially zero sum between the two sides of a currency trade. An investor on one side may experience positive returns for some time because the currency is riskier to hold, but over the long run, there is no reason to believe the other side will continue paying the risk premium. Thus, they argue, the risk premium will not persist over time.

To bolster their arguments, Perold and Schulman (1988) rely on empirical results showing zero returns.⁵ As mentioned above, they also find a substantial reduction in risk based on their own empirical results. They conclude: "Therein lies the free lunch: On average, currency hedging gives you substantial risk reduction at no loss of expected return."⁶ They point out that the free lunch is specifically supported by the low costs of hedging, a point echoed by Froot (1993). Shead (2008) finds similar results using rolling 5-year volatilities and returns for the MSCI World Index for five base currencies.⁷

However, Perold and Schulman concede that, theoretically, risk premia for certain currencies can exist over the long run if markets are not efficient. In particular, if investors cannot diversify their foreign exchange risk, they will demand risk premia for holding currencies. Froot (1993) also points out that excess real returns can exist over the short run (five years or less) because PPP does not hold over shorter horizons. These arguments, which argue for excess currency returns, form the basis for active currency strategies, including active currency hedging strategies.⁸

Along these lines, we find that excess returns may persist. However, they are usually accompanied by greater risk.⁹ Thus, we find no free lunch. More precisely, we find that free lunches are infrequent. More often we find the usual relationship of less risk/lower returns holds across different base currencies, markets, and hedging horizons.

As we explain in the following pages, we find hedging beneficial in some, rather than all, circumstances. Our results do not support Perold and Schulman's prescription: "hedging should be the policy, and lifting the hedge an active investment decision."¹⁰ We find that investors need to decide first whether they want to (1) reduce risk or (2) enhance return/risk by hedging. Then depending on their base currency, equity market of investment, and hedging horizon, the results can guide their hedging decision.

II. When is Hedging Beneficial?

In this section, we present the results of our own study on currency hedging. We use historical MSCI index data to examine whether hedging made sense from different perspectives. We look at currency hedging from two main perspectives with respect to goals: (1) risk reduction and (2) return/risk maximization. From a risk reduction perspective, we find that hedging did not always decrease risk, and therefore, whether hedging paid off depended on the base currency, equity market, and hedging horizon. From a return/risk maximization perspective, instead of zero mean returns, we find that hedging sometimes enhanced returns depending on the base currency, equity market, and hedging horizon. When we put the results together, we find there was no free lunch; instead, we find that risk reduction often led to lower, rather than zero, mean returns.

⁵ Perold and Schulman (1988), p. 47.

⁶ Perold and Schulman (1988), p. 45.

⁷ Srinivasan and Youngren (2003) and Cantara, Kottler, and Flaherty (2007) point to similar empirical results.

⁸ See Hamza, L'Her, and Roberge (2007) and Pojarliev and Levich (2007).

⁹ Arguments and evidence for positive risk premia for currencies are also provided by van Inwegen, Hee, and Yip (2003), Dumas and Solnik (1995), and DeSantis and Gerard (1998).

¹⁰ Perold and Schulman (1988), p. 45.

A. Data

We start with the hedged and unhedged versions of the MSCI Global Investable Market Indices. MSCI Barra produces hedged indices for five base currencies – USD, AUD, EUR, GBP, and JPY – and for the 40 indices listed in Table 2. On a custom basis, MSCI Barra produces hedged indices for a number of other base currencies, including the NZD, which we include in this study. The data cover the period from 1987 to 2008 with monthly data from December 1987 to November 2001 and daily data from December 2001 through 2008.

