



In search of an “optimal” hedge ratio

Investment in foreign markets provides exposure to both movements in the foreign local markets and movements in the exchange rate relative to the Canadian dollar. Risk associated with exchange rate movements can be reduced or eliminated by hedging all or a part of the foreign currency exposure.

Obviously, if an investor believes that the foreign currency is likely to appreciate relative to the Canadian dollar, it would make sense to have exposure to the foreign currency in order to benefit from that appreciation.

In this case, a 0% hedge strategy is optimal. On the other hand, if the investor believes that the foreign currency is likely to fall relative to the Canadian dollar, then a 100% hedge strategy is optimal.

However, correctly predicting foreign exchange movements can be a difficult task. Indeed, most portfolio managers prefer to take a passive approach and either never (or rarely) hedge or always hedge. However, one need not take an “all or nothing” approach. This issue of Symmetry Perspectives asks

the question – is there an “optimal” hedge ratio for investor portfolios?

Fundamentally, absent a view on future currency movements, the optimal hedge ratio boils down to a matter of risk management. But what risk – long term volatility vs. short-term volatility and should it be looked at in terms of individual asset classes or the whole portfolio? Further, is minimizing volatility all that matters or are there other considerations relating to investor behaviour?

Minimizing long-term volatility by asset class

Analysis of historical return data is often used as a basis for portfolio optimization and assessing long-term risk.

Table 1 shows the historical standard deviation or returns in Canadian

dollars of various levels of currency hedging from totally unhedged (0% hedged) to fully hedged (100% hedged) for investment in each of four asset classes – global bonds, global equities, EAFE equities and

US equities. The minimum risk hedged ratio is shown in bold. Also shown in bold are the hedge ratios that are “similar” i.e., those that are within +/- 0.2% of the minimum risk hedge ratio.

% Hedged	0	10	20	30	40	50	60	70	80	90	100
Citi WGBI	9.72	8.95	8.20	7.46	6.75	6.07	5.44	4.88	4.40	4.05	3.86
MSCI World	14.10	13.99	13.91	13.88	13.89	13.94	14.03	14.16	14.32	14.53	14.77
MSCI EAFE	16.42	16.09	15.81	15.60	15.44	15.35	15.33	15.37	15.47	15.64	15.87
S&P 500	14.55	14.51	14.52	14.55	14.62	14.72	14.86	15.02	15.22	15.44	15.70

*25 years ended July 2009

A number of observations came be made from the historical analysis.

In the case of global bonds, 100% hedged provides the minimum risk and hedging significantly reduces risk relative to the fully unhedged position.

In the case of equities, the results are mixed.

For a global equity portfolio, the minimum risk hedge level is 30% but there is wide range of hedging that provides similar risk (10% to 60% hedged). Risk tends to increase as the amount of hedging increases with 100% hedged being riskier than 0% hedged but the difference is much lower than with global bonds.

Global equities can be segmented into EAFE and US. The minimum risk for EAFE falls at a 60% hedge

(+/- 0.2% range is 40% - 80%) with 100% hedge dominating 0% hedged (difference is 0.55%). The minimum risk for US equities is 10% hedge (+/-0.2% range is 0% to 40%) with fully unhedged dominating 100% hedged (difference is 1.15%).

These results are consistent with those of a recent Harvard study on currency hedging. Its analysis shows that optimal hedging strategies (in terms of risk reduction) over the period 1975-2005 have been to be long the US dollar, Euro and Swiss Franc and short all other currencies, most particularly the Canadian dollar. The authors argue that the reason for this is that the “reserve” currencies have a safe haven quality that results in negative correlation with equities – when risk increases, stock prices fall and investors move to safer investments in these currencies.

The opposite is true for the Canadian dollar. As a “commodity” currency, it has positive correlation with equity markets as economic growth is good for both equities and commodity prices.

While the Harvard analysis suggests that selective currency hedging would have greater risk reduction potential than across the board hedging at some level, it is difficult to predict whether the past results will hold in the future, most particularly, if the US dollar’s status as a reserve currency is diminished.

Based on history, our conclusion is that for global equity portfolios hedging between 30-50% seems an effective strategy for minimizing risk.

Minimizing long-term portfolio risk

The previous analysis looks at risk at the asset class level in isolation. It is also useful to consider risk in terms of the overall diversified portfolio.

Table 2 looks shows overall risk given a 35% allocation to fixed income and 65% allocation to equities i.e., a mix corresponding with that of Symmetry

One Moderate Growth Portfolio. Here, the Canadian bonds and equities are held constant while the mix between hedged and unhedged global equities varies.

In this case, the 100% hedged portfolio was riskier than the 0% hedged. However, there is relatively

little difference in risk for portfolios where up to half of the global equity exposure is hedged. (Risk associated with Symmetry’s hedge/unhedged split is approximately 9.25%.)

