# Investment mandates for hedge funds

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**Abstract** Hedge funds were originally developed to provide a high-risk, high-return investment supplement for wealthy and, presumably, sophisticated investors. Eye-catching returns contrasted in recent times with disappointing results from conventional funds, which led many pension fund managers to seek ways to share the superior returns offered by hedge funds. If well selected and implemented, hedge funds can both add return and reduce volatility in the overall funds. Poorly planned and executed hedge fund investment can expose the fund to extremely high costs, low liquidity and potentially unknowable investment risks. Perhaps the worst danger is that the investments in the hedge funds offset those of the conventional fund, resulting in a bland overall mix that has no chance of achieving the hoped-for returns, but with high fees. Recent forecasts by economists of more modest returns from equities and bonds for the foreseeable future pose potential problems for managers of retirement funds. One solution is to add high-return investments, such as hedge funds, to the portfolio mix. The paper describes some popular hedge fund strategies, and how they may complement a conventional balanced portfolio. It then explores ways to select from the wide range of hedge funds available and choose a hedge fund that will add value without compounding or offsetting the risks within the existing fund. The potential role of indexation in combination with hedge funds is discussed, together with some approaches to risk analysis.

**Keywords:** *hedge funds; absolute return; gearing; leverage; short-selling; hedge fund-of-funds; risk management; return enhancement; balanced portfolios; risk measurement; relative value; arbitrage; derivatives*

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## Introduction: Why use hedge funds in balanced funds?

Pension fund managers are increasingly required to consider including hedge funds and other 'non-conventional' investments in their portfolios. At first sight it may seem odd that high-risk investments can be considered suitable for such conservative portfolios — hedge funds were developed to earn high returns for investors who are capable of bearing very high risk. These investors are in this position because they do not depend on these funds for their livelihood, and are sophisticated enough to be comfortable with the risks inherent

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in most hedge fund strategies. This description hardly fits the average pension fund member. Yet these members are increasingly dissatisfied with the returns on their conventional pension fund, while they see that much higher returns are indeed available to the 'wealthy'. With many economists predicting modest returns to equities and bonds for the foreseeable future, pension fund managers often find that they must look beyond these asset classes to achieve the returns they need to meet expected liabilities and members' demands.

What distinguishes a hedge fund from a conventional portfolio? Hedge funds are defined neither by investment type nor legal category. They do not share any particular technique, strategy or investment universe. The supervision and regulation to which they are subject is determined primarily by the jurisdictions in which they operate, rather than any common hedge fund characteristics. In fact, hedge funds share few if any characteristics, except perhaps these five:

— their returns tend to be measured in absolute terms rather than against some benchmark;
— hedge funds usually allow gearing and short selling;
— they are more likely than conventional funds to have fees with a performance-related component;
— they usually have a high minimum investment;
— they are not transparent, meaning that they do not disclose details of what is in the portfolio at any time. Many hedge fund strategies are vulnerable to manipulation by other investors if they become known.

## Types of hedge funds

There are no rules or overt limitations on the activities of hedge funds, but most hedge funds fall into one of the following categories:

— 'relative value' investing using frequently-traded instruments including equities, bonds, futures, options, swaps and swaptions;
— 'event driven', using frequently-traded instruments, usually equities, to profit from expected changes in capitalisation or regulation that will change the future fair price of an asset or group of assets;
— investing in unlisted assets, such as direct equity and bonds.

### Relative value strategies

These include:
*Long-short:* Where the portfolio comprises bought assets that are perceived to be cheap and sold assets perceived to be expensive. Although many of the bought and sold positions largely offset each other, these hedge funds often have some exposure to conventional markets because:

— the assets bought and sold may or may not be in the same market;
— they may not exactly offset each other either.

*Market neutral:* This is a special case of the long-short strategy, whereby the assets are bought and sold in roughly equal quantities to effect a neutral exposure to any given market. As with long-short funds, the market neutral portfolio often has some residual exposure to the market if bought and sold positions do not exactly offset each other.

*Convertible hedge:* These portfolios invest in convertible bonds, corporate bonds and equities to exploit perceived mispricing in convertible bonds. A typical transaction combines a bought convertible bond with a sold equity and sold call option position. Bought and sold positions usually, but not always, offset each other. While theoretically market neutral, the fund may, at least during short intervals, bear some exposure to either bond or equity markets or both.