Table 2: MSCI Hedged Indices

AUSTRALIA	EUROPE	JAPAN	SINGAPORE
AUSTRIA	EUROPE ex UK	KOKUSAI	SPAIN
BELGIUM	FAR EAST	NORTH AMERICA	SWEDEN
CANADA	FINLAND	NETHERLANDS	SWITZERLAND
DENMARK	FRANCE	NEW ZEALAND	UNITED KINGDOM
EAFE	GERMANY	NORDIC COUNTRIES	USA
EAFE + CANADA	GREECE	NORWAY	WORLD
EAFE ex UK	HONG KONG	PACIFIC	WORLD ex EMU
EASEA	IRELAND	PACIFIC ex JAPAN	WORLD ex UK
EMU	ITALY	PORTUGAL	WORLD ex USA

We restrict the data for purposes of comparability. First, we use monthly observations, since daily data are not available prior to December 2001.¹¹ Second, we examine the 20 indices for which data are available during the entire period, which include 11 of the 12 European Monetary Union (EMU) countries plus Australia, Canada, Hong Kong, Japan, New Zealand, Switzerland, UK, USA, and the MSCI World Index.¹² Third, we perform an additional analysis from June 2002 forward since NZD base currency data are not available prior to that date.

B. Reducing Currency Risk

1. Measuring the reduction in currency risk

When deciding to hedge portfolio currency exposures, some investors care only about reducing currency risk rather than about potential return opportunities. For an analysis from this perspective, we examine one measure of currency risk contribution: the percent increase or decrease in total risk from hedging (Percent of Total Risk or “PTR” in Table 7).

To calculate the Percent of Total Risk, we start with annualized returns of the hedged indices, as well as the corresponding unhedged indices, for hedging horizons of 1, 3, 6, and 12 months.¹³ On a rolling basis by month, we then calculate the standard deviation of those returns over the past 12 months; thus, we assume monthly cash-outs of hedge positions, even if the hedges are for horizons longer than one month. For each index and month, we calculate the difference between the standard deviation of the hedged index and the standard deviation of the unhedged index,

¹¹ To convert from daily to monthly, we use end of month observations.

¹² Greece is the exception for EMU.

¹³ The vast majority of amounts in OTC foreign exchange derivative instruments are in maturities of one year and less. See Bank for International Settlements, *Triennial Central Bank Survey 2007: Foreign Exchange and Derivatives Market Activity in 2007*, BIS Press & Communications, 2007, Table C.7. The most common CME Globex futures contract lengths are 6 months for the major currencies and 12 months for some emerging market currencies. See www.cme.com.

divided by the standard deviation of the unhedged index; this quantity is defined as the Percent of Total Risk. The Percent of Total Risk measures the incremental increase or decrease in total risk from currency hedging and uses the unhedged portfolio as the benchmark for the hedged portfolio.

2. Results

Table 3 on the next page provides the mean Percent of Total Risk from 1987 to 2008 for selected indices. The table provides the indices for which we have comparable data with the exception of some of the EMU countries. For EMU, we provide the results for the largest two markets by capitalization, Germany and France, due to space considerations. The highlighted, negative values mean currency hedging decreased risk, and thus, from the perspective of reducing risk, hedging made sense.

Hedging does not always reduce risk. The results show that contrary to some of the prior studies, currency hedging does not always reduce total risk. In a significant number of cases, hedging actually increased risk for equity investors. Notably, AUD based investors faced increased risk from hedging in many markets and most horizons. Across base currencies and horizons, investors in Japan and Hong Kong also increased their risk from hedging.

These results are in line with research on correlations between equity markets and currencies. Since a negative correlation provides a natural hedge, hedging in those circumstances can lead to increased total equity and currency risk. As Shead (2008) points out, due to the AUD's appreciation during most of the period, AUD based investors faced negative correlations in foreign equity markets. Campbell, Serfaty-de Medeiros, and Viceira (2007) show similar results for investors in the Japanese equity market.

Note that the range of risk reduction is large, with a decrease of risk by 42% for the JPY investor in the MSCI Australia Index and an increase of risk by 20% for the AUD investor in the MSCI France Index. As Table 4 shows, the results are broadly consistent for the period June 2002 to December 2008, albeit somewhat less strong than in the longer period.

When is it beneficial to hedge? The results show a mixed picture of whether hedging was beneficial from a risk reduction perspective. First, from a base currency perspective, there is only one clear result: JPY based investors across markets and horizons benefited from hedging since it reduced risk. Second, from the market perspective, investors in Australia, Canada, New Zealand, and USA benefited from hedging regardless of their base currency.

