

AIMR Benchmarks and Performance Attribution Subcommittee Report

August 1998

The AIMR Performance Presentation Standards Implementation Committee, which sponsored the formation of this subcommittee, encourages the public to comment in writing on these standards. This report outlines guidelines concerning benchmark reporting. The subcommittee will develop a report on performance attribution at a later date.

AIMR Performance Presentation Standards

Benchmarks and Performance Attribution Subcommittee

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Benchmarks and Performance Attribution

Subcommittee Report

Summary Recommendations

The committee's report below examines some of the major factors involved in the choice of a benchmark for an investment portfolio or composite. As a result of its deliberations, the committee recommends the following changes to the AIMR standards¹:

1. The AIMR standards should require that, where a benchmark exist, it must be included in the performance presentation. The name of the benchmark plus any other significant information (such as tax basis etc.) must be disclosed. Where no benchmark exists, an explanation must be provided.
2. This requirement will take effect from an effective date (e.g. 1/1/99—to be determined by the AIMR PPS committee). Use of benchmarks for periods prior to that effective date will be recommended but not required.
3. According to prevailing conditions, (e.g. portfolio or composite strategy, index availability) a benchmark may consist of two or more indexes chain-linked together over time.
4. If a firm introduces a new benchmark to replace one used earlier for a certain composite, it must disclose fully the reason for doing so (such as the recent availability of a better benchmark).

Introduction

Benchmarks are important tools to aid in the planning, implementation and review of investment policy. They clarify communication between the investment fiduciary and the investment manager and provide a point of departure for assessing return and risk.

The terms “benchmark” and “index” are often used interchangeably. But while indexes are most often used as benchmarks, a benchmark is essentially the starting point for evaluating success. So we might define a benchmark more generally as follows:

“An independent rate of return (or hurdle rate) forming an objective test of the effective implementation of an investment strategy.”

A benchmark may take any of the following forms:

1. A well recognized published index
2. A tailored composite of assets (or indexes)
3. A peer group (or “*universe*”) of similar funds or portfolios

¹ This subcommittee has stated its recommendations in general terms rather than by specifying specific changes to specific items in the AIMR PPS Handbook. In this regard, our goal is to state recommendations clearly enough that the implementation committee has an unambiguous basis for making changes in the Handbook.

What Makes a Good Benchmark?

Properly used, a benchmark should be a focal point in the relationship between the manager and the fiduciary body overseeing the prudent management of the assets. Thoughtful choice of a benchmark will make the relationship between these parties more effective and enhance the value of the investment strategy. The most effective benchmarks are:

1. Representative of the asset class or mandate
2. Investible (e.g. a viable investment alternative)
3. Constructed in a disciplined and objective manner
4. Formulated from publicly available information
5. Acceptable by the manager as the neutral position
6. Consistent with underlying investor status (e.g. regarding tax, time horizon etc.)

Benchmarks can be misused. Indeed choosing a bad or inappropriate benchmark can undermine the effectiveness of an investment strategy and lead to dissatisfaction between client and manager. Most problems associated with benchmarks arise from not observing the basic rules set out above (e.g. the manager doesn't understand benchmark construction or the benchmark doesn't match the mandate). But problems can also arise from setting multiple benchmarks which conflict with each other (e.g. outperform cash in the short term and equity in the long term). The remainder of this paper reviews the uses of benchmarks in certain special situations and provides guidelines for investors when using and applying the AIMR Performance Presentation Standards.

Use of Peer Groups (“Universes”) as Benchmarks

The process of selecting an appropriate benchmark often involves a choice between an index (or composite index) or a peer group universe of managers. Each has advantages and disadvantages. Published indexes of “unmanaged” assets are the most commonly preferred and frequently used form of benchmark but a universe of managers may be a suitable alternative in some cases.

The major advantage of using a universe as a benchmark is in situations where no widely recognized index of unmanaged assets exists to reflect the asset class or investment strategy. Examples of such situations would be real estate, private equity and venture capital. In these situations a collection of managed products rather than unmanaged assets often best represents the asset class. What is often thought of as an index for real estate, private equity or venture capital, for example, is in most cases actually a universe of managed assets or products.