*Volatility trading:* The portfolio invests in options on stocks or indices to profit from perceived mispricing. The objective is to maintain a roughly neutral exposure to changes in the price of the underlying instrument and to exploit changes in the price of the options relative to that of the underlying instrument. Options portfolios can be designed to eliminate all exposure to the underlying securities, but in practice they rarely do, so there is usually some exposure to conventional markets.

*Commodities funds:* Specialising in non-financial derivatives, such as agricultural and mineral futures and options, these funds seek to exploit price changes. Transactions may include simple bought or sold futures to exploit a forecast price change, or offsetting bought and sold futures to profit from changes in price differentials, for example, between oil and gas or gold and platinum. They can also employ options strategies more usually seen in a volatility trading fund.

*Bear funds:* Relatively simple portfolios that specialise in selling assets short to profit from adverse market conditions.

### Event-driven strategies

These include:
*Take-over arbitrage:* These portfolios speculate on the outcome of takeover activity. They typically buy the offeree and sell the offeror in roughly equal quantities, reversing the position automatically if the take-over occurs. They usually seek to eliminate all market risk by means of offsetting bought and sold positions; however, the offset may not be perfect, particularly following differential price changes, so some market exposure may result.

*Regulatory arbitrage:* These portfolios bet that regulations governing an industry or group of assets will change the fair value of those assets. They buy assets that are thought to be in a position to profit from the change, and sell the potential losers. As with takeover arbitrage, positions tend to be offsetting, at least initially, although some market exposure will result from price movements.

### Unlisted assets

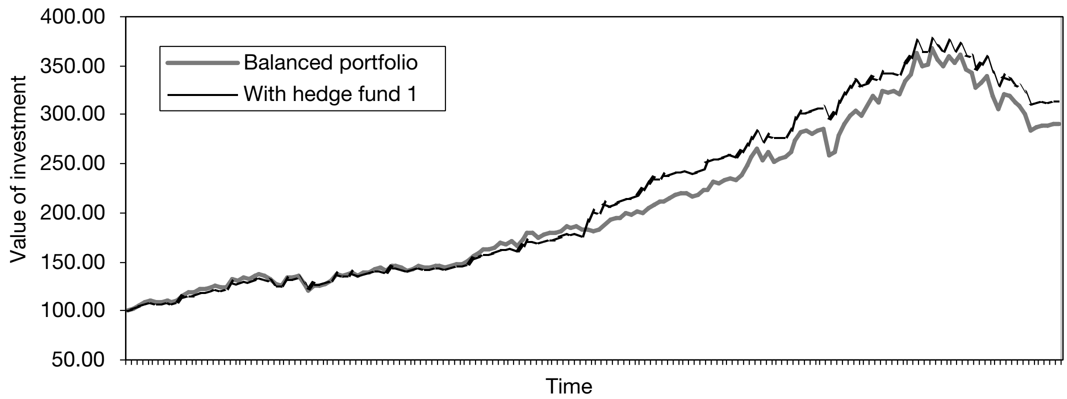
These include:
*Private equity:* This includes venture capital, buy-outs and restructuring of distressed assets. The investments are bought only, so tend to have some correlation with equity and bond markets.

*Private bonds:* These are similar to private equity in that they are also bought only, so tend to have some correlation with other bond and equity markets.

Long-short, market neutral, convertible arbitrage and volatility trading funds are also sometimes referred to as ‘pure alpha’ funds because they derive their returns from stock selection only, having eliminated most ‘beta’ or market exposure.

## Hedge funds as return enhancement

As a complement to conventional diversified portfolios, hedge funds can significantly increase return while adding little risk or even reducing the risk to the overall portfolio if well selected and implemented.




| | *Annualised return* | *Volatility* |
|---|---|---|
| Balanced portfolio | 7.82% | 9.06% |
| Hedge fund 1 | 10.42% | 16.42% |
| Combination 80/20 | 8.41% | 7.33% |

**Figure 1:** Contribution to return of a hedge fund

The ability of hedge funds to achieve this rests on their generally low correlations with conventional asset classes. Having a low correlation means that they can add diversification. Needless to say, not all hedge funds do this. Examples of those that do include market neutral, long-short, convertible hedge and volatility trading funds because they tend to hold positions that offset the market risk that characterises regular asset classes. Commodities funds also can have low correlations with regular asset classes. Bear funds, by contrast, are not suitable for diversification because they simply offset the risk of conventional assets. Private equity and private bond funds can generate impressive returns, but because they are likely to have positive correlations with conventional equity and bond markets, they are less efficient diversifiers of risk than funds that employ long-short strategies.