No other clear picture emerges; everything else depends on the market and/or the hedging horizon. For example, from the perspective of the USD based investor in the MSCI World Index, hedging was beneficial for the 1 and 3 month horizons, but not for the 6 and 12 month horizons. For investors in Japan, hedging on the 1 month horizon was beneficial for all base currencies, while hedging on the 6 and 12 month horizons was not beneficial; for the 3 month horizon, USD and EUR based investors benefited from hedging but AUD based investors did not.

These results indicate that the investor interested in reducing risk through currency hedging needs to pay close attention to all three variables – base currency, hedging horizon, and markets – before making a decision regarding whether to hedge.

Table 3: Percent of Total Risk, Mean 1987-2008*

MSCI Index	Hedging Horizon in Months	Base Currency				
		AUD	EUR	GBP	JPY	USD
AUSTRALIA	1		-41.5%	-35.1%	-42.2%	-33.5%
	3		-33.4%	-29.2%	-39.7%	-27.5%
	6		-34.0%	-29.5%	-39.4%	-19.4%
	12		-37.5%	-29.2%	-29.1%	-19.4%
CANADA	1	-7.7%	-27.3%	-29.9%	-37.1%	-18.0%
	3	-9.2%	-23.8%	-23.9%	-31.0%	-17.7%
	6	-12.8%	-27.3%	-31.1%	-34.4%	-17.4%
	12	-8.0%	-28.7%	-27.0%	-21.5%	-16.1%
FRANCE	1	-1.1%		-5.8%	-18.0%	-6.6%
	3	15.9%		3.3%	-8.6%	1.1%
	6	20.1%		11.2%	-5.4%	9.2%
	12	14.7%		15.9%	2.7%	16.6%
GERMANY	1	-2.1%		-3.3%	-18.8%	-4.2%
	3	2.0%		-0.4%	-14.4%	0.0%
	6	13.0%		7.9%	-9.5%	11.9%
	12	6.7%		11.6%	-2.3%	14.6%
HONG KONG	1	16.1%	4.2%	-5.7%	-4.5%	-0.6%
	3	9.6%	-0.2%	-2.5%	-5.6%	-0.8%
	6	14.0%	2.4%	-0.1%	-7.5%	-0.6%
	12	18.9%	-2.8%	2.2%	0.7%	-0.2%
JAPAN	1	-7.2%	-7.5%	-2.0%		-13.9%
	3	2.0%	-0.3%	2.2%		-2.8%
	6	11.9%	3.4%	3.6%		4.4%
	12	15.4%	1.7%	3.0%		7.1%
NEW ZEALAND	1	-2.1%	-23.4%	-18.6%	-24.3%	-18.0%
	3	-6.9%	-22.9%	-15.6%	-22.4%	-17.0%
	6	-6.2%	-31.4%	-21.8%	-32.5%	-19.5%
	12	-2.3%	-21.3%	-19.1%	-14.5%	-19.9%
SWITZERLAND	1	-6.1%	17.2%	-1.4%	-12.3%	-9.6%
	3	8.1%	15.5%	3.5%	-5.7%	0.0%
	6	14.3%	12.2%	11.1%	-4.2%	14.9%
	12	11.0%	7.1%	9.0%	0.3%	18.3%
UK	1	-1.9%	-6.9%		-28.9%	-15.0%
	3	3.6%	-4.3%		-21.6%	-8.4%
	6	6.2%	-6.7%		-22.0%	-1.6%
	12	3.1%	-16.8%		-7.2%	2.6%
USA	1	-10.8%	-12.3%	-17.6%	-25.9%	
	3	-9.8%	-8.0%	-12.3%	-26.5%	
	6	-13.2%	-19.5%	-17.2%	-32.0%	
	12	-7.8%	-20.6%	-20.0%	-17.6%	
WORLD	1	-6.6%	-9.3%	10.8%	-19.4%	-9.1%
	3	0.3%	-5.9%	5.1%	-14.1%	-5.7%
	6	4.9%	-11.6%	-2.8%	-14.9%	4.2%
	12	3.1%	-19.9%	-12.2%	-1.3%	8.4%

*EUR data from 1999 forward.

