

IFID Centre
Research Report #01-02

June 30, 2001

*Alpha, Beta Gamma:
Hedge Funds for the Retail Investor*

Written By:

David Varadi, MBA
Research Associate

Alpha, Beta, Gamma: Hedge Funds For the Retail Investor

*By David Varadi, MBA
Research Associate*

Table of Contents:

Defining Hedge Funds	4
Understanding the Definition: Hedge Funds vs Mutual Funds.....	6
Style Matters: Understanding the Unique Approach, Risk, and Reward of Different Hedge Fund Styles.....	7
Benefits of Hedge Funds.....	18
Putting it All Together: Hedge Funds For Sound Financial Planning.....	29
The Canadian Retail Hedge Fund Environment	34
Conclusion	37

By David Varadi

In today's choppy stock market, hedge funds have emerged as the darling of the financial community. Indeed many journalists have written pieces on the subject of hedge funds in an attempt to explain the hype to the masses. Unfortunately, these articles have been mere "hors d'oeuvres," whetting the appetite for information, but not satisfying the hunger for a more comprehensive knowledge. No doubt this is more a result of a lack of space, than a lack of quality. The ambitious objective of this article is primarily to answer many of the looming questions surrounding hedge funds, and to shed some light on the products that are now available for the retail investor¹ in Canada.

Defining Hedge Funds

Perhaps no other financial term has been so poorly defined, and so widely abused as hedge funds. The public perception of hedge funds has been shaped by press coverage on the large losses incurred by Long-Term Capital Management (LTCM) and the large returns generated by George Soros and his Quantum Fund in betting on the British pound. As a result, hedge funds are generally associated with excessive volatility. Such "speculative" funds have been categorized under the guise of hedge funds, yet are quite distinct in the sense that they make more concentrated and highly leveraged (read: borrowing lots of money to invest). Yet the classic purpose and definition of a "hedge" is in fact to reduce risk. The "hedge" was originally conceived by former Fortune magazine writer and Harvard-trained sociologist Alfred Winslow Jones. When Mr. Jones started the first hedge fund in 1949, he combined short and long positions, and used moderate leverage, to achieve higher than normal returns with lower risk. The resulting net long position of 70% (now described as the "Jones Model") was designed to mitigate market risk, and to profit from security selection. Jones's success inspired a new class of funds now called "hedge" funds (*Tremont Partners and Tass Investment Research: "The Case for Hedge Funds"*).

I really like the general definition provided by Magnum Funds² as a starter:

"A hedge fund is a fund that can take both long and short positions, use arbitrage, buy and sell undervalued securities, trade options or bonds, and invest in almost any opportunity in any market where it foresees impressive gains at reduced risk. Hedge fund strategies vary enormously -- many hedge against downturns in the markets -- especially important today with volatility and anticipation of corrections in overheated stock markets. The primary aim of most hedge funds is to reduce volatility and risk while attempting to preserve capital and deliver positive returns under all market conditions."

¹ By retail investor, I mean investors who are not able to invest the minimum \$150,000 requirement in the typical hedge fund. This usually excludes investors with less than \$3,000,000 in investable assets.

² Magnum Funds is a fund which invests in other hedge funds on behalf of others. Their website contains a wealth of great information on hedge funds for both the beginner and the expert. The address is "www.magnumfund.com."

To be more specific, here is a formal definition :

- 1) Hedge funds are privately organized, loosely regulated private investment vehicles. Hedge funds are generally open-ended, and are available to a limited number of investors.
- 2) Hedge funds both in the US and Canada are generally structured as Limited Liability Partnerships (LLP). The fund manager is effectively a partner in this arrangement, putting their capital at risk with the other investors. In contrast, offshore hedge funds are permitted to be structured as corporations because of looser regulations.
- 3) Hedge funds are not restricted in their use of financial instruments. They are permitted to short sell stocks, and use derivatives. These instruments are used to reduce broader market risk, so as to profit mainly from security selection. Hedge funds employ a wide variety of trading strategies in actively managing their portfolios to generate positive returns.
- 4) The use of *moderate* leverage figures prominently in achieving the mandate of high-risk adjusted returns. However, it is important to point out that a “hedge” fund is always somewhere between 0-100% long after accounting for offsetting short positions. A fund that is net 110% long, or –10% short for example, is not a hedged fund. The purpose of a hedge is to reduce positive systematic risk -the market risk associated with long positions- which results in positive returns over time. A net long position above 100% increases positive systematic risk and therefore *increases* expected volatility. A net short position below 0% is exposed to negative systematic risk , and therefore is expected to have a negative return over long periods of time.³

To further clarify the meaning of hedge funds, Table 1 identifies the difference between hedge funds and mutual funds. One of the main problems with this alternative investment class is that it is too broadly defined. The remedy is not simple, as there seem to be as many flavors of hedge funds as there are mutual funds. As a result, the hedge funds are not effectively separated from the more high-risk directional plays. Returning to everyone’s favorite example, LTCM was levered 300 to 1 after factoring in interest rate swaps, and zero margin positions- this is obviously much riskier than the average hedge fund which is levered 1.6 to 1 (*Euromoney*, 2000). The extreme use of leverage in this example meant that an incorrect bet could result in substantial losses, and of course

³ As we shall see however, net short funds indeed are classified as a unique hedge fund style und the name “dedicated short bias.” These funds can be very valuable to hold in falling markets to “hedge” the overall net long position that most investors have in their overall portfolio exposure to the market. Nevertheless they do indeed have a negative average long-term return as the stock market goes up in the long run.

this is exactly what happened. In evaluating hedge funds, a debt to equity of 1.6 times should be considered a benchmark for evaluating the potential for downside risk. On this basis alone, it is fair to separate LTCM from discussions about the downside risks of the average hedge funds.

Table 1: Hedge Funds Versus Mutual Funds

<u>Hedge Funds</u>	<u>Mutual Funds</u>
1) Private investment pool	SEC (in US)/OSC (in Canada) registered investment vehicles
2) Short-selling is permitted	Maximum of 30% of profits allowed from short-sales
3) Leverage is permitted	Very limited use of leverage
4) Flexibility in investment strategy including the ability to use derivatives	Limited flexibility in the use of derivatives
5) Typically large investment minimums	Comparatively small minimum investments
6) Restricted from marketing or advertising	Extremely active in advertising
7) Very limited liquidity, with sometimes minimum holding periods required prior to redemption	Daily liquidity and redemption
8) Fees are derived both on a management expense ratio and a percentage of the profits (Norm is 1% MER and 20% of profits) Managers capital is also at risk alongside investors.	Manager's capital is not at risk, expenses are paid as an MER, manager is compensated from the company through a bonus and a salary.
9) Private placement prospectus	Publicly available prospectus
10) Absolute return objective	Manager tries to outperform a stated benchmark

Understanding the Definition: Hedge Funds vs Mutual Funds

I'm sure the table has helped you understand some of the major differences, but you probably have heard of some mutual funds which sound a lot like hedge funds. After all, you might have seen some mutual funds which claim to "capitalize on global opportunities." So what is the real difference? The fact is that a hedge fund is an alternative investment vehicle, and is significantly different from a plain-vanilla mutual fund. The most important difference to note is flexibility in investment and trading decisions. A hedge fund, regardless of its distinct flavor, generally is able to pursue investment opportunities around the globe with few or no restrictions. Hedge funds are the bounty hunters of the investment community, capitalizing on opportunities not available to those who have to operate under rigid laws governing practice. For example Hedge fund XYZ through the use of more specialized knowledge and superior valuation models may view the a specific biotechnology stock as being an undervalued investment with phenomenal potential. XYZ is able to invest a much larger portion of its capital in this sector than the typical mutual fund which can only invest a maximum percentage of assets in a particular security or sector. Furthermore, XYZ can borrow from their broker (this is called using "leverage"), and with specialized agreements can often leverage their equity positions several times over. The ability to short-sell stocks and use derivatives

also distinguishes XYZ from the typical mutual fund, which allows the hedge to generate positive returns in falling and flat markets. The most common statement contained in the investment objectives section of any hedge fund is to generate consistent returns in all market conditions. This claim would not be possible for mutual funds, which tend to move in tandem with general market conditions.

Style Matters: Understanding the Unique Approach, Risk, and Reward of Different Hedge Fund Styles

There are almost as many hedge fund styles as hedge funds which is the primary reason why coming up with a universal definition is so difficult. Even after all of this careful clarification, still the best one could hope for is a vague understanding of what a hedge fund is, and how it makes money. Most finance professors could not draw many conclusions regarding the scope and meaning of the term from the preceding discussion. In fact one of the biggest problems surrounding the hedge fund industry is the ability for even the most sophisticated investors to distinguish hedge funds from so-called “speculative funds.” I myself would have difficulty telling the difference without conducting a significant amount of due diligence on the fund in question. The lack of a concrete definition for hedge funds is uncomfortable but is appropriate given that the term “hedge fund” is supposed to broadly characterize an investment vehicle which comes in many different flavors. One can imagine that with virtually unlimited flexibility in the use of financial instruments, the structure of hedge fund portfolios, and their risk factor exposures would be very different. Some hedge funds invest in currencies, while others invest in bonds. Some capitalize on global economic trends, while others focus on mispriced securities. The funds overall market exposure (explained later) can range from net short to more than 100% long. The important thing to draw from this is that the “style” of the hedge fund will generally tell you a great deal about the risks and rewards, and how the manager makes money. And let me tell you, the differences are often enormous. To sort out this mess, industry experts identify several distinct “styles” of hedge funds, which characterize their risk/return objectives and general investment strategies. The following is a list of these hedge fund styles which I have grouped under broad headings⁴ For the retail investor however, there are less styles available. The availability is indicated in brackets under each style heading.

Arbitrage Strategies:

“Arbitrage” in an academic sense entails making a risk-free profit from real disparities in the value of equivalent securities or combinations of securities. An example would be to buy gold in Canada at a cheaper price, and simultaneously sell it in Hong Kong at a higher price. In the marketplace, the term “arbitrage” tends to be used more loosely. Often the assets are perceived to be equivalent, such as the case with two bonds of the same credit rating, but the profit opportunity depends on the convergence of the two “incorrect” prices. Thus, the returns are not completely risk-free. Although in some

⁴ These categories are not necessarily mutually exclusive, thus overlap can exist. However they are generally instructive for purposes of understanding the security-specific and geographic focus that the funds employ.

cases the probability of locking in gains is quite high. In the case of publicly announced friendly mergers, the probability of the deal going through is in the high 90% range. A correct bet will result in high returns with little risk, while an incorrect bet can be disastrous such as in the case where the two assets diverged instead of converging to “fair value.” Nevertheless, leverage remains a key issue, and although the retail investor currently does not have access to such funds⁵- this should be the first question that they should ask if they do.

Fixed Income

(not available to the retail investor)

Bonds and mortgage-backed securities are typically the primary focus for this type of hedge fund strategy. Often the managers have specialized knowledge of specific types of bond issues, with varying credit quality, giving them a decided edge in trading. LTCM in fact primarily engaged in bond arbitrage. The operation consisted of buying bonds with identical credit quality which were selling at a discount relative to the “fair yield,” or interest rate that the market demanded at the time. Conversely, bonds in the same category that were selling at a premium to the fair yield were sold in proportion to the bonds bought. For example, if BBB credit quality bonds are trading in the market at a 12% average yield (or interest rate), then other things being equal, two BBB bonds of the same maturity and coupon should trade very close to this yield. Large discrepancies, such as if a Bond Y was trading at a 20% yield, and a similar Bond X was trading at an 8% yield, likely indicates a mispricing of the two bonds (In this case bond X would be overvalued and hence sold, while bond Y would be undervalued, and hence bought). The general idea of course is for the bonds to converge to fair value, while in practice LTCM suffered a considerable loss as the bonds actually diverged due to an unpredictable turn of events⁶.