Figure 1 shows how a high-risk hedge fund can both add return and reduce the volatility of a conventional balanced portfolio. The volatility of the hedge fund over the 14-year period is higher than that of the balanced fund, yet the combination (80 per cent balanced and 20 per cent hedge fund) is less volatile.

### Two ways of investing in hedge funds

*Invest in a fund of hedge funds*. The advantages are:

— it is administratively simple, and due diligence is required only on the fund of funds and its manager, instead of on individual hedge funds;
— it gets around the problem of high minimum investment. The fund of hedge funds manager effectively pools the funds of many clients, who individually expose a relatively small sum to any one hedge fund.

The disadvantages are:

— the fees are high, as the portfolio must absorb both the fund of funds management fees as well as those paid to the individual hedge fund managers;

— lack of transparency: there is virtually no way of knowing what the portfolio is investing in, so no way of knowing what the likely range of returns and risks may be, or how these will correlate with the rest of the fund. What you cannot see can hurt you: while this type of investment camouflages the risks of alternative investing, it by no means controls or eliminates them.

*Invest directly in hedge funds*. The investor can choose to buy units in existing hedge funds or engage a hedge fund manager to manage a customised portfolio. The former approach is less expensive, but cannot ensure transparency. The second approach gives the investor a lot more information about the contents of the portfolio and how it is likely to interact with the rest of the fund. It can be particularly suitable for large funds wishing to complement a conventional portfolio.

When the basic structure of the mandate has been determined, the investor can consider the following issues:

— what kind of hedge fund?
— how many managers or funds?
— what benchmark, if any, is appropriate to a hedge fund portfolio?
— what kind of investments should be included and excluded?
— which managers or funds?
— risk management.

### What kind of hedge fund?

The choice of hedge fund depends on the composition of the conventional portfolio. The most efficient risk-return balance is achieved by investing in hedge funds that have low exposure to the assets in which the conventional portfolio otherwise invests.

### How many managers?

The choice is essentially to appoint a single hedge fund manager or to spread the mandate among several managers. The advantages of a single manager are:

— lower cost because management fees are usually levied as a percentage of assets under management on a sliding scale, favouring larger amounts;
— administrative simplicity.

The advantages of multiple managers are:

— reduction of 'manager risk'. This is the risk that changes in staff, ownership or investment philosophy or processes will affect the manager's ability to continue to manage the investment;
— access to a bigger pool of investment manager skills.

Engaging a large number of managers increases the possibility that the portfolios they manage have offsetting bets, resulting in a bland but expensive fund. The question of how many managers to engage must be addressed on the merits of each individual fund, taking into account the size of the fund, which asset classes it invests in and the availability of manager skill.

### What benchmark, if any, is appropriate to a hedge fund portfolio?

The choice of benchmark for any investment mandate is critical, as it will be the main determinant of how the investment manager allocates priorities. Many mandates specify an equities benchmark because the investor believes that this will lead to high returns — equities have indeed delivered this over the last two decades. The danger is that the investment manager will invest in a fairly limited range of equities or equity-like instruments, so the fund will behave like a conventional equity portfolio, possibly replicating existing areas. If the fund is more concerned with absolute returns, then an equity benchmark is clearly inappropriate and the objective should be set in terms of absolute returns, allowing the investment manager sufficient latitude to achieve it.

### What kind of investments to specifically include and exclude?

The range may include some or all of the following:

— conventional assets, such as equities, bonds, money market instruments and foreign currencies;
— exchange-traded futures and options, which confer the advantages of liquidity and very low transactions costs, but, being standardised contracts, may provide only an approximation of the risk reduction or return enhancement that the fund requires;
— over-the-counter contracts for difference, swaps, options and swaptions, which have the advantage that they can be tailored to meet the fund's exact requirements, but often have high transactions costs and limited ability to change course if required;
— non-listed assets, such as direct equity and debt, which can offer quite high returns, but with high transactions costs and virtually no liquidity;
— short sales, which also can give very high returns, but come with their own range of risks.