Table 4: Percent of Total Risk, Mean June 2002 – December 2008

MSCI Index	Hedging Horizon in Months	Base Currency					
		AUD	EUR	GBP	JPY	NZD	USD
AUSTRALIA	1		-40.8%	-37.2%	-53.3%	-32.3%	-50.4%
	3		-26.5%	-31.9%	-41.8%	-32.1%	-40.6%
	6		-29.7%	-29.6%	-39.6%	-23.4%	-37.0%
	12		-34.7%	-33.0%	-39.7%	-26.8%	-33.1%
CANADA	1	-14.9%	-29.8%	-29.3%	-43.6%	-25.6%	-35.0%
	3	2.4%	-21.4%	-24.6%	-35.3%	-12.4%	-32.1%
	6	-7.2%	-30.1%	-34.9%	-36.0%	-17.9%	-35.8%
	12	6.2%	-31.5%	-32.6%	-41.2%	-20.5%	-28.8%
FRANCE	1	-7.2%		-12.1%	-35.8%	-20.7%	-23.3%
	3	7.9%		-9.0%	-26.7%	-8.7%	-23.9%
	6	21.3%		2.7%	-17.2%	-2.6%	-19.9%
	12	19.8%		12.9%	-11.0%	-1.6%	1.9%
GERMANY	1	-1.5%		-10.3%	-29.2%	-17.3%	-21.5%
	3	9.9%		-8.7%	-23.5%	-4.5%	-21.2%
	6	21.5%		-1.9%	-15.6%	5.0%	-14.2%
	12	25.8%		5.4%	-10.2%	3.0%	4.2%
HONG KONG	1	32.6%	8.5%	3.8%	-2.6%	16.1%	-0.2%
	3	21.9%	3.8%	1.9%	4.5%	15.4%	-1.1%
	6	43.3%	12.5%	7.7%	9.9%	39.4%	-0.6%
	12	37.7%	3.1%	9.4%	0.7%	6.1%	0.5%
JAPAN	1	13.4%	0.7%	5.6%		-3.4%	14.3%
	3	21.9%	12.0%	25.9%		8.1%	16.5%
	6	28.8%	14.2%	32.6%		29.9%	18.6%
	12	27.2%	16.7%	43.9%		19.7%	27.8%
NEW ZEALAND	1	4.4%	-19.6%	-17.3%	-38.3%		-30.2%
	3	-3.7%	-20.5%	-20.1%	-38.5%		-31.9%
	6	-8.4%	-30.4%	-32.8%	-43.0%		-41.0%
	12	-9.8%	-22.5%	-23.5%	-27.5%		-38.7%
SWITZERLAND	1	0.1%	25.7%	10.0%	-21.3%	-11.6%	-6.1%
	3	29.7%	25.2%	21.6%	-15.5%	12.2%	3.8%
	6	36.5%	20.9%	41.9%	-2.6%	21.7%	16.2%
	12	39.9%	15.2%	46.4%	7.9%	26.5%	44.8%
UK	1	9.0%	-3.9%		-36.5%	-21.5%	-25.1%
	3	14.1%	6.3%		-26.5%	-17.0%	-24.8%
	6	6.4%	-4.2%		-26.4%	-18.3%	-28.3%
	12	3.8%	-12.5%		-20.2%	-22.6%	-20.6%
USA	1	-17.0%	-11.7%	-13.3%	-30.4%	-23.5%	
	3	9.3%	4.7%	18.5%	-19.8%	-1.9%	
	6	-7.8%	-14.6%	13.8%	-20.7%	-11.1%	
	12	18.2%	-16.4%	-0.9%	-24.2%	10.4%	
WORLD	1	-6.8%	-7.1%	-9.4%	-31.5%	-20.6%	-8.9%
	3	16.8%	4.8%	8.5%	-21.1%	-3.1%	-10.2%
	6	12.1%	-5.5%	9.1%	-16.2%	-0.5%	-6.5%
	12	14.3%	-17.9%	-1.9%	-21.9%	-3.8%	3.9%