Convertible Arbitrage

(not available to the retail investor)

Convertible arbitrage involves the use of convertible bonds, which are fixed-income instruments with an added option to convert the principal into common stock. The bonds themselves are quite complicated to understand. The basic principle however, is that the hedge fund manager purchases the convertible bond and sells the common stock. Effectively, the added option is neutralized—stripping the convertible of its equity component. The result is that the convertible trades like a regular bond with interest income that is supplemented by the proceeds of the short sale which have been invested in T-Bills. This strategy can be very profitable, with a low degree of investment risk.

⁵ The minimum investment in many of these strategies is very high, often far-exceeding the \$150,000 minimum in Canada. Most of the “arb” shops run out of the U.S. due to a higher abundance of sophisticated and high net worth individuals.

⁶ Recall however that Long-Term Capital Management was highly levered, and thus the loss was magnified considerably. Most “arb” funds have limits on the size of individual positions, and the amount of money that they borrow in practice to leverage their investments is much, much less than LTCM.

Event Driven

(not available to the retail investor)

Event driven strategies encompass so-called “special situations” Other examples include merger/acquisition or risk arbitrage, where the manager purchases the shares of the company expected to be bought, and sells the shares of the acquirer. In this case the “risk” is that the deal will not go through as planned, which is much more significant in this case, since the deal has not yet been announced. Arbitrage returns in general tend to be quite small, and thus arbitrage funds tend to use leverage more aggressively than other funds to increase returns. Since the risk of loss is often minimal, a near certain profit can be locked in. An example follows: Suppose a company publicly announces that it will repurchase shares in a spinoff company at a premium. The shares are currently trading at \$25 per share, but the company has agreed to purchase them for \$30 cash per share. Likely, the shares of the parent company will fall due to an immediate cash loss available to shareholders as a result of the premium paid. In this case the probability of the deal going through is very close to 100%. The chart illustrates the likely investment strategy

Table: An Example of an Event-Driven Arbitrage Strategy	
	Share Price
Parent Company	\$50
Spinoff Stock	\$25
Step 1: Sell 1 share of the Parent Company and buy 2 shares of the Spinoff Stock	
Cash Inflows	\$ 50.00
Cash Outflows	\$ (50.00)
Net Cash Outlay	\$ -
Step 2: Hold onto the Spinoff Shares Until Repurchased	
When this happens:	
Profit Per Share	\$5 (\$30 received, for \$25 purchase)
Number of Shares	2
Total Profit	\$10

For the sake of simplicity, it is assumed that the parent company’s stock will remain the same throughout the merger. Notice that the profit per share is \$5, which would be a 20% return if the manager had simply purchased the spinoff stock. In this case the short sale finances the purchase, making the initial investment zero. In practice, a fund manager would likely sell the maximum number of shares allowed, and finance the rest with the funds equity. The result would be a heavily leveraged investment, with potentially phenomenal returns.

Equity Strategies:

These strategies are designed almost exclusively to profit from security (or stock) selection. While the choice of venue for investment widely varies, the vast majority invest in domestic (US or Canadian) stocks. You may still wonder then what the difference between mutual funds and equity hedge funds are. In fact the difference is quite significant. While mutual funds vary widely in terms of their performance, they almost certainly are tied to the general direction of the stock market. As a rough guide, about 80% of the performance of a domestic mutual fund can be directly attributed to the strength or weakness of the stock market in which it owns the majority of its holdings. Thus, a Canadian Mutual Fund probably had an experience quite similar to the TSE 300—the only departure being the fact that most funds had capped their holdings in Nortel, thus limiting their downside. Most readers who own mutual funds can testify that the funds did not fare much better than the market in the recent downturn. Equity hedge funds in contrast try to hedge market exposure in varying degrees, and thus their performance is less a result of being a “boat in a rising tide,” (or falling tide for that matter) but rather due to the manager’s skill in identifying undervalued and overvalued securities.

Market Neutral

(most widely available product for the retail investor)

Managers of market-neutral equity hedge funds try to mitigate market risk almost completely by holding either equal long and short positions in dollar terms, or by holding a zero-beta portfolio. A long-short neutral portfolio will have for example \$1 million invested in long positions, and \$1 million invested in short positions with a net position of zero. The zero-beta portfolio is different in that the portfolio need not be dollar neutral. **Beta** refers to the expected relative movement of a particular asset, or group of assets in response to a given move in the market. A beta of “1” should move up and down equally with the market, while a beta of “0” means that the asset is not affected by market movements. The purpose of designing this portfolio is to *neutralize* unexpected and unpredictable market movements so that the manager can profit entirely from security selection. The manager identifies overvalued and undervalued stocks and short sells the “expensive” stocks, and buys the “cheap” stocks.

In practice, roughly 50% of portfolio returns in market neutral funds can be explained by security selection. The residual is a result of the less than perfect correlation between the long and the short sides which in practice is almost impossible to obtain. The average mutual fund which derives at best 20% of returns through security selection. The remaining 80% is a function of the portfolio’s exposure to macroeconomic and sector-specific factors. In general, market neutral funds have less risk than mutual funds, especially if the manager is correct in their security selection. If the hedge is set up correctly, the primary source of risk is the non-market related fluctuations in the securities prices. The return therefore is a function of the manager’s “batting average.” A large percentage of correct calls will result in high returns regardless of market conditions. Specifically, returns are generated as follows: the proceeds from the short-sales are used to purchase treasury bills, and the remaining gains are expected to result

from a convergence of the asset prices towards their intrinsic value. As such, the benchmark returns are usually set at 5-6% above treasury bills, which is the expected return from security selection.

Long/Short Equity

(available to the retail investor)

These funds are similar to market neutral funds in almost every sense. Where the two styles diverge primarily is in the net position of the portfolios: equity hedge funds may be anywhere between net short and net long. Another difference may be the stated benchmark which is likely higher given the additional expected returns from systematic risk exposure. As stated before, funds with exposure above 100% and below 0% long should not be viewed as “hedged” funds, and should be approached with caution. It is more instructive therefore to think of the universe of “hedged” long/short funds as having between above 0% and below 100% (0% > net position > 100%) exposure to market movements.

Dedicated Short Bias

(typically not available to the retail investor)

This is a bearish strategy, which attempts to profit from either falling markets, overpriced securities, or both. The primary mechanism used to profit from these opportunities is to sell securities short. For those unfamiliar with the process, the security is borrowed and then sold by the investor who receives the proceeds in cash. The investor is obligated to return the securities at a later date which is generally up to their discretion, however in some cases there are forced repos due to liquidity or margin problems. To make a profit, the investor must be able to buy back the stock at a lower price than when it was sold. For example, an astute investor might have sold short Nortel at \$100, and eventually bought it back at \$20, capturing an \$80 profit. This strategy is extremely profitable in a falling market, and conversely highly undesirable in a rising market. The net effect is that the long-term return on this strategy is slightly negative, given that markets rise more frequently than they fall. Investors often purchase these funds as a cheap hedge if they have bearish expectations in the stock market.

Exotic and International Strategies:

Emerging Markets

(not available to the retail investor)

Global Macro

(not available to the retail investor)

Macro funds invest on the basis of their views about international macroeconomic events. These funds tend to be more highly levered than average, and involve controlled speculation on investments such as currencies, interest rates, or on the direction of equity markets of a whole country. These macro bets are difficult if not impossible to hedge because of the lack of correlation between assets in their portfolios. Going short 90% on the Nikkei and long 85% on the S&P 500 with a net position of +5% is not a low risk

position. The two markets are not always affected by the same factors, so if the Nikkei goes up, the S&P 500 could go up as well. Macro funds can be considered the riskiest of the various hedge fund styles, and therefore the possibility for high returns and large losses are more likely.

Managed Futures

(available to the retail investor)

Many investors have heard of “futures” before. They are simply contracts for future delivery of either a financial or physical asset. Profits are made by identifying for example: 1) the future supply and demand for orange juice 2) trends in the future price of gold 3) future movements in the yield curve, or the direction of global stock indices. These funds are run by commodity trading advisors (CTA’s), who often specialize in certain commodities or financial instruments. The beauty of managed futures is that they often do not move in sync with either the general stock market, or even with other types of hedge funds. Their independence makes them an excellent complement to any hedge fund style.

Diversified:

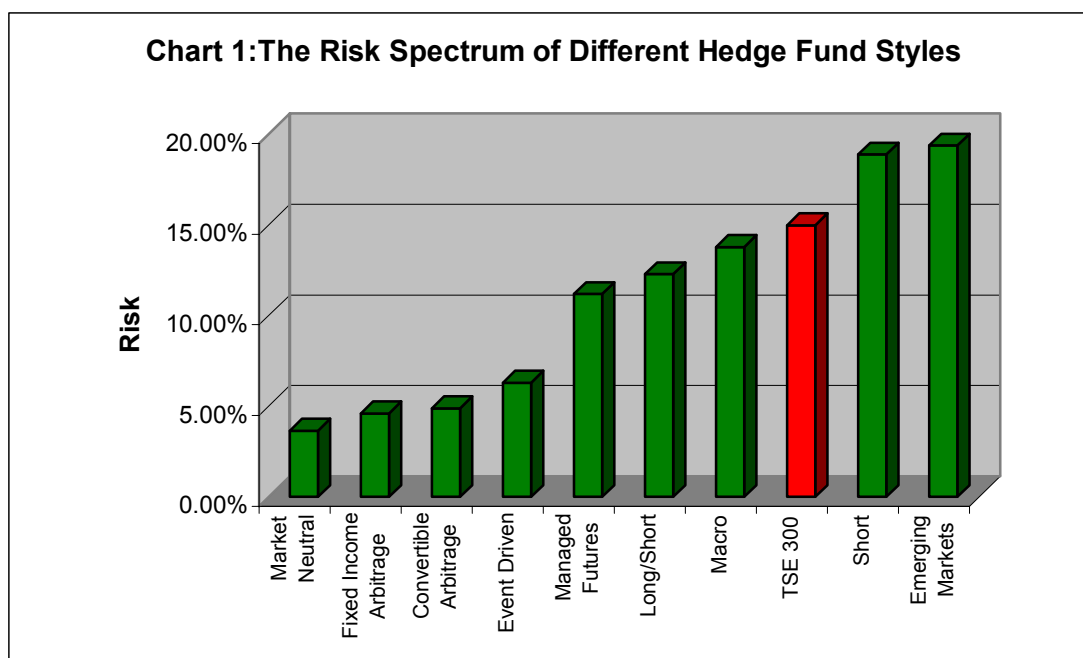
Fund of Funds (not yet available retail)

Fund of funds have managers who select what they feel are the best hedge funds across a number of different styles or categories. Generally fund of funds contain between 5-10 hedge funds, thus providing cheap diversification for investors who do not have enough money to invest in more than one or two funds. In addition the investor may gain access to managers that were not otherwise available because of the high minimum investments. The configuration of different hedge funds styles and asset classes allows fund of funds to achieve more stable long-term investment returns. In contrast, certain event-driven hedge funds like convertible or merger arbitrage hope to profit from short to medium corrections in valuations- thus they are not suitable for a buy and hold strategy. Generally, studies have found that fund of funds have the lowest volatility of the hedge fund styles, and also have lower average returns (Purcell et al, 1999). The lower returns are generally a function of the higher fees- fund of funds generally charge an additional 1 to 3% on top of the fees charged by the underlying funds. One caveat to investing in fund of funds is liquidity. They are typically only as liquid as their components, which should not be a significant problem given that investors in these funds would likely hold on to them for a longer term.

Risk and Reward of Different Hedge Fund Styles:

As previously mentioned, the risks and returns associated with particular hedge fund styles varies substantially. Chart 1 summarizes the relative risk of different hedge fund styles as measured by standard deviation, which is a measure of the funds dispersion of returns around its average return. The risk of various styles has been ranked along a dimension from lowest to highest risk. I would argue that higher risk hedge funds are generally more “speculative” while the lower risk hedge funds are actually much less risky than the average mutual fund, and are therefore suitable for almost any investor. This is supported by the fact that of the 9 different hedge fund styles the TSE 300 would be the 3rd riskiest investment. As I stated before, the purpose of hedge funds is to neutralize undesirable risk, and it is clear that most styles achieve this mandate.