MSCI World Hedged	0	5	10	14	19	24	29	34	38	43	48
MSCI World Unhedged	48	43	38	34	29	24	19	14	10	5	0
S&P/TSX Composite TR	17	17	17	17	17	17	17	17	17	17	17
TSX DEX Universe	35	35	35	35	35	35	35	35	35	35	35
Standard Deviation	9.20	9.20	9.21	9.24	9.28	9.33	9.40	9.48	9.57	9.68	9.80

*25 years ended July 2009

Short-term risk

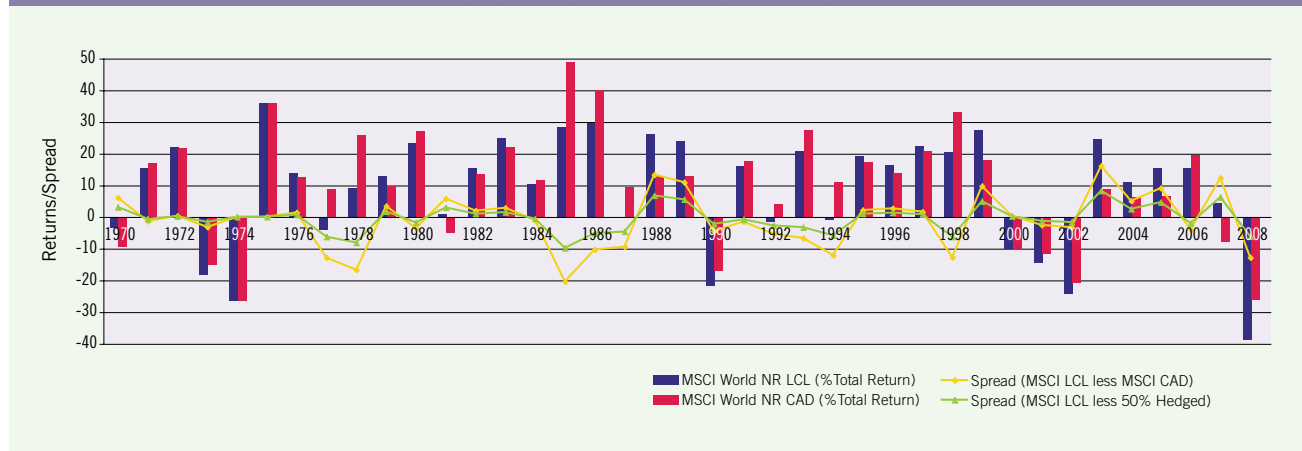
While the long-term expected return and risk differences between hedged and unhedged are modest, differences over shorter periods can be dramatic. See Chart 1.

On a calendar year basis the average annual return differential between hedged and unhedged MSCI returns is 6.4% and since 1970 there were 13 years when

the return differential was over 10%! This is quite significant since investors tend to evaluate their portfolios over short periods. Studies in investor psychology suggest that the regret arising from loss is greater than the reward that comes from gains. Obviously, a 50:50 hedged/unhedged strategy has the virtue of minimizing regret

by halving the return differential. This may be overly simplistic though to the extent that hedging lowers returns in down markets (and since 1970 there have been 11 negative years and in 9 of those years 100% hedged underperformed all unhedged).

Chart 1 – Global Equity Hedged vs Unhedged and Spread (1970 - 2008)



Conclusion

The conclusion that we would take from this analysis is that there is no single a priori “optimal” hedge ratio. That will only be known with hindsight. However, in terms of minimizing risk and regret, neither the “no hedge” or “all hedge” approach is likely to come out ahead. Based on history, some level of hedging has shown to reduce volatility and hedges of up to 50% of foreign equity exposure (and

100% of global bonds) have had risk levels that are at the low end of the range. In terms of minimizing regret, 50:50 hedged/unhedged has considerable intuitive appeal for a pure global equity portfolio. This also applies for diversified portfolios of fixed income and equities that have high levels of foreign exposure. Hedging is of less importance to portfolios that have higher levels of Canadian content; indeed,

portfolios that have high levels of Canadian content, no or minimal hedging will likely provide lower risk.

Currency hedging within Symmetry

Symmetry is designed to have a significant level of foreign exposure to maximize the investment opportunities and to enhance diversification. However, while we think foreign exposure is good, you can have “too much of a good thing” when it comes to exposure to foreign currency fluctuations.

For this reason, Symmetry uses hedging to limit foreign currency

exposure across the various Symmetry funds. Global bond exposure within Symmetry Registered Fixed Income is largely currency hedged. The main source of foreign currency exposure comes from Symmetry Equity Class which is invested 28% in Canada with the remaining 72% invested in foreign. However, actual foreign currency exposure is reduced to no more than

50% of the fund through foreign currency hedging by Mackenzie.

The actual foreign exposure and foreign currency exposures within the various Symmetry One Portfolios and Symmetry Equity Class are shown below.

Symmetry One Portfolios					
	Conservative	Balanced	Moderate Growth	Growth	Symmetry Equity
Foreign Exposure	33%	42%	51%	60%	72%
F-X Exposure	18%	25%	33%	40%	50%

Commissions, trailing commissions, management fees and expenses all may be associated with mutual fund investments and the use of an asset allocation service. Please read the prospectus of the mutual funds in which investment may be made under the asset allocation service before investing. The indicated rates of return are the historical annual compounded total returns assuming the investment strategy recommended by the asset allocation service is used and after deduction of the fees and charges in respect of the service. Mutual funds are not guaranteed, their values change frequently and past performance may not be repeated.