C. Return and Risk

1. Measuring return relative to risk

While some investors are only interested in reducing risk by hedging their currency exposures, others are also attentive to the potential return opportunities. In this section, we look at the currency hedging decision from the return and risk perspective. Our measure for analyzing return and risk is the information ratio. For the same dataset described above, we first calculate the annualized excess returns of the hedged over the unhedged indices for the 1, 3, 6, and 12 month hedging horizons. On a rolling basis by month, we then calculate the means and standard deviations of the excess returns during the prior 12 months. From these values, we calculate the information ratio, which is defined as the mean excess return divided by the standard deviation of the excess returns.

2. Results

Table 5 provides the values of the mean information ratios from 1987 to 2008. As in Tables 3 and 4, we present results for the same 11 indices, and negative values are highlighted. However, in Table 5, negative values are negative information ratios and mean no hedging benefit resulted from a return and risk perspective. Positive values mean hedging was beneficial.

No zero mean returns. Contrary to studies such as Perold and Schulman (1988), we do not generally find that mean returns from hedging were zero. Instead, we find that hedging sometimes enhanced returns relative to risk, providing some evidence for market inefficiencies and/or risk premia even over the long run. In fact, Table 6 provides results from June 2002 to December 2008, and bolsters this finding with higher information ratios.

Note that the values of the information ratios can be relatively high. During the entire period, for the positive information ratios, the highest value is 1.68 with 21% of the positive values at 0.50 and above. For the shorter, more recent period, the highest value is 2.45 with 57% of the positive values at 0.50 or above. According to Richard Grinold and Ronald Kahn, the values 0.50 and greater are in the 75th percentile and above for all fund managers before fees.¹⁴ The results are particularly interesting given that they relate to return and risk considerations from passive hedging rather than from actively seeking alpha from a currency overlay.

When is it beneficial to hedge? The results from a return and risk perspective are clearer relative to those from a risk reduction perspective. Unlike the risk reduction results, these results tend to group around base currencies. First, in terms of base currencies, hedging was not beneficial for JPY investors since information ratios were negative across all markets and hedging horizons. USD based investors also did not benefit from hedging except for some hedging horizons in the Hong Kong and Japan markets where, as recent events have shown, JPY can be one of the only currencies that appreciates with respect to the USD when the USD itself appreciates against most other currencies.¹⁵ AUD based investors benefited except in the New Zealand market and for the longer horizons in the UK market. The results were more mixed for the GBP and EUR based investors, although less so for the GBP based investors, who would have benefited from hedging in most markets. Second, in terms of markets, the only market with a very clear result is MSCI New Zealand in which none of the investors, regardless of base currency, would have benefited from hedging during the period 1987 to 2008.

The results are stronger during the June 2002 to December 2008 period. The Hong Kong and Japan exceptions are clearer for the USD based investor (no hedge except for Hong Kong and Japan), and the AUD based investor has only the New Zealand exception to hedging (hedge except for New Zealand). Results remain mixed for the EUR and GBP investors. For NZD based

¹⁴ See Grinold and Kahn (2000), p. 114.

¹⁵ The JPY appreciated 11% versus the USD during the past six months (8/29/08 to 2/27/09).

investors, hedging made sense from a return/risk perspective regardless of market and horizon. And for all investors regardless of base currency, hedging was beneficial in the Japan market.