The return of different hedge fund styles is also summarized in Chart 2, with the different funds being ranked along a dimension from lowest to highest annual average return. Notice that the TSE 300 also lags most hedge funds in terms of return. Chart 3 summarizes the risk-adjusted return of various hedge fund styles as measured by the Sharpe Ratio⁷.



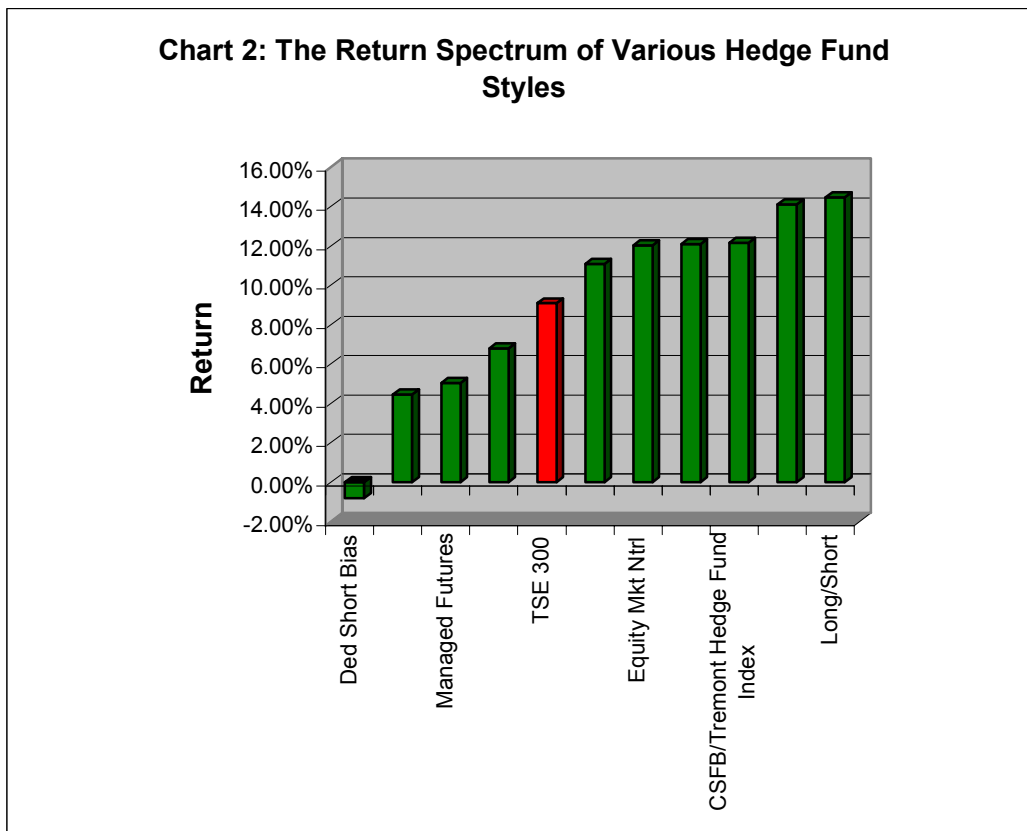
It is not surprising at all that emerging markets is the riskiest hedge fund style. In large part emerging markets funds are exposed to several unique risk factors which

⁷The Sharpe Ratio is a ratio of the fund's return in excess of the T-Bill rate (since the T-Bill has no risk it is not included) divided by the total standard deviation of the fund. The idea is that more return per unit of risk is more desirable. Many academics rightly criticize the use of this ratio for measuring hedge fund performance since high returns can seem to come with little risk, but the potential- read low probability- for a blow-up still remains. Despite this criticism, I would argue that hedge funds do in fact deliver higher risk-adjusted returns, and that this result can be expected in a diversified portfolio of hedge funds.

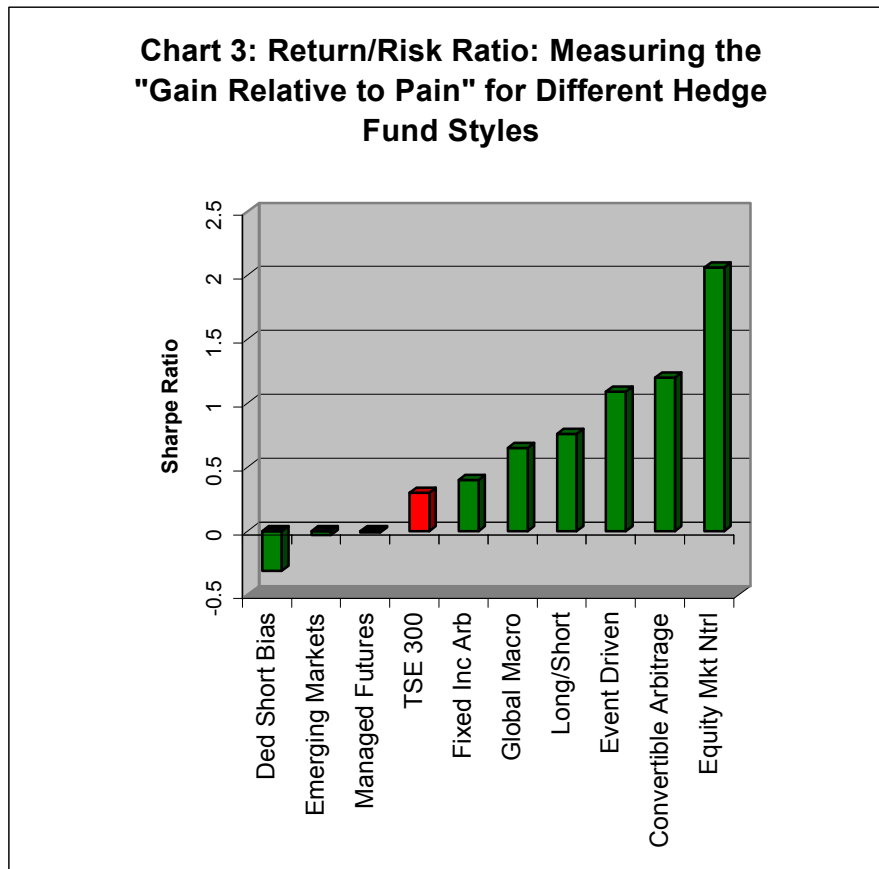
cannot be adequately hedged using financial technology such as: 1) political risk: the effect of changing government mandates, or regulatory inconsistency which tend to affect the economy and its securities 2) lack of transparency: accounting rules and overall corporate disclosure are less adequate in emerging markets making accurate forecasting very difficult 3) severe illiquidity: due to a lack of adequate trading volume, managers may not be able to enter or exit positions as effectively as in domestic markets 4) volatile and unpredictable economic conditions such as rapid inflation or deflation, and related credit problems.

Short bias funds are a close second, and their primary risk factor is driven by the potentially unlimited losses that can be experienced in rising markets. For example, if one is long a \$50 stock, the most that can be lost \$50, but if one is short, the loss can far exceed \$50 if the stock were to rise over \$100. Thus, percentage wise, the most one can lose is only 100% going long, but substantially more going short. Hence volatility is higher for short funds than for long funds. Macro funds are also quite risky, which is a direct reflection of the fact that they tend to make highly leveraged directional bets. If these bets work out, the returns are phenomenal: George Soros' Quantum fund would have returned over 300 times a person's investment since the inception of the fund! However, the flip side is that large losses can be experienced as well. The same logic generally applies to managed futures as well

The arbitrage funds have very low risk, comparatively, due to their primary exposure to investment opportunities with a high probability of success. Furthermore, these opportunities are not influenced materially by market conditions, and as a result there is little exposure to systematic risk. Market neutral funds are on average the least risky style- a result that is predictable given the mandate of creating a zero beta portfolio which is neutralized to market movements (hence the name).



With the exception of the market neutral funds, managed futures and emerging markets, most hedge fund styles seem to exhibit returns in proportion to their risk levels. It should be noted that emerging markets and managed futures returns have varied widely depending on the database and period used to measure performance. It is therefore difficult to justify attributing the performance to the strategy. In fact, emerging markets and managed futures have done phenomenally well in other periods. Dedicated short bias exhibited a negative return for the simple reason that betting against the market in the long run will generally result in investment losses. The arbitrage funds delivered more mediocre returns, some exceeding the TSE 300, with others lagging behind. Convertible arbitrage and event driven strategies outperformed the index, indicating that these are excellent low risk strategies. Global macro funds was the second best performers, likely a result of large speculative bets that the fund managers tend to place. Nevertheless, the most interesting finding is that market neutral and long/short strategies outperformed the TSE. With less market exposure in the recent bull market, and large short positions, these funds would have had to offset the performance sacrifice by remaining less than net long, by demonstrating phenomenal security selection skills. From a performance measurement standpoint, the fund managers in these categories seem to have a great deal of skill. Chart 3 examines the risk-adjusted return of various hedge fund styles.



From the preceding discussion, you might have predicted that arbitrage and equity strategies would have the highest risk-adjusted returns. Notice that all but three of the different strategies have better risk-adjusted performance than the TSE 300. What this means is that the returns, or profits, made by these hedge funds were accomplished with substantially less risk. For the retail investor, who has access only to market neutral and long/short funds, this is especially sweet since these styles are at the top of the list. Including these funds in your portfolio should increase returns and reduce the overall portfolio risk.

Hedge Fund Fee Structure

Hedge funds have unique fee structures designed to motivate managers to achieve top performance. The management expense fee (MER) is similar to mutual funds and is set as a percentage of assets. Generally, this fee is standard at about 1% of assets. In addition, manager's are generally entitled to a standard 20% of the funds profits beyond a stated benchmark return. Therefore the effective MER is only 1% if the fund loses money or breaks even, but gets higher as the manager makes more money (beyond the benchmark) for the fund. An incentive fee is established in addition to the MER to align the manager's interest with the fund's performance. This incentive fee is usually paid only after a hurdle performance rate is achieved. Table 4 provides an example of how

incentive fees alter the effective MER. Notice that in very good years, the fund manager makes a tremendous salary, while in bad years the manager's salary is actually quite modest in comparison with an MER for the average mutual fund. Of course the idea is that the hedge fund manager has much more incentive to generate superior performance because the compensation is much higher when this goal is achieved.

Table 4 : Determining the Effective MER for Hedge Funds with Incentive Fees					
Consider "Ivy League Hedge Fund" with a 1% MER and an incentive fee of 20% of the profits over 10% (Beginning NAVPS= \$10,000,000):					
Fund Assets At Year End	Fund Performance	MER	Incentive Fee Expense Ratio	Effective MER	Manager's Gross Salary
\$ 8,500,000	-15%	1%	0%	1%	\$ 85,000
\$10,700,000	7%	1%	0%	1%	\$ 107,000
\$11,800,000	18%	1%	2%	3%	\$ 306,800
\$14,000,000	40%	1%	6%	7%	\$ 980,000
\$10,300,000	3%	1%	0%	1%	\$ 103,000
\$10,000,000	0%	1%	0%	1%	\$ 100,000
\$18,500,000	85%	1%	15%	16%	\$ 2,960,000

In addition to incentive fees, a majority of hedge funds have a "high watermark" provision. Under such a provision, the manager is required to make up any previous losses before an incentive fee is paid; i.e., the cumulative returns have to be above the hurdle rate. This is even better for the shareholders since the incentive scheme penalizes losses in addition to rewarding superior performance. Table 5 provides an example of the effect of a high watermark in addition to an incentive fee on the effective MER. Notice that in Year 2, the fund performance exceeds the performance of the TSE 300 (which is the stated benchmark). In this case the incentive fee was not paid out because the manager still had to make up previous losses relative to the TSE on a cumulative basis. In fact, the incentive fee does not kick in until year 4, when the cumulative return on the fund exceeds the cumulative return on the TSE since the fund inception.