### Which managers?

Many investors go for the manager with the best track record. But this cannot guarantee results: academic literature is full of evidence that past performance is no guide to future performance, either in absolute terms or relative to a benchmark. Rather than be blinded by history, the investor is better advised to look for indications of future performance. This means scrutinising the means by which the manager constructs and manages portfolios, as well as the approach to risk management and issues such as the stability of the investment team. There are no fixed rules for manager selection, except that common sense is imperative. Managers should be able to explain clearly how they will deliver results and give honest explanations for good as well as poor performance.

### Risk management

Given that the main reason for investing in hedge funds is usually either to enhance return by including high-risk investments or to reduce volatility by increasing the fund's diversification, then the question of risk management must be given some priority. First, some observations on the general nature of risk.

It is generally assumed that volatility is associated with risk. This of course is true up to a point. It is easy to forget that the job of the investment manager is to take risks. Most conventional investment portfolios are designed to meet some long-term investment objective, such as to meet the liabilities of a pension fund or life fund. A portfolio that is not sufficiently volatile runs a higher risk of missing the target than one that is, as can be seen from the graph (Figure 2).

Figure 2 shows that the more stable portfolio may appear superficially less risky, but relative to the investment objectives, it is clearly exposing its owners to much greater risk than the more volatile portfolio, which has a higher probability of meeting the objective return.

To meet long-term objectives, most investors stipulate some long-term benchmark portfolio, usually some mix

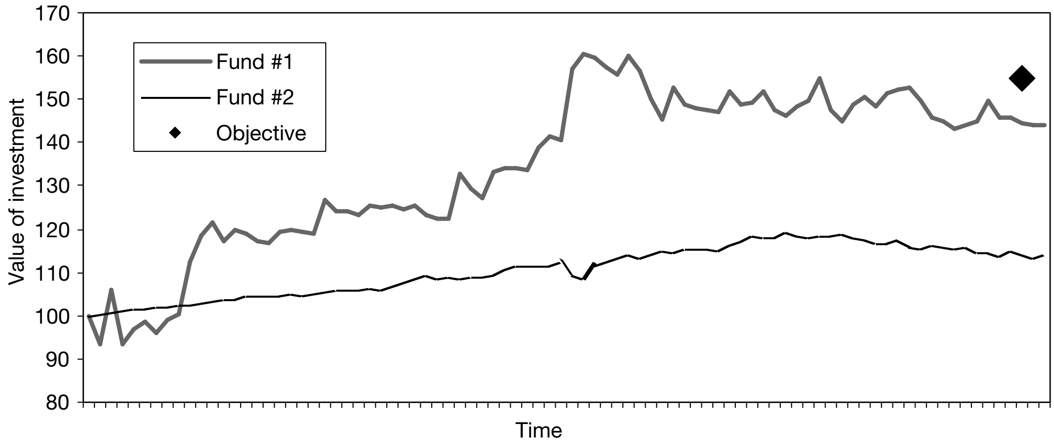



**Figure 2:** Risk vs volatility

of bonds and equities that the investor believes will achieve target absolute return. The primary risk of the fund is that this benchmark fails to meet its target. The benchmark is usually set by the investor, who bears the risk of it being inadequate.

The fund can earn extra return from short-term market trends and pricing anomalies by allowing the actual composition of the portfolio to differ from the benchmark. Active investment managers are engaged to earn above-benchmark returns. They are responsible only for risk relative to the benchmark.

The measure usually applied to this relative risk is known as tracking error. It describes the volatility of the portfolio relative to the benchmark, specifically indicating the range of returns around the benchmark that the portfolio will deliver two-thirds of the time. Tracking error computations rest on the assumption that relative returns are approximately symmetrical, following a normal-like distribution.

Because most conventional portfolios are measured relative to a benchmark, many managers tend to keep their portfolio composition close to it, taking too little risk to add measurable value. Risk management for conventional portfolios is aimed as much at ensuring that enough risk is taken as to try to control the likelihood of extreme underperformance. This is rarely the case for hedge fund managers because:

— they are measured in absolute returns, so there is no benchmark to hug;
— most hedge funds allow gearing, so the investor stands to lose more than his or her initial investment;
— the investment manager shares in at least some of the rewards of the fund, without participating in all the losses because of the widespread use of performance-based fees. This can give the manager the incentive to take bigger risks than he or she would for a conventional discretionary portfolio, or for investing his or her own money.