Table 5: Information Ratios, Mean 1987-2008*

MSCI Index	Hedging Horizon in Months	Base Currency				
		AUD	EUR	GBP	JPY	USD
AUSTRALIA	1		-0.31	-0.23	-0.35	-0.29
	3		-0.33	-0.13	-0.43	-0.24
	6		-0.33	0.08	-0.55	-0.23
	12		-0.35	0.18	-0.71	-0.43
CANADA	1	0.01	-0.22	-0.15	-0.29	-0.24
	3	0.07	-0.13	0.00	-0.32	-0.19
	6	0.11	-0.02	0.21	-0.36	-0.03
	12	0.37	0.12	0.46	-0.54	-0.35
FRANCE	1	0.05		0.02	-0.22	-0.08
	3	0.13		0.09	-0.39	-0.14
	6	0.10		0.16	-0.59	-0.37
	12	0.12		0.12	-1.05	-0.63
GERMANY	1	0.05		0.01	-0.24	-0.06
	3	0.15		0.14	-0.35	-0.08
	6	0.18		0.23	-0.50	-0.28
	12	0.21		0.27	-0.95	-0.43
HONG KONG	1	0.12	0.10	0.02	-0.16	-0.03
	3	0.22	0.27	0.21	-0.20	-0.01
	6	0.18	0.75	0.43	-0.26	0.16
	12	0.36	1.52	0.70	-0.28	0.02
JAPAN	1	0.08	0.18	0.08		-0.05
	3	0.32	0.57	0.39		0.14
	6	0.53	1.14	0.70		0.26
	12	0.86	2.68	1.52		0.39
NEW ZEALAND	1	-0.07	-0.33	-0.23	-0.33	-0.29
	3	-0.09	-0.32	-0.16	-0.39	-0.28
	6	-0.19	-0.56	-0.16	-0.54	-0.43
	12	-0.36	-1.05	-0.20	-0.87	-1.00
SWITZERLAND	1	0.05	0.27	0.14	-0.12	-0.04
	3	0.19	0.40	0.31	-0.25	-0.02
	6	0.24	0.74	0.42	-0.44	-0.11
	12	0.27	0.97	0.65	-0.90	-0.21
UK	1	0.00	-0.04		-0.29	-0.15
	3	0.03	-0.07		-0.46	-0.21
	6	-0.08	-0.10		-0.70	-0.44
	12	-0.16	-0.18		-1.44	-0.82
USA	1	0.03	0.03	-0.01	-0.19	
	3	0.16	0.20	0.15	-0.26	
	6	0.28	0.65	0.45	-0.26	
	12	0.54	1.44	0.84	-0.28	
WORLD	1	0.07	0.06	0.02	-0.21	-0.07
	3	0.23	0.26	0.18	-0.28	0.00
	6	0.26	0.74	0.33	-0.39	-0.08
	12	0.41	1.68	0.67	-0.74	-0.22

*EUR data from 1999 forward.