Table 5 : Determining the Effective MER for Hedge Funds with a High Watermark and Incentive Fees					
Consider "Greenfields Hedge Fund" with a 1% MER and an incentive fee of 20% of the profits over the cumulative return on the TSE 300. The fund also has a high watermark provision which states that the cumulative fund return must exceed the cumulative return of the TSE 300 for the incentive fees to kick in.					
Performance	Cumulative	Fund	Cumulative	Incentive	

of TSE 300	TSE Performance	Performance	Fund Performance	MER	Fee Expense Ratio	Effective MER
-10%	0.90	-15%	0.85	1%	0%	1%
15%	1.04	18%	1.00	1%	0%	1%
27%	1.31	18%	1.18	1%	0%	1%
2%	1.34	40%	1.66	1%	6%	7%
-10%	1.21	3%	1.71	1%	10%	11%
-5%	1.15	0%	1.71	1%	11%	12%
35%	1.55	85%	3.16	1%	32%	33%

Another unique feature of hedge funds is what is called a “lock-up period.” Simply, a lock-up period specifies the length of time that an investor must commit his/her investment before being able to redeem their funds. The importance of the lock-up period for the fund is that the manager has substantially more flexibility in managing the portfolio’s investments. For example, some funds tend to pursue longer-term strategies, such as capitalizing on broad trends, rather than focusing on short-term performance. This of course is also a benefit to the investor, since there are generally more long-term investment opportunities available in the market⁸. Another advantage for the manager is that they can focus on their core competency—investing—while avoiding the distractions involved in having to deal with daily redemptions and associated operational tasks.

All these features should theoretically give managers better incentive schemes compared to mutual funds and other traditional investment vehicles. But do they work?

Liang (1999) found that hedge fund returns are positively correlated to incentive fees, fund assets, and the lockup period. Hedge funds that had watermarks significantly outperformed those without. The study concludes that the special fee structures are successful in aligning managers’ incentives with fund performance.

Benefits of Hedge Funds

As I mentioned, there has been a lot of talk about hedge funds lately, briefly here’s the executive summary: 1) In turbulent markets these funds tend to hold up quite well, many producing strong positive returns. 2) Historical evidence has demonstrated that most of these funds have produced both superior absolute returns, and risk-adjusted returns than mutual funds. 3) Most importantly, hedge fund performance in down markets is particularly impressive. 4) Now there are a handful of hedge funds available to retail investors with minimum investments of as low as \$500 for an RRSP account.

⁸ Most mutual funds are notorious for their short-term focus. Analysts generally make buy or sell recommendations based on forecasts for the next 2 or 3 quarters. The news also focuses mainly on the short-term. As a result, fewer opportunities exist in the short-term than in the long-term. Warren Buffett once said that the money in the stock market flows from the impatient to patient investors.

Sounds great doesn't it? I will present evidence for each of these claims, but I would like to emphasize that these are *not* the most important reasons for holding hedge funds in your portfolio. Many writers have missed the point. Having been schooled in traditional finance theory, and having reviewed the data and research on hedge funds, I can summarize the #1 reason for adding hedge funds to your portfolio in one word: Diversification

Benefit #1: Diversification

This concept has been given a new lease on life recently following the wake of widespread financial losses for many retail investors. The vast majority held concentrated portfolios with exposure to only one sector, even worse, some held only a handful of stocks. The basic principle is simple, yet some aspects are more subtle to grasp. For those of you who do not have a background in finance, here is a primer on the subject. Diversification has long been popularized as the only “free lunch” in investing. By investing in a group assets or asset classes that are not perfectly correlated, the resulting portfolio has less risk than the sum of its component parts. Suppose you have two funds: A and B which yield returns of 19% and 9% respectively. Suppose further that you require a 14% return to meet your investment goals. Which fund would you choose? Most investors would hold Fund A because it has a higher rate of return- they could save less money and reach their goal, or reach their goal and have excess money left over. The correct answer is that you should probably hold both funds in almost any circumstance. Why? The crucial subtlety of Modern Portfolio Theory (MPT) is that the **correlation** determines the diversification benefit. The correlation coefficient is a statistical measure which in finance is used to capture the degree of relatedness between two stocks (or bonds etc). The coefficient ranges between 1 and -1 depending on the degree of relationship between two funds. A correlation of “1” means that the funds move in perfect lockstep: when one goes up, the other goes up also. Conversely a correlation of “-1” means that the funds move completely opposite each other. A classic example would be a fund that invests in umbrella companies and a fund that invests in sunscreen companies. When the weather is rainy, the umbrella companies will do very well, and the sunscreen companies will do very poorly. The converse is true if the weather is very sunny. A portfolio of two funds with a perfect negative correlation has zero risk. The return on this portfolio will be the weighted average of the returns on each fund. If both funds are 10% then you have effectively created a GIC (guaranteed investment) that yields 10% per annum. The example is illustrated in the table below:

Table: Perfect Negative Correlation (-1): A Risk-Free Portfolio					
Expected Returns in Different Weather Conditions					
You Hold	Portfolio Holdings	Rain	Sun	Average Return	Risk
Fund A	Umbrella Company	30%	-10%	10%	28%
Fund B	Sunscreen Company	-10%	30%	10%	28%
Both Fund A and B (50-50 split)	Both Companies	10%	10%	10%	0%

Notice that the risk, or standard deviation, is zero. This is because your cash flows from holding your portfolio will be 10% regardless of the weather conditions during the year.

If we could find such an investment, financial planning would be easy: Just plug 10% into a financial calculator, and figure out how much you would need to save to meet your investment goals. Unfortunately, as in life and in investing, uncertainty is the only certainty. Perfect negative correlations generally do not exist (if you find one, please let me know!!). However, one does not require a perfect negative correlation to reduce risk. Remember this rule:

As long as the correlation between two asset classes is less than +1, then there is a diversification benefit to including it in a portfolio.

This means that you can reduce risk by including the asset class in your portfolio. Don't believe me? Look at the example in the table below. Your portfolio consists of an equal investment in two funds, A and B, which have the same risk and return:

Table : What Happens When Correlations are Slightly Positive?			
Fund A and Fund B both have a return of 10% risk of 15%			
Correlation Between Fund A and B	Portfolio Weighting	Actual Portfolio Risk	Assumed Portfolio Risk
0	50-50	11%	15%
0.25	50-50	12%	15%
0.5	50-50	13%	15%
0.75	50-50	14%	15%

Most people would assume that the portfolio risk would be 15%, or the weighted average of the risk of the two funds. Yet the actual risk is less than 15%. Even with a correlation of 0.75, the risk reduction is almost 7%- which makes a big difference in financial planning as we shall soon see. My professor likes to summarize this situation with a financial proverb: "The risk of the sum is always less than the sum of the risk⁹."

This basic tenet of Modern Portfolio Theory (MPT) has long influenced institutional investors and portfolio managers to diversify their investments into different asset classes. Traditional asset classes such as bonds, equities, and cash are diversified by geographical region, and by industry to gain risk reduction benefits. In addition, so-called "alternative" asset classes including venture capital, real estate, and *hedge funds* have also been added to professional and institutional portfolios because of their lack of correlation to traditional asset classes. Look at the table below which displays the correlation of hedge funds to major world stock indices:

Table 5 : Correlation of Hedge Funds To Major World Stock Indices	
Index:	CSFB/Tremont

⁹ Dr. Moshe Milevsky wrote an excellent book about the logic and math behind sound financial planning called "Money Logic." This quote is an excerpt from the book.

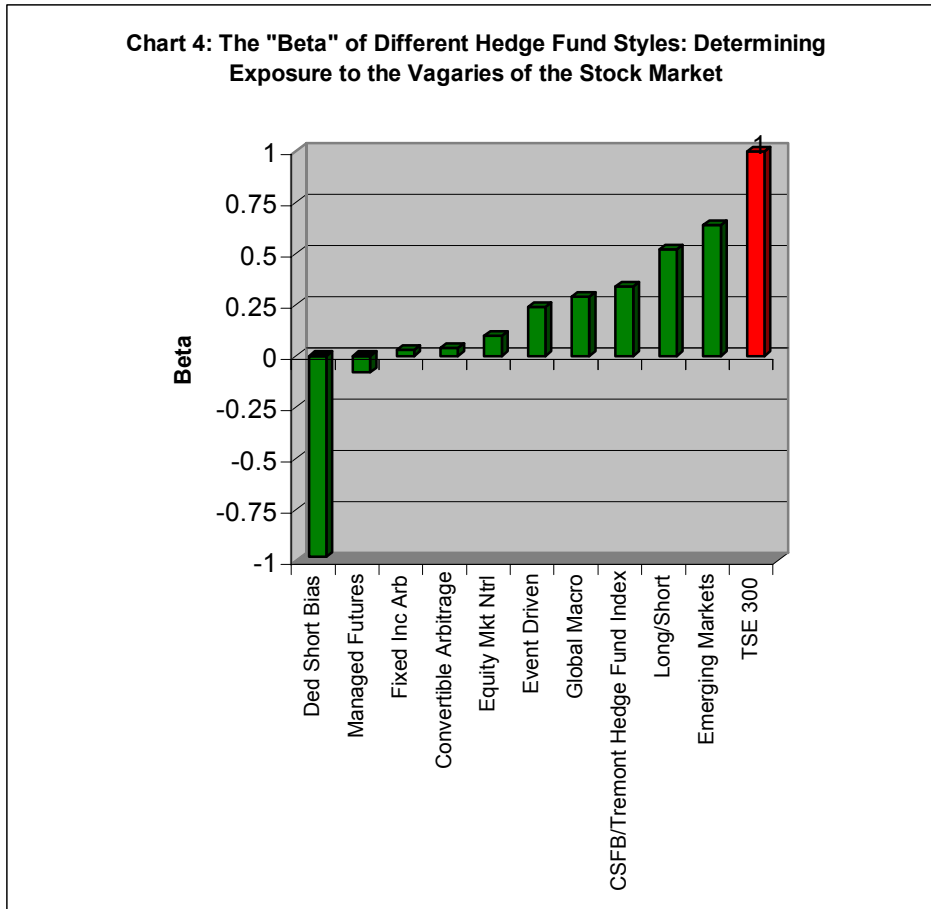
	Hedge Fund Index
Dow Jones	0.42
MSCI Emerging Markets	0.51
MSCI World	0.51
Russel 2000	0.62
S&P 500	0.55
TSE 300	0.61

The correlation of the asset class is less than +1, therefore adding hedge funds to a portfolio will reduce the risk of the portfolio. Thus in addition to the geographic diversification that is encouraged by most financial planners, investors should also strongly consider investments in alternative asset classes such as hedge funds. In fact there is a more compelling argument that diversification through alternative asset classes is even more important than geographic diversification. Why? Hedge funds are not really dependent on economic conditions to produce positive returns. They profit almost entirely from security selection, as mentioned before. This explains why many funds have performed well despite the current downturn in the economy. In contrast, the global economy is becoming more integrated, meaning that problems in one major economy will cause other economies to suffer. Therefore, while correlations may even increase between countries in the coming years—reducing the diversification benefit of geographic diversification.

There is another reason to believe that hedge funds will reduce risk despite all of this talk about correlation. Most hedge fund styles will *still* reduce the risk of the portfolio because they tend to have a lower risk profile than the major stock indices. Even with a correlation of +1, there would be risk reduction benefits. In this case the lack of perfect positive correlation is an added bonus.

It is important to note that correlations vary widely by style due to their relative exposure to the market. Remember our friend “beta,” which indicates the degree of market exposure of a particular asset. Generally a high beta indicates a high correlation, while a low beta indicates a low correlation. Chart 4 shows the beta of various hedge fund styles to their respective stock indices¹⁰. Notice that the beta of the TSE is “1” since it has 100% market exposure.