Not only are hedge funds more risky than conventional portfolios, but the composition of most hedge funds makes many standard risk tools, such as forecasts of tracking error, unsuitable. Options allow the possibility of asymmetrical returns: buying and selling options allows the investor to participate in either positive or negative asset price changes.

Portfolios with short positions in physical shares may be obliged to realise losses to meet margin calls when asset prices increase.[1] The long-only investor can weather adverse movements, taking profits when prices are attractive. Because of these and the effects of gearing, extreme returns are much more likely than are predicted by a normal distribution. Many of the positions in hedge funds are held for very short periods of time, so the conventional approach to risk analysis, relying on persistent correlations between assets, is not relevant.

Due to the difficulty of applying conventional risk analysis, most hedge fund mandates rely on some estimate of downside risk, worst-case loss or Value-at-Risk (VaR). These measures were developed specifically to deal with asymmetrical and other non-normal return distributions. If well implemented, they can give a useful indication of the likely risk in the hedge fund portfolio, but they have five limitations.

1 Most were designed initially to describe the overnight risk taken by banks when managing their treasury portfolios, and so must be handled with care when applied to any investment portfolio that is intended to be held longer. Assets in hedge fund portfolios tend to be held for shorter periods than conventional investment portfolios, but typically are held for between a week and a month, subjecting them to risk on a different scale than treasury overnight positions.
2 There is as yet no standard methodology for calculating these risk measures, so a VaR computed by one hedge fund manager may not compare with that prepared by another.
3 Most measures of VaR are derived, either directly or indirectly, from past returns, so implying that future patterns of return will be similar — which may not be the case.
4 VaR gives little hint of the composition of the portfolio, so it is difficult to gain an understanding of how the exposures of one hedge fund compound or offset those of another.
5 VaR does not facilitate the depth of analysis that can be achieved using conventional risk analysis, such as risk profiling.

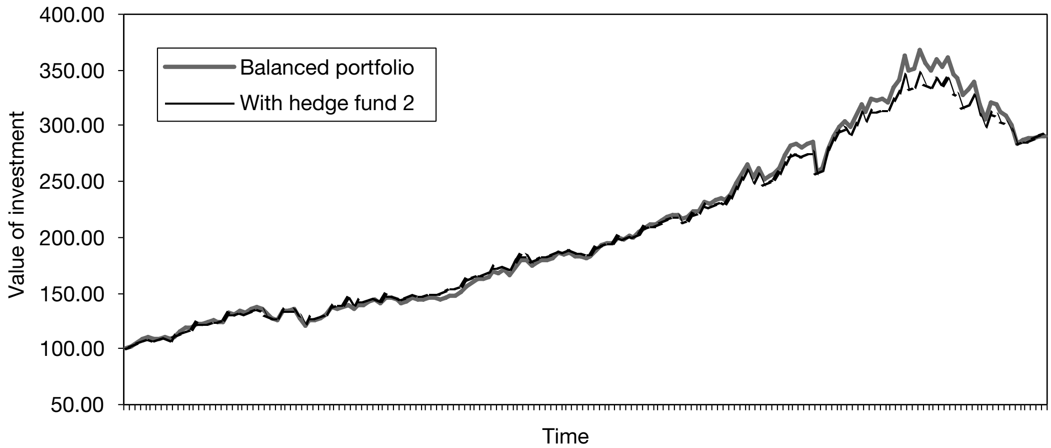
This means that apart from making comparisons of different hedge funds difficult, these measures also do not help comparison of risks between hedge funds and conventional portfolios. The investor will find it very difficult to judge from these measures alone whether the extra returns being achieved by hedge funds compound or offset those of conventional asset classes, or if these are at the cost of unacceptable risk of losses.

It is tempting simply to add the estimated risk of the hedge fund to that of the conventional portfolio. This is a mistake because it assumes that returns for the two are completely independent of each other, which is rarely the case.

Another tempting assumption is that the more risky the hedge fund compared to other hedge funds, the more risk it will add to the overall portfolio. The actual level of risk for the hedge fund is less important than how it impacts the whole, as the following example shows:

Figure 3 shows that although hedge fund 2 has a lower volatility than hedge fund 1, the overall balance of risk and volatility, when combined with the balanced portfolio, is less advantageous.