Universes do offer certain benefits in performance comparisons. Universes represent achieved results of manager portfolios which are effectively available as investment alternatives for investment fiduciaries (fund sponsors etc.), they take full account of transactions and other trading costs and they reflect decisions taken by investors across the board (e.g. to underweight Japan relative to the index.) But as the sole benchmark for comparing performance, universes are subject to certain drawbacks. These include:

1. They are not available real time, resulting in a time lag for comparison

2. There is no established oversight process for determining universe participants and whether the universe accurately represents the entire asset class or style of management
3. Survivor bias² will develop over time as some managers are deleted from the universe
4. They are not replicable or investible
5. They do not permit the manager to move to a known neutral position

Style Analysis

Style analysis is an increasingly popular technique used to determine portfolio exposures to various investment “styles” e.g. *large-capitalisation growth*. The styles themselves are generally described as passive indexes and in it’s broadest sense, style analysis includes the techniques used to calculate these indexes. Typically, style indexes will break a broad market index down into four (or more) mutually exclusive components usually defined as large and small (or small/medium), growth and value segments. A style analysis model will then aim to quantify the exposures of a portfolio to these four style components as expressed by the indexes (and the underlying exposures to securities within the index universes). The basic tenet of style analysis is that a passive portfolio can be constructed by combining the four indexes. Therefore, a manager can be considered to add value only when performance exceeds the passively constructed portfolio. Added value can be achieved by varying the index exposures over time or by security selection within the index universes.

Application of style analysis is beneficial, but results of style analysers must be carefully interpreted. The most popular approach, developed by Sharpe³, is a statistical technique, which assesses the styles embedded in a portfolio based on correlation with the relevant underlying index. Due to the similar performance of certain indexes, style analysers can identify index exposures where none actually exist. This is especially perplexing for global portfolios where exposures to regional indexes show up even though no assets are actually held in the region. Also, this approach is based on data measured over a fixed time horizon (say five years) and may not be sensitive to sudden changes in style. Another method assesses the style of a portfolio based on it’s underlying characteristics (e.g. P/E, yield etc.). This approach is more sensitive to style changes although the model techniques must be adjusted market by market for underlying conditions and accounting measures. Style analysis results must be analysed with due regard for these factors.

When using style indexes in performance presentations, investors should be careful to ensure that the style index, or blend of indexes, is representative of portfolio objectives and risk constraints. Failure to do so will lead to misleading impressions of outperformance. In this regard, the results of style models must be carefully interpreted in the light of the strengths and weaknesses of the analytical approach involved.

² Survivor bias occurs where terminated accounts drop out of the sample—hence the average or median return is biased based on the surviving (and usually better performing) portfolios.

³ William Sharpe’s article “Asset Allocation: Management Style and Performance Measurement” published in the *Journal of Portfolio Management* (Winter 1992) presents the method now generally known as *Returns-based Style Analysis*.

Benchmarks for Multi-Currency Portfolios

Most investors recognize that currencies have a large impact on the returns of international and global portfolios. There is less appreciation however for the role that currencies play in the choice of an international or global benchmark. When selecting a multi-currency benchmark, the investor (implicitly or explicitly) makes both a decision on a set of underlying assets and a decision on the desired level of embedded currency exposure. While AIMR here does not make a recommendation in favor of the unhedged or the hedged benchmark, we do regard the determination of currency exposure in the benchmark as an important fiduciary responsibility.

Investors should, in addition, aim to analyse the effects of currency movements and currency decisions separately from the underlying assets. There are three basic reasons for doing so: First, currency is a large source of return and risk, both in terms of benchmark selection and active management. Second, modern performance attribution methods allow asset selection skill to be differentiated from currency selection skill. Third, currency performance and attribution results highlight the significance of the choice between an unhedged, a partially hedged, or a fully hedged benchmark. This section sets out some of the factors to consider when making the benchmark decision in the context of currency management. Note that the guidelines below are not intended to explicitly define a calculation methodology but simply highlight the factors which managers must be aware of when managing portfolios. Specific methodologies for analysing currency return must be developed in the light of underlying portfolio structure and analytical needs.

Relative Interest Rates and The Forward Premium

Investors often use the change in spot exchange rate (over a holding period) as a measure of the influence of currency on their portfolios (i.e. of the “unhedged” currency return). However, this approach is misleading since it fails to reflect the actual returns that can be obtained by currency instruments and ignores the effect of the forward currency premium⁴ (referred to hereafter simply as the *forward premium*). In fact we get better information about the true effect of currency if we split the return derived from the change in spot rates into two separable components:

1. The forward premium which is known in advance and is driven by short-term interest rate differentials.⁵
2. The component of the change in spot rate not accounted for by the forward premium and which is commonly called the *currency surprise*⁶.

⁴ The forward premium can be positive (if interest rates in the foreign currency are lower than the home market) or negative i.e. giving a forward discount (if rates abroad are higher).

⁵ The interest rate differentials are “short-term” because liquidity in the forward currency market only extends to short-term contracts, i.e. up to one year.