¹⁰ This data was taken from the CSFB Hedge Fund index site, which is provided in collaboration with TASS Investment Research.



Dedicated Short Bias is the obvious winner at almost “-1,” since this strategy makes a profit by betting against the direction of the market. Arbitrage strategies also have low market exposure since their investment returns are driven primarily by security-specific factors, such as whether a company goes through with a merger or acquisition. This type of event is almost always independent of how the market is doing. Market neutral strategies have a very low beta as a result of attempting to completely hedge market exposure. Their correlation to the market is therefore very low. Being the lowest risk hedge fund as well, makes the market neutral funds perhaps the most attractive addition to a portfolio from a risk reduction standpoint¹¹. Long/Short equity portfolios predictably have a higher beta than market neutral portfolios since they are geared to have greater market exposure. Emerging markets hedge funds have the highest market exposure, which is also consistent with expectations. Recall that these funds have unique risks which cannot be financially hedged with a comparable degree of effectiveness and

¹¹ The astute reader may wonder why the beta of the market neutral category is not zero- after all this is what the manager’s are attempting to do. The simple answer to this question is that in practice portfolios are constructed using historical estimates of beta, which are not always completely predictive of future betas. Thus an ex ante (historical) zero beta portfolio may in fact be positive or negative ex post (future performance).

efficiency as domestic funds. Thus, the vagaries of the stock market often determine the performance of the respective funds.

Summarizing Benefit #1: Why Diversification is Really Good

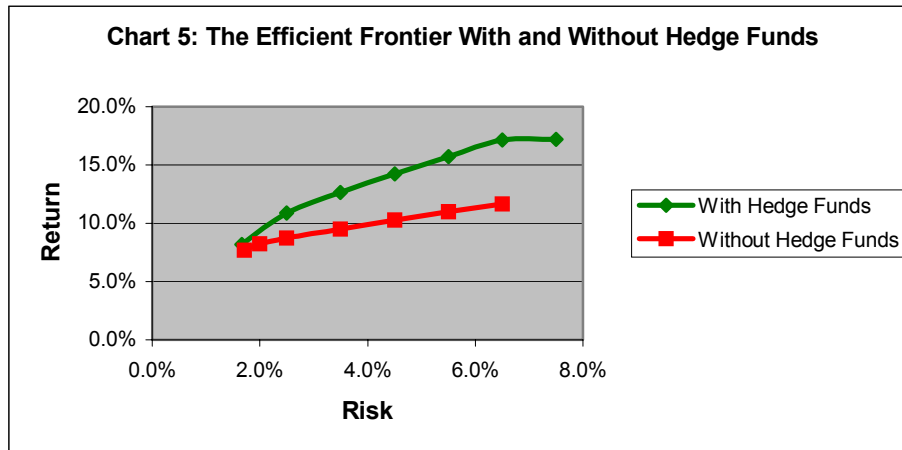
You have now been inundated with arcane portfolio theory, and probably wish this stuff was less complicated. But a fundamental understanding of the concepts introduced so far will allow you not only to understand hedge funds, but also why diversification makes good sense. To tie it all together, one must learn about another key concept called the “Efficient Frontier.” Efficiency refers primarily to the risk/return tradeoff that investors should be very concerned about. You may already intuitively understand that other things being equal you would prefer an investment with a higher return if it has the same risk as another investment. Another corollary of this is that you would prefer the investment with the lowest risk given an equal return. Pretty obvious huh? Well let’s take it a step further. The efficient frontier is essentially a visual representations of the best or optimal portfolios in terms of the risk return tradeoff. The graph presents the best returns available at each level of risk tolerance. In practice, risk or standard deviation is not intuitive for most investors who often think of risk in terms of the probability of losing money. However, the two are intricately related. Here is another rule to remember:

***A lower standard deviation generally means a lower probability of losing money^{12*}**

That is the main reason you should pine for investments with lower standard deviations. Another reason is far more difficult to understand: Generally a portfolio with a lower standard deviation can be geared to deliver higher returns as long as its return exceeds the borrowing interest rate. This can be accomplished by borrowing to invest. What this means is that if you can design a more “efficient” portfolio by lowering risk through diversification, you can also obtain higher returns than the previous portfolio at all levels of risk.

Chart 5 illustrates the Efficient Frontier of all of the best portfolios available by using various stock and bond indices versus the same portfolios with the addition of varying allocations to hedge funds.

¹² While this rule has some exceptions, it can be generally proven mathematically which is way beyond the scope of this article.



As you can see, portfolios including hedge funds offer a far better return per unit of risk than portfolios without hedge funds. In addition the converse holds true, although it is not presented in this chart: portfolios including hedge funds offer lower risk at varying levels of return than portfolios without hedge funds.

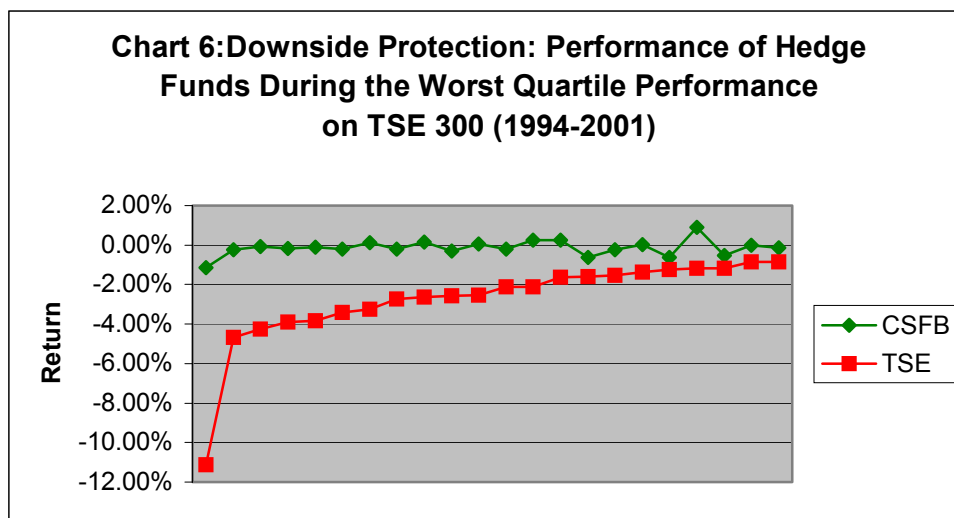
So there you have it. The magical wonders of diversification, and a very compelling reason to buy some hedge funds. There should now be no doubt that diversification is the most important factor in the decision to add a new type of investment to your portfolio. However, you may still wonder how this affects your financial planning in a concrete way. We will get to that, in the mean time I will elucidate on the second major benefit of hedge funds: Downside Protection.

Benefit #2: Downside Protection

It never ceases to amaze me how important downside protection is to the average investor. People are much more emotional about big losses than big gains. Risk aversion as it is called in financial parlance, is not an abstract principle, but rather an important descriptor of how most people like to invest. It has become even more important now, after investors have experienced a rough ride. The prospect of high, seemingly risk-free returns had caused many investors to change their behavior and expectations. Instead of being risk-averse, otherwise conservative investors became risk-seekers. Of course the rest of the story is history.

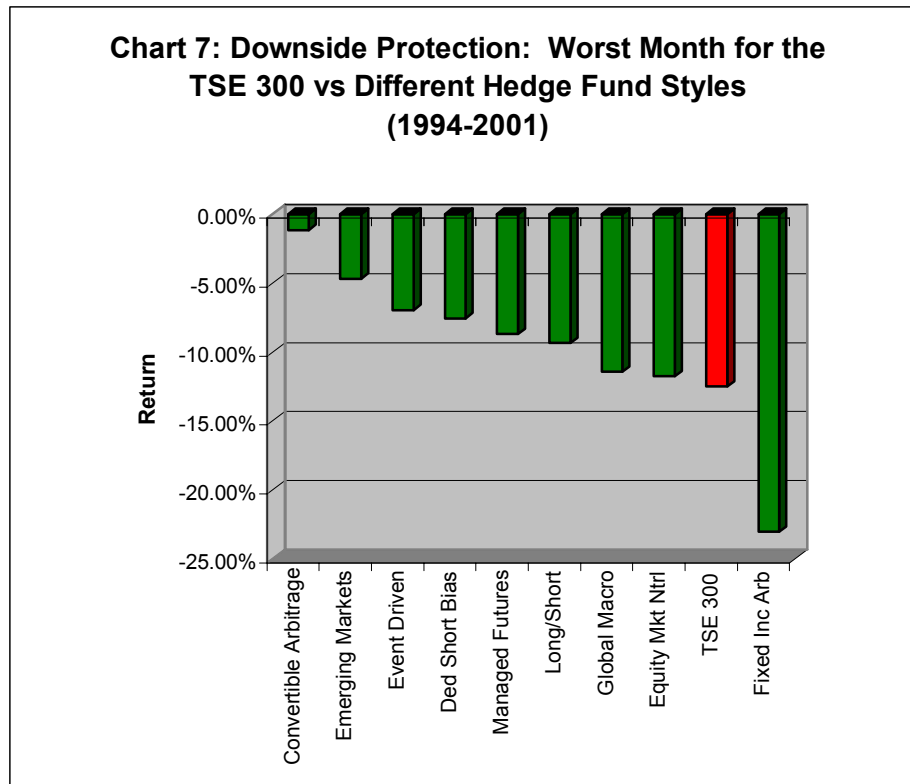
Now investors are demanding a much smoother ride to retirement, even if it means sacrificing returns: witness the massive flow of funds into cash. People are chastising stocks and related investments as the medium for gamblers, and not instruments for sound financial planning. I will not address this comment in great philosophical detail, but I will say that the vast majority of investors will be unable to attain their investment goals without bearing risk. That said, I believe that hedge funds are superior to mutual funds for the main reason that the financial ride is much smoother. The primary objective of most hedge funds is to deliver *consistent* returns in all market conditions—there is not a single mutual fund that can either make or deliver on such a

claim. Part of delivering on this claim requires the ability to hedge downside risk. There are wonderful risk management tools available to hedge fund managers such as derivatives, which cannot be employed by mutual funds on a large scale. A hedge fund manager can effectively insure their portfolios from the risk of loss through using such instruments. Just like other forms of insurance, it is bought at times when either the perceived risk of loss is high and/or if the potential magnitude of loss is high. So, you would expect that many hedge funds would perform well in conditions of severe stress, or when the market has gone south. Chart 6 illustrates the behavior of the hedge fund index during the worst 25% of all days on the TSE 300. These days have been ranked in order of severity to demonstrate the trend.



Notice that hedge funds do deliver significant downside protection: Even in the worst of times they tend to break even, showing little correlation with the performance of the broader stock markets. This chart would look pretty much the same regardless of the index you chose to test. Holding hedge funds in your portfolio would therefore smooth the overall ride through bad times.

The astute reader may wonder the following: how bad things can get for hedge funds regardless of how the market is doing? To rephrase, what is the worst that can happen if I get involved with these hedge funds? Chart 7 shows the worst months for each hedge fund style, and compares them with the worst day for the TSE.



Notice that the worst month for the TSE 300 is worse than all but one style of hedge funds, fixed income arbitrage¹³. This strategy suffered substantially in the wake of the credit problems in Russia, which caused a ripple effect across several different bond markets. Another interesting result is that market neutral funds have the second worst month of the hedge fund styles, despite the fact that most risk indicators point to it being perhaps the lowest risk of the various strategies. The explanation for this anomaly is that many market neutral funds had a strong “value” investment approach. This normally conservative strategy blew up during the period in which many stocks far exceeded “fair value” for prolonged periods of time. As a consequence, both the short side and the long side of the hedge performed poorly, which is generally atypical.

