Original Article

Skill or luck? The role of strategies and scenario analysis as a competitive differentiator for fund management firms

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ABSTRACT This article argues that plausible and provable market differentiation for a fund management firm can only be delivered via a strategy and scenario-centric investment approach. By facilitating correct and repeatable decisions across multiple funds, firms can demonstrate a transparent and efficient investment process, implemented via skill centres that add positive returns. The emphasis is on differentiating good luck from skill, proving that the underlying decisions contribute to the ultimate performance. The article challenges the conventional view of traditional performance attribution approaches, and illustrates the options for implementing a fundamentally more logical, measurable process.

INTRODUCTION

How does an institutional investor decide which fund management firm should actively manage their funds? Logically, they will choose the firm that they believe is the 'best', but what criteria define 'best' and how is 'best' measured?

Active management requires the fund management firm to outperform the chosen benchmark(s) applied to the fund. The first most basic step therefore requires the institutional investor to believe that active fund management can outperform the benchmark. However, there is significant academic research that illustrates clearly that this is not the case. Very early studies by Sharpe (1968) and Jensen (1968) found that superior performance does not persist over time, with Sharpe (1991) concluding that active management in the aggregate yields no incremental value. Blake *et al* (2002) showed that the performance of UK pension funds is

close to the benchmark. Kryzanowski and Rahman (2008) identified the fact that studies in the early 1990s indicated that some mutual funds do exhibit persistent superior performance. However, more recent studies cast some doubt on this inference.

OUTPERFORMING THE BENCHMARK

These studies base their conclusions on a review of markets in general over specific periods of time. The published performance return figures indicate something different – namely that specific funds and fund managers do outperform their benchmarks. Harmstone (2000) agreed saying that active management is not a failure across the board and that actively managed portfolios successfully outperform their benchmarks in certain asset classes. Therefore, it stands that if there are firms that are outperforming, but on average active management yields no addition return, there must be 'under-performers' to offset the 'out-performers'. For the institutional investor, it is paramount to have belief in their chosen management firm as an 'out-performer' before investing funds. However, it is not a simple one-dimensional decision, as Shefrin (2000) found that investors reject the academic approach to portfolio selection, with investors building portfolios on behavioural or psychological principles.

PAST PERFORMANCE MEASUREMENT

One of the most easily measured criteria for ascertaining the 'best' management firm is on the basis of past performance, even if all investment management marketing literature clearly states that 'past performance is no guide to the future'. Beckers (2000) argues that the quality of the manager must somehow be reflected in their past performance. Perhaps it is the ease with which past performance can be measured at

the aggregate fund level that has led to many studies looking into the persistence in performance?

Kryzanowski and Rahman (2008) state the contention of many experts that a persuasive attribute associated with investment skill is a statistically significant and unbiased degree of persistence in performance. One approach is to use the information ratio as a risk-adjusted performance measure. As it uses the managers' (annualised) active return and divides this by the (annualised) active risk, it can be used as a measure of skill. The problem is that the information ratio needs to be observed over 13 years to be statistically significant, according to Beckers (2000). If it were possible to find a statistically significant fund, would it be relevant to today's post-9/11, post credit-crunch portfolios? The skill required to run a long-only fund from 10 years ago is not the same as a modern, derivatives-centric fund, and mergers, staff turnover, economic changes and so on further undermine the relevance of a statistically significant selection criterion.

DISTINGUISHING LUCK FROM SKILL

Whatever the measure of skill, the use of skill as a selection criterion raises the question of how to distinguish luck from skill. This is a long-standing and unresolved issue in portfolio performance measurement. However, in looking at the realised, historical performance, does the institutional investor care if the outperformance is a result of luck or skill? The performance was, after all, realised either way. Their major concern is their belief in the management firm's ability to repeat the outperformance in the future. A lucky management firm may be better than a more skilful but unlucky one when looking at realised performance. The real question is whether the skills that the management firm has actually reflect the skills required to demonstrate consistently good performance over the next period.

DEFINING THE BEST INVESTMENT APPROACH

If Hodgson *et al*, (2000) are correct in stating that 'Institutional investors implement their investment policies through investment management structures' and that they define investment management structure 'as the framework that establishes how investment assets should be divided amongst different investment approaches and different investment management firms', what is the best investment approach?