⁶ The notion of “currency surprise” (calculated as exchange rate movement less forward premium) is one useful basis for evaluating currency effects and currency decisions. Karnosky and Singer set out an alternative methodology in the ICFA Research Foundation publication “Global Asset Management and Performance Attribution”. This approach also recognizes the impact of relative interest rates by adjusting nominal market returns by the risk-free rate. The Karnosky and Singer methodology is consistent with the currency surprise and forward premium framework.

The reason we identify these two components separately is that they help explain an important fact. Investors cannot eliminate currency effects entirely and earn the *local return*⁷. They can only eliminate the currency surprise component while retaining the forward premium component. Thus, the hedged return is different from the local return and is the return that the foreign investor will earn that is free of currency risk.

Relative interest rates have a significant effect on currency returns, the pricing of hedging instruments such as forward foreign exchange contracts and currency analysis. While forward premiums might be thought of as a “cost” of hedging, it is perhaps more accurate to consider them a “hedging return component.” They exist because currency-hedged returns for cash (riskless assets) are forced (by arbitrage) to be equal irrespective of the market or currency in which the investor holds the cash. So if you invest in a high-interest-rate, foreign cash market and attempt to lock in that higher yield by hedging the currency, the forward premium will force you to realize a loss in the currency market which is equal and opposite to the interest rate market gain.

An excellent example of the currency surprise phenomenon is provided if you imagine that you are a British Pound investor reviewing the performance of the Pound (£) against the Deutsche Mark (DM) from 1972 to 1997. Commentators often claim that the Pound was weak over this period since £100 converted into DM in 1972 would have been worth £253 at the end of 1997 purely through the Pound’s spot depreciation. But in fact if the investor had sold DM forward for Pounds, the total investment would be worth £340. This is because the cumulative forward premium (based on the relative interest rates between the UK and Germany) was greater than the Pound’s actual depreciation. In fact, the currency surprise of the Deutsche Mark was negative by £87, and the hedged return outperformed the unhedged return⁸.

Accordingly, in choosing a benchmark, investors should recognize the shortcomings of using the spot-to-spot exchange rate difference. In particular, they should note the existence of the forward premium and, where appropriate, separate the spot movement into its two components—the forward premium and the currency surprise. In practical terms, this means don’t use spot-to-spot exchange rates as the basis for evaluating the success or impact of currency decisions.

Unhedged Benchmarks versus Hedged Benchmarks

Unhedged benchmarks, such as the MSCI EAFE Index, are those where no adjustments are made for hedging positions. The unhedged return for each country in the benchmark consists of

⁷ The *local return* is the foreign asset return expressed in terms of the foreign currency. For example, a German equity portfolio owned by a US investor with a value of DEM100 mill. at end-period 1 and DEM 103.2 mill. at end period 2, has a local return of 3.2% for period 2. This return is irrespective of the spot currency movement of the Deutsche mark.

⁸ This example can be expressed algebraically as follows:

Change in spot rate return (c) = Forward premium (f) + Currency surprise (s)

Hedged return (h) = Unhedged return (r) – Currency surprise (s)

In this example, c = 153%, f = 240% and s = -87% (i.e. c = f + s)

Since the Deutsche Mark value of the converted £100 doesn’t change (i.e. Local return (l) = 0)

We have:

(1) Unhedged return (r) = Change in spot rate return (c)

(2) h = r – s = 153% - (-87%) = 240% (i.e. the hedged return effectively outperforms the unhedged return)

the combined effect of the local asset market return and the spot currency return. The benchmark therefore contains a currency component comprising both currency surprise and forward premium. Unhedged benchmarks are used when the investment mandate does not include a consistent hedged position although currency activity may be allowed as a means of adding to return and/or reducing risk. They might be used for example by investors with relatively low allocations to foreign assets and/or investors who actively desire currency exposure.

When the neutral position for an investment strategy involves the strategic hedging of some or all of the currency exposure, then a hedged benchmark (or index) is used. Such benchmarks may eliminate all currency exposure (a *fully hedged benchmark*) or they may eliminate a fixed proportion (between 0% and 100%) of the currency exposure. The proportion chosen is often called the *benchmark hedge ratio*. The return for each country in the fully hedged benchmark consists of the sum of the local asset market return and the currency premium. The currency surprise component of the spot currency return is eliminated.

Once again a manager can use active currency strategies to seek additional return but the neutral position is to hold hedges equal to the benchmark hedge ratio. Hedged benchmarks might be used for example by investors with material allocations to foreign assets who wish to eliminate the volatility of foreign currencies.

Benchmarking Currency Overlay

Broadly speaking a currency overlay strategy is one in which the management of currency is carried out separately from the remainder of the portfolio—even though it may be carried out by a single manager or within a single organisation. Currency overlay is generally linked to the management of currency exposure within the portfolio—if a fund employs a currency manager but has no foreign currency assets this is not thought of as currency overlay.