Despite the scary risks involved in fixed-income arbitrage, the chart presents further evidence of the excellent risk-management provided by hedge funds for investors. The reasonable conclusion that one can draw is that hedge funds seem to have a good handle on being able to manage security specific risks as well as market-related risks. Furthermore, hedge funds seem to deliver on their claims of being able to deliver stable returns. For the investors, this means that holding hedge funds will likely insulate your portfolio from significant volatility regardless of how the market is doing.

¹³ The latter strategy included such funds as the fabled Long Term Capital Management, which were destroyed by a credit crunch, and consequent liquidity crisis. Such events typically do not affect equity hedge funds to the same degree.

Benefit #3: Return Enhancement

Overall, the historical record shows that hedge funds have outperformed the broader stock indices, both on a gross basis, and on a risk-adjusted basis. The only exception is the S&P 500, which enjoyed phenomenal returns over the most recent 15-year period, often exceeding most hedge fund returns. This result is fairly consistent regardless of which performance database is used. For the Canadian investor, that tends to invest a large percentage of assets at home, it is of interest how hedge funds have performed relative to domestic indices. The table below presents the performance of various hedge fund styles versus the TSE 300.

	Global Macro	Long/Short	Event Driven	Mkt Neutral	CSFB Total Index	TSE 300
Monthly Standard Deviation	4.1%	3.6%	1.9%	1.0%	2.8%	5.1%
Annual Standard Deviation	14.1%	12.6%	6.5%	3.4%	9.8%	17.7%
Monthly Arithmetic Return	1.2%	1.2%	1.0%	1.0%	1.0%	0.8%
Annual Arithmetic Return	14.2%	14.5%	11.7%	11.5%	12.1%	9.4%
Growth of \$10000	\$28,593.4	\$29,863.9	\$24,924.3	\$24,779.9	\$25,183.4	\$18,666.1

Notice that the annual compound return of each hedge fund style, as well as the aggregate hedge fund index (CSFB) exceed the return from the TSE 300 during the period. An investor who would have put \$10,000 in any of the hedge fund styles would have had at least \$25,000 at the end of the 8-year period. In contrast, the same investment in the TSE 300 would have yielded roughly \$19,000, 31% less than the minimum return offered by the different hedge fund styles. The table below also presents hedge fund performance versus major world indices using a different database, and a longer measurement period (15 years). The data is from the Tuna Indices, provided by Hedgefund.net¹⁴:

	All Hedge	Equity Hedge	Market Neutral	Fund of Funds	Arbitrage	S&P 500	EAFE	TSE 300	Cdn. Bonds
Annual Geometric Return	20.0%	22.1%	15.0%	17.5%	15.3%	16.8%	12.2%	9.2%	7.7%
Standard Deviation	7.9%	14.0%	8.7%	7.5%	8.9%	15.0%	21.2%	15.0%	3.7%
Risk/Return (Sharpe) Ratio	189.9%	122.1%	114.9%	166.7%	115.7%	78.7%	34.0%	28.0%	66.8%

** Returns have been converted into \$CDN*

With the exception of market neutral and arbitrage funds, the remaining hedge fund styles have outperformed all of the major indices presented, including the S&P 500, the EAFE

¹⁴ Please note that while this database has a longer performance record, it is not considered to contain data as “clean” as the CSFB index, which does a more thorough job of checking and filtering the data.

world index, and the TSE 300. More importantly, the risk-adjusted, or risk/.return ratios, are substantially higher for all hedge funds. This means that hedge funds have offered superior return per unit of risk than any of the other investment alternatives presented over the period.

What this means is that including hedge funds in your portfolio, should also increase the overall return. Given a low correlation and lower standard deviation relative to domestic and international indices, this return enhancement will also be enjoyed while *reducing* the overall risk of the portfolio. It sounds too good to be true, doesn't it? Here's the rub:

A Word of Caution¹⁵

The prospect of higher returns is almost always the crowd favorite for investors. However, it is important to caution the reader of the obvious: past performance is not necessarily indicative of future performance. Hedge funds have enjoyed excellent performance, primarily because of their obscurity and their high concentration of talent. Only the best portfolio managers and proprietary traders graduate to run hedge funds. This gives the funds a decided edge, since the performance is dependent more on manager skill than mutual funds. Hedge funds generate superior returns through superior research, and through being in a small minority of investors able to capitalize on certain opportunities. That is, *capacity* is a major determinant of the ability of hedge funds to deliver profits. As the hedge fund industry continues to grow at an accelerated pace, capacity will most certainly drive down returns through reduced numbers of superior investment opportunities. It will also dilute the talent pool for fund managers. Every hedge fund style has an "edge" which helps them to make money. With more competition in each space, the "edge" is also bound to be lost to a certain extent. Even equity hedge funds will suffer if the industry continues to grow very quickly.

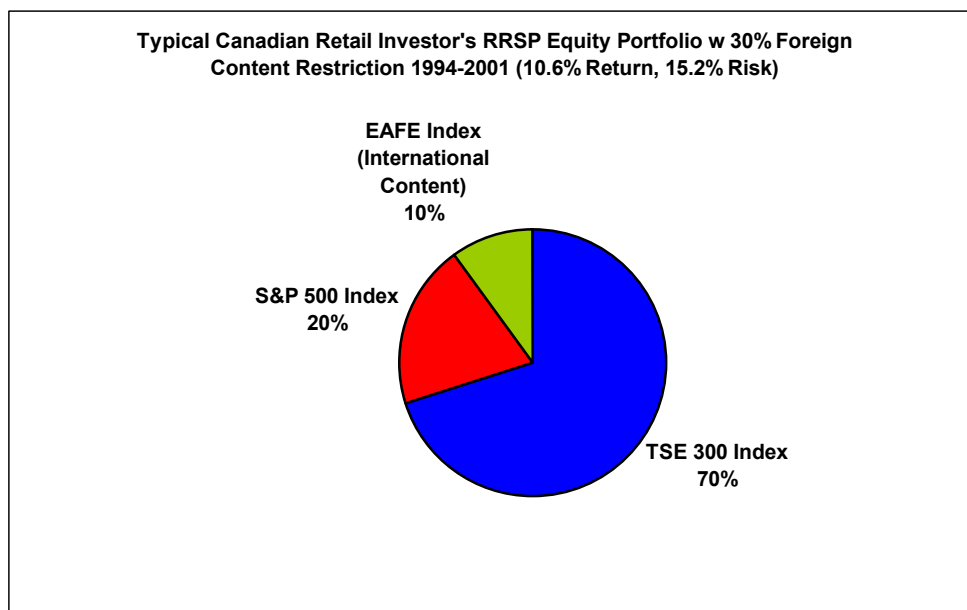
This is the primary reason why I have listed return enhancement last, given what I believe to be its fragile nature. In contrast the correlations and risk packages offered by hedge fund should be robust to capacity, as they are fundamentally driven by the use of distinct strategies. Market neutral funds will almost always have less risk than a long portfolio, and mergers and acquisitions will always be driven by event-risk rather than market exposure. That is why the risk and correlation benefits have been emphasized, given that they should continue to endure.

¹⁵ Interested readers can also read some of the additional performance measurement issues in Appendix A provided at the end of this paper.

Putting it All Together: Hedge Funds For Sound Financial Planning

Before launching into demonstrating concrete examples, let's review what you have learned up to this point. So far, I have demonstrated that hedge funds offer several benefits to the retail investor's portfolio. First, the low correlation of hedge fund returns to other asset classes is low, and therefore they offer diversification benefits. As a result, the inclusion of hedge funds in a portfolio should also reduce portfolio risk. Second, hedge funds tend to have more stable returns than other asset classes, and generally hold up well under conditions of market stress. Furthermore, they also demonstrate an excellent ability to manage security specific as well. Therefore including hedge funds in a portfolio should make the overall ride to one's financial goals much smoother and easier to tolerate. Third, and I believe least important, hedge funds seem to deliver superior performance to both mutual funds and major stock indices. This means that even a small allocation to this alternative asset class, should enhance the overall return of the investor's portfolio.

We have discussed the theory and evidence, now let's take a look at how the inclusion of hedge funds actually affects portfolio risk and return. First, let me introduce to you what I have generically referred to as the "retail investor's portfolio." I have simplified the example by creating an all equity portfolio instead of different stock and bond allocations. This portfolio would be representative of most retail investor's holdings in their RRSP account. That is, while the holdings may not be exactly the same, the performance of most investors portfolios should have very similar exposure, and a high correlation to the portfolio in this example. Chart 8 depicts the various allocations to different stock indices, and the overall risk and return provided by this portfolio over the period 1994-2001:



This portfolio offers a good risk/return profile—superior to the TSE300—with less risk. What I would like to demonstrate is how this portfolio becomes more efficient with the

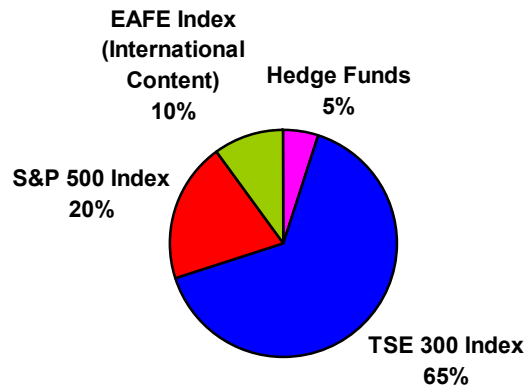
inclusion of hedge funds, and how this impacts the most important aspect of financial planning: saving for retirement. The table below presents the impact of varying allocations to hedge funds on the risk/return profile of the RRSP equity portfolio¹⁶.

Table : Risk Reduction/ Return Enhancement for Various Portfolio Allocations to Hedge Funds vs Typical RRSP Portfolio without Hedge Funds			
5% Allocation			
	<u>Portfolio w/o Hedge Funds</u>	<u>Portfolio w Hedge Funds</u>	<u>Gain/Loss</u>
Return	10.6%	10.7%	0.1%
Risk	15.2%	14.6%	-0.5%
10% Allocation			
	<u>Portfolio w/o Hedge Funds</u>	<u>Portfolio w Hedge Funds</u>	<u>Gain/Loss</u>
Return	10.6%	10.8%	0.2%
Risk	15.2%	14.1%	-1.0%
15% Allocation			
	<u>Portfolio w/o Hedge Funds</u>	<u>Portfolio w Hedge Funds</u>	<u>Gain/Loss</u>
Return	10.6%	10.9%	0.3%
Risk	15.2%	13.6%	-1.5%

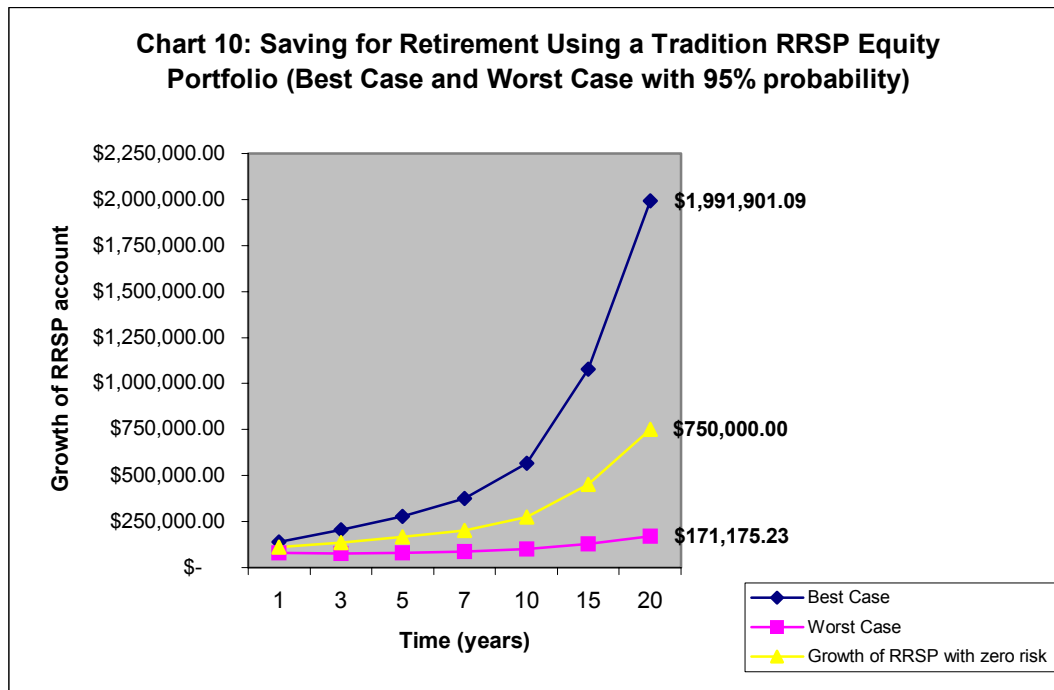
As promised, the inclusion of hedge funds both increases the portfolio return and reduces portfolio risk. Note that the risk reduction benefits as a percentage are superior to the return enhancement benefits. As the allocation to hedge fund increases, the risk/return benefits also increase. You may have an important question though: How do I re-allocate my portfolio to accommodate hedge funds? I would recommend reducing your exposure to large-cap domestic stocks (TSE 300 listed) by the percentage you plan to include for hedge funds in your portfolio. The logic is that Canadian stocks have demonstrated one of the worst risk/return tradeoffs and a high correlation relative to major global stock markets. Therefore, the substitution of hedge funds for this component will give you the best bang for your buck so to speak. Chart 9 illustrates a sample 5% allocation to hedge funds.