One way of evaluating the risk of the combined portfolio is to use scenario analysis or worst-case estimation. Scenario analysis, despite being conceptually simple, is in fact very complex to implement. To see why,




| | *Annualised return* | *Volatility* |
|---|---|---|
| Balanced portfolio | 7.82% | 9.06% |
| Hedge fund 1 | 10.42% | 16.42% |
| With hedge fund 1 | 8.41% | 7.33% |
| Hedge fund 2 | 8.17% | 8.25% |
| With hedge fund 2 | 7.89% | 7.39% |

**Figure 3:** Adding a less risk hedge fund to a balanced fund

consider a simple, eight-asset portfolio to which are applied five scenarios. The investor must forecast returns for each asset class and each scenario, indicating 40 forecasts. But these return forecasts must be consistent within each scenario, so implying forecasts of correlations. For eight assets there are 28 pairs, so 140 correlations. To complete the analysis requires probabilities for each scenario. This amounts to 184 forecasts. Since most balanced funds have many more than eight asset classes, the total is usually much more. Given that the likelihood of error is related to the number of forecasts, scenario analysis leaves plenty of opportunity for mistakes. So, while still potentially very helpful, the results it gives should be handled with care.

## Less obvious issues

In addition to the obvious issues of what type of hedge fund, which managers and how to manage the risk of the fund, investors are well advised to consider four less obvious issues:

— active versus indexed investments;
— currency management;
— impact on manager performance and potential for conflicts of interest;
— fees.

### Active vs indexed investments

The advantages and disadvantages of indexing are well known, falling into two main categories:

— risk reduction. Indexing effectively confines the risk of the portfolio or sub-portfolio to that of the benchmark. This can reduce overall complexity if the conventional portfolio is to be complemented by hedge fund satellites or derivatives overlays.
— cost reduction. Indexed investments save money both through reduced transactions costs, including custodian costs, and lower management fees.

Indexation of the conventional portfolio can simplify supplementing it with investments in hedge funds because indexation streamlines the risk of the conventional portfolio, so the risk of the hedge fund and the conventional portfolio compounding or offsetting each other is very much reduced. To achieve this the conventional portfolio is typically managed as a low-risk core, indexed to the long-term benchmark, with hedge funds serving as high-return satellite portfolios. The core component includes all conventional asset classes, such as domestic equities, fixed interest, corporate bonds and property and international equities, fixed interest and corporate bonds. Each asset class is managed as an index fund, and allocation between them matches the long-term benchmark, reweighted say, quarterly, to maintain approximate benchmark allocation. One or more high-return satellite portfolios will provide active return for the whole portfolio. The risk appetite of the overall fund determines the mix of core-satellite. This structure can engage a single manager or a range of specialist managers, with a separate specialist manager to carry out asset allocation.

The alternative is simply to add investment in a hedge fund or a fund of hedge funds to a conventional portfolio. While this strategy appears simple enough, the returns achieved by the hedge fund may have an unintended impact on the overall portfolio if they compound or offset those of the conventional portfolio. If the risk profile of the hedge fund compounds that of the conventional portfolio, then the result will simply be a more volatile fund with returns that are not necessarily higher. If, on the other hand, the hedge fund risks offset those of the conventional portfolio, then the result can be a bland, low-volatility fund with high fees. To avoid these outcomes it is helpful to know something about the composition of both.

## Currency management

Many investors choose to adopt a 'passive' approach to currency management, meaning that they assume the exposure to each currency in the portfolio is the same as the value of the assets denominated in that currency. The other two approaches are hedging to base currency, where all apparent currency exposures are hedged using forward foreign exchange contracts, or active currency management, where the investment manager seeks to add return by assuming currency risk.

Often, the 'passive' approach is adopted by default, in the belief that currencies tend to revert to some long-term average over time. There are two problems with this. The first is that currencies do not mean-revert, as anyone who has watched the US dollar to GB pound rate over the last decade or so knows. This means that there is a real possibility that the underlying asset will perform well in local currency terms, but lose money because of adverse currency movements. Any risk due to currencies can have a real impact and should be managed. The second problem is that a portfolio's currency face value and currency exposure may not be the same thing, especially for equity-related instruments. For example, BP Amoco is a large component of the FTSE All-share — a popular benchmark for UK equities. A position in this stock implies the equivalent exposure to GB pound, but common sense tells us that this stock is overwhelmingly exposed to the US dollar. A similar dilemma holds for Daimler Chrysler, and, for that matter, to most stocks outside a few, restricted industry groups, such as retail and building materials. This implies that mandates that specify, or allow, passive currency management, may be exposing the investor to risk that is not quantified or even recognised. It is therefore not managed, and so does not contribute to active returns.