Table 6: Information Ratios, Mean June 2002 – December 2008

MSCI Index	Hedging Horizon in Months	Base Currency					
		AUD	EUR	GBP	JPY	NZD	USD
AUSTRALIA	1		-0.32	-0.33	-0.53	-0.16	-0.43
	3		-0.50	-0.45	-0.90	-0.03	-0.67
	6		-0.68	-0.70	-1.41	0.08	-1.16
	12		-0.95	-0.76	-2.28	0.20	-1.79
CANADA	1	0.04	-0.20	-0.22	-0.44	-0.08	-0.43
	3	0.15	-0.13	-0.17	-0.51	0.07	-0.49
	6	0.22	-0.13	-0.21	-0.73	0.14	-0.81
	12	0.54	-0.30	-0.40	-1.65	0.95	-2.00
FRANCE	1	0.15		-0.11	-0.42	0.09	-0.26
	3	0.42		0.00	-0.79	0.27	-0.49
	6	0.64		0.16	-1.19	0.69	-1.00
	12	0.93		0.67	-2.13	1.24	-1.63
GERMANY	1	0.16		-0.11	-0.43	0.08	-0.25
	3	0.42		-0.02	-0.78	0.27	-0.49
	6	0.67		0.14	-1.16	0.73	-1.02
	12	0.91		0.66	-2.09	1.16	-1.57
HONG KONG	1	0.34	0.16	0.21	-0.13	0.32	0.30
	3	0.69	0.47	0.60	-0.07	0.56	0.50
	6	1.10	1.08	1.03	-0.11	0.92	1.04
	12	1.90	1.82	1.73	-0.15	1.83	2.04
JAPAN	1	0.28	0.24	0.20		0.21	0.08
	3	0.80	0.66	0.62		0.60	0.15
	6	1.42	1.20	1.14		1.35	0.18
	12	2.45	2.42	2.72		2.04	0.30
NEW ZEALAND	1	-0.03	-0.31	-0.35	-0.48		-0.43
	3	-0.10	-0.42	-0.55	-0.76		-0.63
	6	-0.13	-0.81	-0.76	-1.20		-0.95
	12	-0.26	-1.41	-0.87	-1.96		-1.75
SWITZERLAND	1	0.24	0.43	0.22	-0.26	0.22	-0.08
	3	0.63	0.76	0.53	-0.51	0.44	-0.16
	6	0.97	1.40	0.87	-0.84	0.88	-0.30
	12	1.28	2.12	1.52	-1.63	1.15	-0.80
UK	1	0.21	0.00		-0.43	0.18	-0.25
	3	0.40	-0.04		-0.71	0.45	-0.53
	6	0.67	-0.17		-1.18	0.76	-0.90
	12	0.72	-0.67		-2.29	0.90	-1.60
USA	1	0.20	0.14	0.13	-0.23	0.19	
	3	0.62	0.44	0.50	-0.19	0.53	
	6	1.23	1.00	0.92	-0.23	1.02	
	12	1.93	1.59	1.63	-0.34	1.78	
WORLD	1	0.26	0.16	0.11	-0.38	0.24	-0.21
	3	0.69	0.46	0.44	-0.45	0.55	-0.42
	6	1.20	1.05	0.73	-0.61	1.04	-0.79
	12	1.77	1.76	1.42	-1.38	1.70	-1.34

D. No Free Lunch

Our results do not support the “free lunch” as stated by Perold and Schulman (1988). We examined our data to determine the frequency of free lunches starting with a definition of a free lunch as a case in which the Percent of Total Risk was negative and the information ratio was positive. For the period 1987 to 2008, we then calculated the proportion of time for which there was no free lunch. Table 7 presents the results and demonstrates for most cases, the vast majority was characterized by highly infrequent free lunches. For example, the first cell entry in the table indicates that for a EUR based investor in the Australian equity market, there were no free lunches 95% of the time. In short, our results support the usual positive relationship between return and risk.

If less risk is rarely associated with greater returns, it is not surprising that the risk reduction approach and return/risk maximization approaches often contradict one another. While information ratios show benefits of hedging for AUD based investors and the lack thereof for JPY and USD based investors, the risk reduction perspective results in a directly contradictory result for JPY based investors and for the USD and AUD based investors in many circumstances. These results are driven by the accompanying decrease of returns for a decrease in risk and vice versa. In other words, the JPY based investor may have reduced risk by hedging but the risk reduction also meant lower returns and lower information ratios.

The results therefore illustrate the perils of relying on risk reduction alone in the decision to hedge. Currency hedging taking into account only risk reduction considerations often leads to less return along with less risk. In other words, risk reduction is usually not return neutral; not taking on risk may mean foregoing returns, but of course, the opposite is also usually true. Thus, the investor may have reduced her risk by hedging on a risk reduction basis, but she would have also eaten into any positive equity returns.

These results highlight the importance of the investor's choice of goal in deciding whether to hedge, since the choice can lead to diametrically opposed recommendations. The choice between risk reduction and return/risk maximization is left to the portfolio and risk managers at the portfolio level, taking into account cross correlations of currency returns and risk with those of assets in the portfolio, as well as restrictions and other considerations. However, the return/risk perspective as provided by the information ratio is the more standard of the two approaches in portfolio management, due to the usual positive relationship between return and risk supported by this study.¹⁶ A look at the two approaches shows that focusing only on risk reduction can have, intuitively, negative return consequences for a portfolio, which is not optimal for the standard goal of maximizing long-term returns with a minimum of risk.

¹⁶ See Markowitz (1952) and Grinold and Kahn (2000), Chapter 1.