¹⁶ The CSFB hedge fund index performance data has been used for this example from the period 1994-2001.

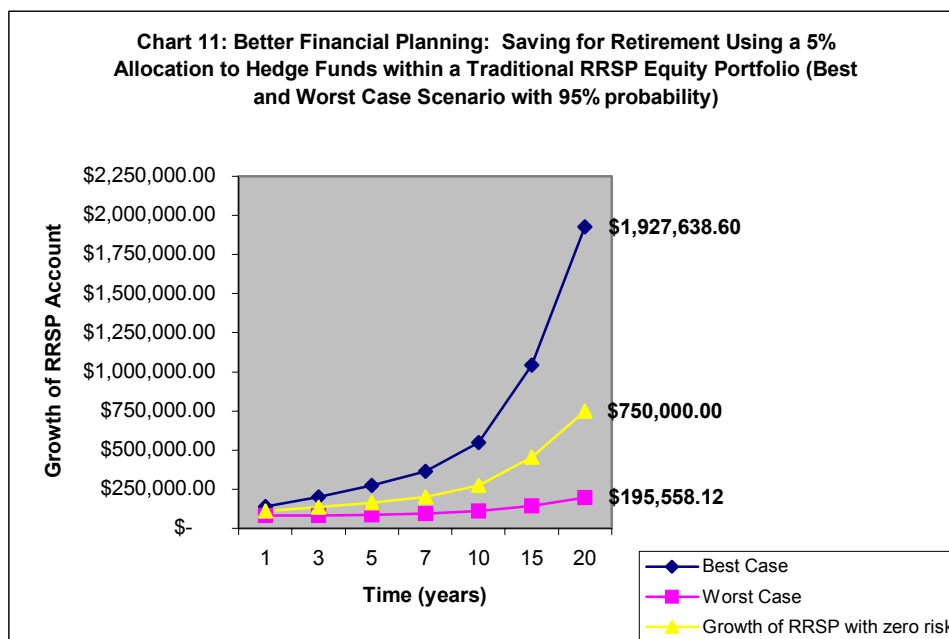
Chart 9: Designing a More Efficient RRSP Portfolio Using a 5% Allocation to Hedge Funds 1994-2001 (Return 10.7%, Risk 14.6%)



Now I would like to show you the impact of hedge fund allocation on saving for a retirement goal. Many of you have had financial planners work with you to determine how much to save for retirement. Undoubtedly, some of you have been told *exactly* how much you need to save to reach your financial goals. This might have left you with the incorrect perception that financial planning is concrete, and that you will meet your goals over the long run with very little uncertainty. I would like to now suggest that this is in fact a false depiction of reality. In fact, the higher the risk (or standard deviation) of your portfolio, the greater the uncertainty about whether you will end up sailing in a yacht in retirement, or having to work part-time to put food on the table. A slightly lower standard deviation, other things being equal, will substantially improve this uncertainty. In the example below, we will assume that you currently have \$100,000 saved up in your RRSP and are saving for a retirement goal of \$750,000. You can use two different portfolios: 1) the traditional equity portfolio or 2) the same portfolio with a 5% allocation to hedge funds. Chart 10 depicts the maximum range of the the growth of your retirement savings over time with 95% probability using the traditional equity portfolio.

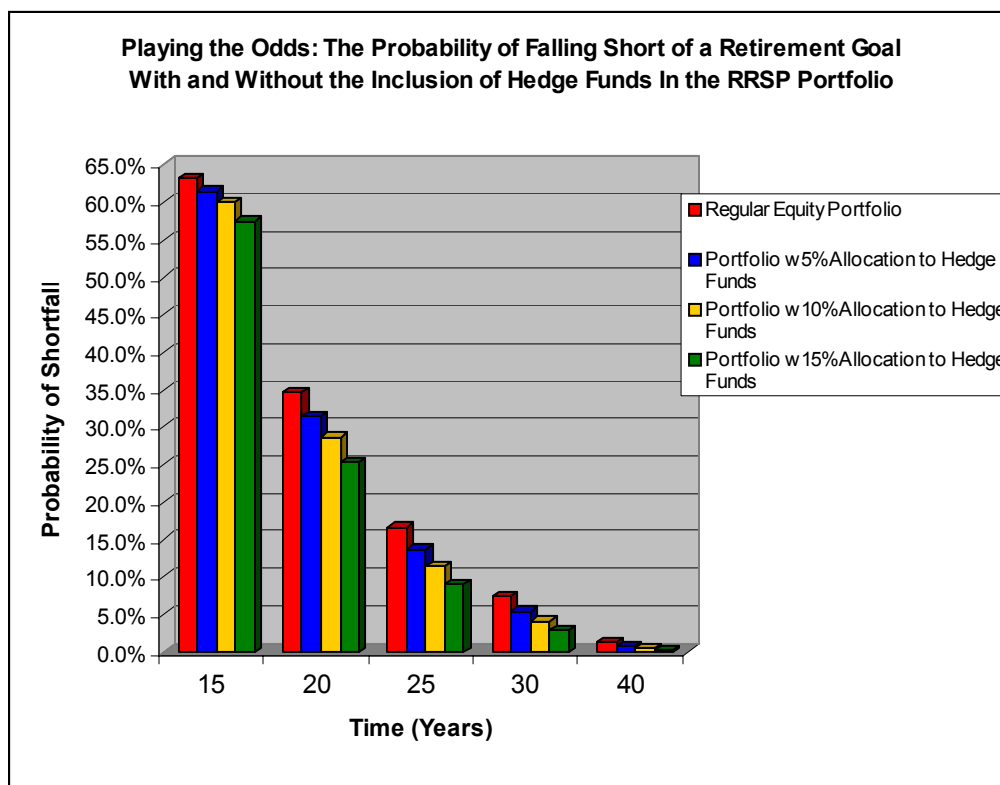


In the best case, you will end up a millionaire, with almost \$2 million dollars after a 20-year period. Probably you will consider that yacht, or maybe even a new condo in Florida. At worst, you will definitely have to work part-time, with \$170,000 left at retirement. Notice that the range from best case to worst case is roughly \$1,820,000—quite a significant variation around the \$750,000 you were supposed to have. So what about hedge funds? Do they help to mitigate this variation? Indeed they do. Chart 11 demonstrates the uncertainty faced by the same investor with a mere 5% allocation to hedge funds.



Notice that the worst case scenario is much better for the hedge fund investor by almost \$25,000. Percentage wise, this is a nearly 15% improvement on your downside. Also, you may have noticed that the best case scenario is lower by over \$60,000. Percentage wise, this is about a 4% reduction on your upside. The overall spread however (Best Case-Worst Case) has narrowed considerably to approximately \$1,730,000—a reduction in uncertainty of almost \$100,000 over the traditional equity portfolio. As you can see, the reduced risk results in less uncertainty about achieving a financial goal: The bonus is that your downside is significantly reduced, while your upside is only slightly sacrificed.

So you now believe me that hedge funds improve your financial planning by reducing uncertainty, but by how much? More precisely, what are the odds or chances of me succeeding in attaining my retirement goal. Perhaps more importantly, what are the chance that you will fail or fall short of attaining your goal. The two questions are like two sides of the same coin: the probability of failure is simply 1- the probability of success. For example, if the chances of success are 75%, then the chance of failure is 25%. Enough of the probability lessons, lets roll the dice and find out what happens.¹⁷ Chart 12 depicts the probability of falling short of your retirement goal with and without hedge funds over time. For this example, we will assume that you currently have \$100,000 in your retirement account, and are saving for a \$500,000 goal.



¹⁷ Please keep in mind that this probability is a statistical approximation, and is therefore a rough but superior guide than performing scenario analysis.

There are two important things to notice: 1) as time goes on your chances of falling short are reduced. This is because time is one of the primary determinants of how much your investment account will grow due to compounding. 2) as the allocation to hedge funds increases, the probability of falling short of your retirement goal decreases (this is good!). Also note that the portfolio including hedge funds—regardless of allocation—will have a greater probability of achieving your financial goal than the traditional equity portfolio. By now you should be completely convinced that hedge funds can improve your financial planning.

How Much Should I Allocate to Hedge Funds?

I would ultimately recommend that you leave this decision up to your financial advisor who understands your risk tolerance and financial goals and objectives. However, I will present some basic guidelines. In a separate study, I used an “optimizer” to generate the efficient frontier with various hedge fund allocations to a diversified portfolio. An optimizer is a computer program that mathematically determines the “best” way to allocate funds across asset classes using performance and correlation data. Efficient, or optimal means that the portfolios are generated to produce the best returns for varying levels of risk and vice versa. The evidence suggests that at bare minimum, an efficient portfolio for even the most conservative investor would have a 5% allocation to hedge funds. For the more aggressive investors, a 20% allocation was shown to be the most efficient portfolio based on the Sharpe or Risk/Return Ratio. The 5%-20% range that I found in my research is almost identical to the range suggested at a recent conference on hedge funds that I attended. From the anecdotal evidence available, many large pension funds seem to allocate from a minimum of 5% to a maximum of 20%, depending on their investment policy. The precise allocation that is correct for one individual may be significantly different for another. I would also reiterate the past performance criticism, which impacts the reliability of this recommended range if the future were to be significantly different for hedge fund, or even index performance. The allocation range could be much greater, or it could be substantially less. Ultimately, you should realize that even a small allocation to hedge funds should improve the performance of your portfolio.

The Canadian Retail Hedge Fund Environment

The retail hedge fund environment is at the cusp of a major expansion in the growth of the different types of products that will become available at an affordable price. In the U.S., which is typically ahead of the Canadian market, there are almost 20 different hedge funds available with low minimum investments, and an open-end structure. In effect, they are packaged exactly like mutual funds, but behave much like

hedge funds. As the markets continue to flounder, demand for these products will continue to increase. This trend will also hold for Canadian funds as well, albeit at a slower rate. The table below presents a list of Canadian hedge fund companies, but keep in mind that most only offer their products with a \$150,000 investment. At present, there are only two companies which provide retail hedge funds with less than the \$150,000 required minimum investment by the Ontario Securities Commission: 1) Argentum (read Argentum) UAF and 2) First Horizon Capital. The reason for this small number is that the current regulatory hurdles to achieve retail status are difficult to surmount. Argentum, and First Horizon are the pioneers in this field, and have enjoyed a great deal of success and popularity.