Currency overlay assignments can either be active or passive. Passive currency overlay versus an unhedged benchmark means neutralising the currency effect (or more specifically currency surprise) implicit in the active country position while (fully) hedged passive overlay means eliminating (all) currency surprise. Active currency overlay strategies seek to participate in upside currency gain while protecting against downside currency losses.

Note in particular that, because the forward premium cannot be hedged away, hedging an asset will give you the hedged return (local plus premium) not the local return. This relationship is fundamental to the understanding of such strategies. Accordingly, the possible components of currency overlay assignment might be broken down into:

- (A) Hedged Asset Return⁹** The hedged return on the assets comprising the underlying portfolio.
- (B) Currency Surprise¹⁰** The asset-weighted currency surprise component by market.
- (C) Overlay Return¹¹** The effect of the overlay strategy (i.e., active and or passive positions) arising from the negative of the currency surprise.

⁹ The sum of the local market forward premium and the local asset return.

¹⁰ Commonly referred to as the *implicit* currency component.

Such strategies can also either be fully or partially hedged (i.e., the benchmark hedge ratio can vary between 0% and 100%). These breakdowns are not significant in themselves other than that they enable us to distinguish between different components of the strategy and define benchmarks accordingly.

The aim in selecting an appropriate currency overlay benchmark is that it must reflect the nature of the assignment. Since currency overlay is typically managed separately from the underlying foreign assets, performance should be correctly attributed by portfolio or manager and it is important to identify which components of the assignments are the direct responsibility of the currency overlay manager. The benchmark can be legitimately expressed either as the asset + currency + overlay return [(A)+(B)+(C)]; as the currency + overlay return [(B)+(C)], or as the overlay return [(C)] only.

Some examples of possible benchmark specifications are shown in the table below.

	Unhedged Benchmark	Fully Hedged Benchmark
Benchmark Definition	-----Description of benchmark return*-----	
Asset + Currency + Overlay (A+B+C)	Hedged asset return + currency surprise (=local asset return + spot return)	Hedged asset return (=local asset return + forward premium)
Currency + Overlay (B+C)	Currency surprise	Nil
Overlay Only (C)	Nil	Negative currency surprise

**Partially hedged benchmark structures can be constructed as the weighted sum of unhedged and fully hedged benchmarks shown above (e.g. 50% hedged Currency + Overlay is 50% of Currency surprise).*

An investor should define a consistent currency overlay benchmark based on the strategic considerations of the fund. These considerations will include: the maturity of the fund, the size of its international asset allocation and the fund's risk/return trade-off. The structure of the benchmark will depend on the nature of the assignment and the component of the overall strategy to be measured.

Other practical considerations

The following further factors must also be considered when designing currency overlay benchmarks:

1. The portion of the underlying assets that will form the basis for calculating the currency overlay return--all foreign assets, or just those for which currency hedging is practicable at reasonable cost.
2. The treatment of deviations from benchmark currency weights in the underlying portfolio
3. Treatment of issues such as mid- versus bid/offer pricing of contracts and treatment of illiquid currencies should be considered and where necessary treatment should be consistent between the portfolio and the benchmark.

¹¹ Commonly referred to as the *explicit* currency component.

4. The flow of information on the allocation of the assets being overlaid and the practical frequency for rebalancing back to benchmark—in practice, weekly or monthly rebalancing is probably more practical than daily.

One-Way Ticket Effect

The *One-Way Ticket Effect* describes the fact that a currency overlay manager with an unhedged benchmark can only benefit from hedging a currency when that currency is weak. Conversely, a currency overlay manager with a fully-hedged benchmark can only benefit from ‘lifting’ hedges when the currency is strong. This leads to an asymmetrical, “one-way ticket” influence on returns for currency portfolios. Investors should recognize that periods of continuous ‘one-way’ currency movement can last for very long periods, so performance targets for shorter periods should take this into account.

Partially hedged benchmarks reduce this problem, and a benchmark hedge ratio of 50% eliminates it. However, where strategic considerations make setting a partially hedged benchmark undesirable, alternatives include setting differential currency performance targets in periods of base-currency weakness or strength or, probably a better course of action, allowing the currency cycle to run its course. Alternatively, an investor might set a band for currency allocation around the benchmark position e.g. plus or minus 20% of the benchmark weight. Since, for a non-domestic currency assignment, this may give rise to a foreign currency exposure of more than 100 percent of the portfolio¹² this decision must be taken with due consideration for the risk parameters of the portfolio, and any legal or other limitations.

¹² Or less than zero for a fully hedged benchmark.