Currency management is as important for hedge funds as it is for conventional portfolios.

## Impact on manager performance and potential for conflicts of interest

Conventional investment managers are increasingly engaging in hedge fund management. They do this first because they see it as a way of retaining talented investment managers who otherwise might be tempted by the freedom and participation in high returns available to managers of hedge funds; secondly, to increase overall fee income. But there is a risk of conflict of interest within the investment management company.

The investment manager is typically compensated for conventional portfolios as a flat percentage of funds under management. For the hedge fund manager this fee is usually supplemented by a share of active returns, so the manager has an incentive to pay more attention to the performance of the hedge fund than the conventional portfolio. This split interest can manifest itself in a number of ways, from the relatively innocuous such as assigning to the hedge funds the best managers (who were perceived as the most likely to leave), to more questionable activities, such as using knowledge about impending conventional fund transactions to benefit the hedge fund. 'Front-running', as this is called, is illegal in most jurisdictions, although it can be difficult to demonstrate and prove.

Many investment managers control potential conflicts of interest by means of clearly articulated policies on dealing, information sharing and reporting lines, or decision rules that specify how different transactions are allocated to different client accounts and funds. Another way is to physically separate the hedge fund and conventional management teams.

The conflict within the investment management firm works, if anything, to the advantage of the hedge fund investor. But it can also impose a cost, because it can give rise to rivalry between the hedge fund and conventional management teams, whereby privileges that would be acceptable in a specialist hedge fund company are seen as excessive on the context of conventional asset managers. This rivalry can undermine the discipline required to manage the balance between conventional and hedge fund managers.

## Fees

One of the distinguishing features of hedge funds is that they routinely apply performance-related fees. This usually works as a combination of a fixed fee and a percentage of returns over a stipulated level, either in absolute terms or compared to a benchmark, such as the inflation rate or some bank-guaranteed return. The most apparent benefit of performance-related fees is that they align the interests of the investment manager and the client. For the investment manager, the ability to derive profits directly from investment returns is an incentive to hire the most successful managers, who in turn are attracted by the prospects of sharing potentially large profits.

What happens when the portfolio underperforms, as it probably will, at least some of the time? Most arrangements include some offset arrangements, whereby any performance shortfall must be recouped before subsequent profit-sharing can take place. These structures have proved durable enough to attract many new managers, as well as new investors to hedge funds.

However, there is a residual danger in that the investment manager's losses are limited, while those of the investor are not. Consider the hypothetical case of an investment manager whose underperformance has been such that he or she is at risk of losing the client. There is a strong incentive to increase the risk of the portfolio beyond reasonable limits in the hope that the bets will pay off and the client retained. If it goes wrong, the business is lost anyway and the client bears the cost.

Most investors in hedge funds understandably consider that the advantage of performance-based fees outweigh this relatively small risk of a conflict of interest. But while the risk may be too small to warrant abandoning performance-based fees altogether, it is not so small that it can be ignored.

## Summary

There are very good reasons for a pension fund to include hedge funds in its balanced portfolio. The main reason is the possibility of enhanced return and reduced volatility through more effective diversification. To realise these benefits the investor should try to avoid some of the dangers of hedge fund investing. The most important of these is that the exposures and risks of the hedge fund compound or offset those already in the conventional portfolio. Two measures can help. The first is to increase the proportion of the conventional portfolio that is indexed. The second is to consider what exposures to conventional assets are likely to reside within the hedge fund. While lack of transparency of the hedge fund usually inhibits this, as much attention as possible should be given to the likely exposure profile of the combination.

### Note

1 The short squeeze is the worst nightmare of the short seller. This happens when the extent of the sold position becomes known to other traders, who then seek to profit by forcing the short seller to cover his position by buying back the securities at inflated prices. This is one of the main reasons that hedge fund managers insist on lack of transparency.