Table 7: The Infrequency of Free Lunches: Percent of Time PTR < 0 and IR > 0 Not The Case

MSCI Index	Hedging Horizon in Months	Base Currency				
		AUD	EUR	GBP	JPY	USD
AUSTRALIA	1		95.4%	90.0%	92.1%	92.5%
	3		72.6%	71.5%	75.3%	69.0%
	6		70.9%	64.8%	68.2%	75.0%
	12		61.9%	57.4%	72.2%	70.9%
CANADA	1	85.5%	88.9%	77.2%	85.1%	83.4%
	3	82.4%	71.7%	63.6%	79.5%	62.3%
	6	69.9%	65.0%	56.8%	71.2%	64.8%
	12	66.5%	42.3%	53.9%	77.8%	62.6%
FRANCE	1	84.2%		79.7%	89.6%	87.6%
	3	92.9%		76.2%	92.5%	86.6%
	6	86.0%		83.1%	91.5%	90.7%
	12	83.9%		75.2%	91.3%	89.1%
GERMANY	1	91.7%		83.0%	88.0%	91.3%
	3	82.4%		74.5%	91.2%	84.9%
	6	82.6%		74.6%	92.4%	88.6%
	12	77.4%		73.0%	88.7%	89.1%
HONG KONG	1	88.8%	77.8%	81.3%	90.9%	87.1%
	3	85.8%	70.8%	81.2%	82.8%	77.8%
	6	77.5%	72.8%	78.4%	72.9%	71.2%
	12	80.4%	75.3%	73.5%	81.7%	72.6%
JAPAN	1	86.7%	72.2%	76.8%		86.3%
	3	74.9%	58.5%	67.8%		79.1%
	6	77.1%	61.2%	62.7%		77.5%
	12	77.0%	47.4%	62.2%		78.7%
NEW ZEALAND	1	87.1%	92.6%	93.8%	96.7%	91.7%
	3	79.1%	78.3%	80.3%	77.4%	85.4%
	6	77.5%	68.9%	69.9%	71.6%	75.8%
	12	82.6%	70.1%	60.9%	85.2%	70.0%
SWITZERLAND	1	79.7%	99.1%	74.3%	87.6%	77.6%
	3	80.8%	94.3%	80.3%	87.4%	76.2%
	6	82.6%	94.2%	79.7%	88.1%	83.5%
	12	76.1%	88.7%	75.2%	86.5%	80.0%
UK	1	88.8%	76.9%		88.4%	83.4%
	3	84.1%	76.4%		83.3%	83.3%
	6	71.6%	70.9%		81.8%	81.8%
	12	73.0%	68.0%		84.3%	84.3%
USA	1	75.9%	59.3%	76.8%	79.3%	
	3	68.2%	77.4%	72.8%	60.7%	
	6	57.6%	53.4%	52.5%	59.7%	
	12	54.3%	57.7%	52.2%	70.4%	
WORLD	1	75.5%	55.6%	79.7%	83.8%	81.3%
	3	82.4%	68.9%	72.0%	69.5%	79.9%
	6	76.3%	49.5%	63.1%	73.7%	90.3%
	12	68.7%	46.4%	58.7%	88.3%	87.4%

Conclusions

The investor's decision to hedge currency exposure depends on a number of factors, including the base currency, market, hedging horizon, and the investor's goals with respect to hedging. Using MSCI index data, we conducted a study of considerable breadth and depth, and identified how and when these factors impact the hedging decision. We also showed that hedging does not always reduce risk and excess returns can persist even over the long run. As a result, we do not find that hedging is a free lunch of less risk and zero realized returns; instead, we find that less risk usually means lower returns. Thus risk reduction is not return neutral, and investors generally have to choose between less risk/lower returns and more risk/higher returns.

In future research on currency hedging, we plan to delve further into the relationships among currency returns and risk, and asset returns and risk, as well as hedge ratios, hedge instruments, and hedging costs. Our research will seek to aid in answering the question of whether currency hedging pays off to investors in the long run.

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