Table : A List of Canadian Hedge Fund Companies*
Tremont
Polar Capital
Newcastle Capital
Goodwood Inc
Banfield Capital Management
CI Mutual Funds-- BPI Global/American Opportunities (I&II)
Hillsdale Investment Management
Ascendent Capital Management
Casurina Limited Partnership
Quant Investment Strategies
First Horizon Group
Sprott Securities
Friedberg Mercantile
Arrow Hedge Funds
Altus Hedge Fund Partners
Enterprise Capital
Blackberry Capital Partners
Rousseau Asset Management
Strategic Nova
Bolder
Thales Cop
Canadian Arbitrage Strategies
Argentum
Maple Partners
iPerform
Phoenix Capital
Mackenzie Alternative Strategies Fund
*May not be comprehensive

First Horizon's Mondiale Hedge Fund

This hedge fund company is based in Vancouver, and now has a Toronto office. They run a number of different hedge funds, with Mondiale being the flagship retail product. While I will present the performance numbers shortly, I would like to mention that the fund has enjoyed a great deal of long-term success in producing superior performance numbers. Mondiale produces equity-like returns, having outperformed the TSE 300 since inception. Furthermore, the ride for investors has been quite stable by comparison to the index. The minimum investment is only \$5000, making the fund accessible to almost everyone with a portfolio exceeding about \$100,000.¹⁸ The fund has primarily a long/short investment style, with the net position of the fund being flexible depending on market conditions. Mondiale typically runs computer-based investment strategies which use hundreds of trading rules based on academic and private research. The benefit to this method is that the fund strategy is consistently employed in an efficient manner. Thus, the style drift which is an issue with more subjective active management is taken out of the picture. In other words, the strategy doesn't change because of a change in approach or preference by the manager. The main downside of this strategy is that portfolio turnover can be quite high, making the tax burden for this portfolio severe if held outside of an RRSP. Fortunately, the fund can be purchase for your retirement account which will insulate you from this tax effect.

@rgentum UAF

Argentum is a Toronto-based investment company which specializes in retail hedge funds. There are three primary product offerings: 1) Argentum Canadian Long/Short 2) Argentum U.S Market Neutral 3) Argentum Pooled Market Neutral. The investment style is self-explanatory. Argentum has also enjoyed success, especially during the recent market downturn, where it was churning out positive returns. The minimum investment for all of the company's funds is a mere \$500, making it available to investors with portfolios as small as \$10,000. Overall, the funds tend to be less risky than other hedge funds, with a focus on providing downside protection. You can count on these funds to really reduce the risk of your portfolio- especially during times of stress. One of the funds manager's likened the products to a "supercharged bond," with low risk and a return exceeding the bond rate by 1 to 3% per annum. Essentially, Argentum also runs a computer-driven "quant shop," with the funds being managed by trading rules. Again to reiterate, the positive part about this strategy is consistency, while the negative aspect of this strategy is portfolio turnover leading to high capital gains taxes. The ideal strategy of course is to hold the fund of your choice in an RRSP account.

Newcastle Market Trust

Newcastle is a Toronto-based company which has a variety of hedge fund product offerings. These funds are closed to investment, but you can participate in these funds indirectly by purchasing the closed-end unit trust (NMN-U) which trades on the TSE 300.

¹⁸ This is based on a 5% minimum allocation.

Retail Hedge Fund Performance

The most important thing to understand about hedge fund performance or even mutual fund performance is that past success does not necessarily predict future success. Now that I have made my disclaimer, I should say that the two major companies (First Horizon and Argentum) have different styles, which should lead to different performance characteristics. The Mondiale hedge fund is more of an opportunistic long/short fund, that generally has more market exposure. You can probably expect higher returns from this type of strategy, and also a higher correlation. In contrast, Argentum's products are more defensive, and will tend to have lower returns, but a much lower correlation to the market. The table below presents the performance of the above mentioned retail hedge funds.

Fund Name	Minimum**** RRSP Investment	Minimum Non- RRSP Investment	Effective MER	Annualized Volatility* Relative to TSE 300	Growth of \$10000 vs TSE 300	Portfolio Risk Reduction Benefit**
Horizon's Mondiale Hedge	\$5,000	\$5,000	2.50%	32%	\$16,700 vs \$11,500	4.60%
Argentum US Market Neutral	\$500	\$500	2.00%	71%	\$8,200 vs \$8,800	6.20%
Argentum Pooled Market Neutral	\$150,000	\$500	3.20%	67%	\$11,100 vs \$10,000	6.50%
Argentum Canadian Long/Short	\$500	\$500	2.95%	68%	\$8,200 vs \$8,300	7.30%
Newcastle Closed-End Market Trust	***	***	none	90%	\$9,000 vs \$11,000	4.00%

*Comparison is made to TSE 300 during the period in which performance numbers are available for the fund

** Assuming a 5% minimum investment in the fund alongside a typical equity portfolio

***Recently, the units traded at \$18 under the symbol NMN-U on the TSE.

****Data and info provided by Morningstar and Bell Charts

*****This can be subject to change, contact the company for recent info.

True to form, the Mondiale fund trounced the TSE 300 during the measured period in terms of annual return and total return. The fund also showed a low standard deviation relative to the TSE 300 during the period, indicating a very favorable risk-adjusted payoff. In terms of its risk reduction benefits, the Mondiale is still solid, reducing the risk of a typical equity portfolio by 4.6%. However, this benefit was mitigated by a higher correlation to the TSE 300 than the other funds. Argentum also delivers numbers in accordance with predictions. The Pooled Market Neutral fund was the top performer, outperforming the TSE 300 over the period with less volatility. The big news is that it offers tremendous risk reduction benefits with its negative correlation to the TSE 300. Although performance numbers were somewhat weak for the US Market Neutral and Canadian Long/Short, the verdict is still not out yet since they were started only a year ago. Nevertheless, both offer excellent risk reduction benefits as a result of their strong negative correlations to the market. Newcastle has offered little in the way of performance, but still offers a risk reduction benefit.

Conclusion

Hopefully by now you understand a great deal more about hedge funds and their benefits for financial planning. Ideally, you will have also learned some important financial concepts that were previously foreign to you. In addition, you should now have a good overview of the current state of the retail environment, and the products available. If you are considering making a purchase, it is now time for you to sit down with your financial planner, or advisor, and evaluate all of the alternatives available in light of your unique financial situation. Knowledge is power, and being an informed investor will allow you to make more intelligent decisions. At the very least, you will have learned to look beyond plain-vanilla mutual funds, and understand that there are numerous investment alternatives available for your financial benefit.

References

Ackermann, C., R. McEnally, and D. Ravenscraft. 1999. "The Performance of Hedge Funds: Risk, Return and Incentives." *Journal of Finance*, vol.54, 833-874

- Agarwal, V., and Naik, N. Y., 2000. "Multi-period performance persistence analysis of hedge funds." *Journal of Financial and Quantitative Analysis*, vol. 35, no. 3 (September): 327-342.
- Brown, S. J., W. N. Goetzmann, and R. G. Ibbotson. 1999. "Offshore Hedge Funds: Survival & Performance 1989-1995." *Journal of Business*, vol. 72, no. 1 (January):91-117.
- Brown, S. J., W. N. Goetzmann, R. G. Ibbotson, and S. A. Ross. 1992. "Survivorship Bias in Performance Studies." *Review of Financial Studies*, vol. 5, no. 4 (Winter):553-580.
- Elton, E., M. Gruber, and C. Blake. 1996. "The Persistence of Risk-Adjusted Mutual Fund Performance." *Journal of Business*, vol. 69, no. 2 (April):133-157.
- Euromoney, London: Jun 2000: David Shirreff
- Edwards, F.R., and Liew, J., 1999, "Hedge Funds Versus Managed Futures as Asset Classes." *The Journal of Derivatives*, Summer.
- Fung, W., and D. A. Hsieh. 1997a. "Empirical Characteristics of Dynamic Trading Strategies: The Case of Hedge Funds." *The Review of Financial Studies*, vol. 10, no. 2 (Summer):275-302.
- Fung, W., and D. A. Hsieh. 1997b. "Survivorship Bias and Investment Style in the Returns of CTAs." *The Journal of Portfolio Management*, vol. 24, no. 1 (Fall):30-41.
- Lakonishok, J., A. Shleifer, and R. W. Vishny. 1994. Contrarian Investment, Extrapolation, and Risk." *Journal of Finance*, vol. 49, no. 5 (December):1541-1578.
- Liang, B. 2000 Sept, "Hedge Funds: The Living and the Dead." *Journal of Financial and Quantitative Analysis*, 35, 309-326.
- Malkiel, B. G. 1995. "Returns From Investing in Equity Mutual Funds, 1971 To 1991." *Journal of Finance*, vol. 50, no. 2 (June):549-572.
- Purcell, D. and Crowley, P., 1999 "The Reality of Hedge Funds." *The Journal of Investing*, vol 8, no.3, 26-44.
- Schneeweis, T. and Spurgin, R., 2000. "Hedge Funds: Portfolio Risk Diversifiers, Return Enhancers or Both?" *Hedgefund.net*.
- Sharpe, W. F. 1992. "Asset Allocation: Management Style and Performance Measurement." *Journal of Portfolio Management*, vol. 18, no. 2 (Winter):7-19.

Appendix A: Difficulties in Measuring Hedge Fund Performance

Unique Problems

Comparison and evaluation of hedge fund performance is more difficult than for other vehicles like mutual funds. The privatization of the industry means looser regulations, and an overall lack of transparency. As such, performance data is not purely objective. Fund managers are often given the ultimate responsibility of reporting performance to investment management consultants who record the data. The pressure to perform given the incentive-based fee structure makes the temptation to alter performance numbers very high.

Comparison between hedge funds is difficult because performance can be recorded either quarterly, annually or across and other time period. It is sometimes quoted pretax, and sometimes after tax. Sometimes the data is net of fees, while other times it is gross of fees. To complicate matters further, some funds don't report performance until they have built up a track record. During periods of poor performance, the fund can sometimes stop reporting. For funds invested in illiquid assets it is often difficult if not impossible to obtain an objective market value.

General Problems

Survivorship bias in the data set is the most common problem in both mutual funds and hedge funds. This occurs when the funds that fail drop out of the data set, leaving the strongest or fittest funds as the survivors. As such the data is biased upward, and returns tend to be mildly overstated, and risks potentially understated. Fung and Hsieh (1998) document an annual survivorship bias of 1.5% for hedge funds. Brown, Goetzmann, and Ibboston (1999) report an annual survivorship bias of 3% for offshore funds. Liang (2000) analyzed to different data sets and found that the survivorship bias exceeds 2% per year on average. Offshore funds had slightly higher survivorship bias than onshore funds. Survivorship bias predictably, was also found to vary by investment styles. Less risky styles such as fund of funds, market neutral, value, equity hedge, and investing in distressed securities had lower survivorship bias. Emerging markets, opportunistic, and convertible arbitrage had higher survivorship bias. The study's results also show that poor performance is generally the main reason for a fund's disappearance.

Elton, Gruber, and Blake (1996) and Malkiel (1995) have previously raised the issue that the survivorship bias of a mutual fund sample can affect the performance evaluation. The survivorship bias documented in the mutual fund studies is 0.5%-1.4% per year. This is reasonably comparable to the bias for hedge funds. However, Ackermann, McEnally, and Ravenscraft (1999) found that the survivorship bias for hedge funds was actually is small at an average magnitude of 0.013% per month, or 0.16% per year. Since results from the above studies seem to be conflicting it is clear that the true magnitude and impact of survivorship bias depends on both the accuracy and quality of the database. Nevertheless, it appears that the overall magnitude is not too severe, and major adjustments do not appear to be necessary. As mentioned before, Liang (2000) found that the potentially higher survivorship bias does not explain the difference in risk-adjusted returns between hedge funds and mutual funds.