There has been significant academic research[1] aiming to answer this question, with most studies concluding that the approach they are investigating is 'best'. The positive conclusions of the studies into very different and mutually exclusive investment styles prove that different approaches can work and that there is no 'best' approach.

Management firms therefore clearly need to differentiate *their* investment style to aid their chances of being recognised as an 'out-performer'. However, Thomas and Tonks (2001) found that most UK segregated pension fund managers follow similar investment strategies, and Kryzanowski and Rahman (2008) found evidence of managers herding. This was identified as being because of an unwillingness to stand out in case it damaged their reputation, according to Scharfstein and Stein (1990) and Roll (1992). Managers tend to stay with the traditional performance attribution approaches, splitting outperformance of a benchmark between major causes such as 'currency selection', 'asset allocation' and 'stock selection'. However, as Bridgeland (2001) points out, techniques for analysing investment risk and performance in asset management have become more and more sophisticated over the last few decades. Traditional approaches were born at a time, however, when market conditions and investment approaches were quite different from those of today. Technology and mathematical techniques have evolved at a faster pace and now afford a range of alternative approaches.

USING BEHAVIOUR AS A DIFFERENTIATING TOOL

Management firms should therefore look to the behaviour of the institutional investor in order to enable them to decide how to differentiate themselves. Shefrin (2000) found that studies on cognition find that people often simplify complex problems by breaking them up into simpler components, called mental accounts, where each account has its own reference point. In a financial context, investors often divide their portfolios into segments, each with its own benchmark. Examples of segments are large cap domestic, fixed-income securities and emerging market stocks. This is often mirrored by the management firm's organisational structure, with different desks organised by asset class or region. Different desks make different decisions about their proportion of the portfolio to try and deliver the required outperformance. This links to the concept of breadth – the number of independent bets available to an investor, with each desk effectively representing a skill centre. However, Polakow and Gebbie (2008) found that skill is not generally or simply scalable over breadth and, that for every added dimension of independence, one seems to require a novel skill set. Each management firm has a 'possible' breadth that they could theoretically apply, but their own skill centres and managers' expertise define the scope of the 'realised' breadth. Polakow and Gebbie (2008) concluded that tactical asset allocation/core and satellite approaches can facilitate a rapid breadth expansion by translating 'possible' breadth into 'realised' breadth.

APPLYING A DECISION-BASED APPROACH

To demonstrate that the delivered outperformance was because of deliberate

actions of the management firm, as opposed to luck, the management firm needs to separate each investment decision and its reason. The methodology proposed by the author uses a strategy and scenario approach as shown in Figure 1. This splits the portfolio into a passive benchmark replication portion, a series of active decisions and potentially a series of non–discretionary decisions.

From the figure, it can be seen that there are two sources of expected relative performance: from the active decisions and from any investor constraints. The constraint decisions will need to be implemented where the benchmark chosen conflicts with the investor constraints. For example, an investor may require no tobacco stocks, but the benchmark may contain them, or the investor wants to be 50 per cent currency hedged, or constrained on their exposure to banks and so on. The unwanted exposure will need to be 'sold' and this will reduce the effectiveness of the 'effective benchmark' replication. It is important that the performance of these constraint decisions is separated from the manager's decisions, as they are really part of the passive benchmark replication return.

Any differences in performance of the portfolio's passive benchmark portion to the benchmark itself would generate unexpected relative returns. The measurement of this requires that all positions held for benchmark replication are explicitly tagged. The unexpected relative return could be because of the manager's lack of skill in indexing or that the benchmark violates one of the cardinal rules of benchmark selection, namely that the benchmark return must be exactly replicable. Large, broad benchmarks, such as Lehman Global Aggregate, are extremely difficult for a fund to replicate in every exposure and risk dimension and, therefore, some undesired relative return is inevitable. Future research could look at whether combinations of sector funds should be used as benchmarks, as these are directly investable, and the granularity of available funds allows greater tuning to match the investor constraints and will give exact return replication for the passive portion of the portfolio.

The active decisions represent the implementation of the management firm's skill. This skill splits into three broad sections: the decision, the implementation of the decision and the on–going management of the decision. For our analysis, we consider a benchmark of 60 per cent iBoxx GBP Corporate Bond index and 40 per cent FTSE All Gilt. The iBoxx index had 1100 holdings in February 2009 and the FTSE held 32 UK
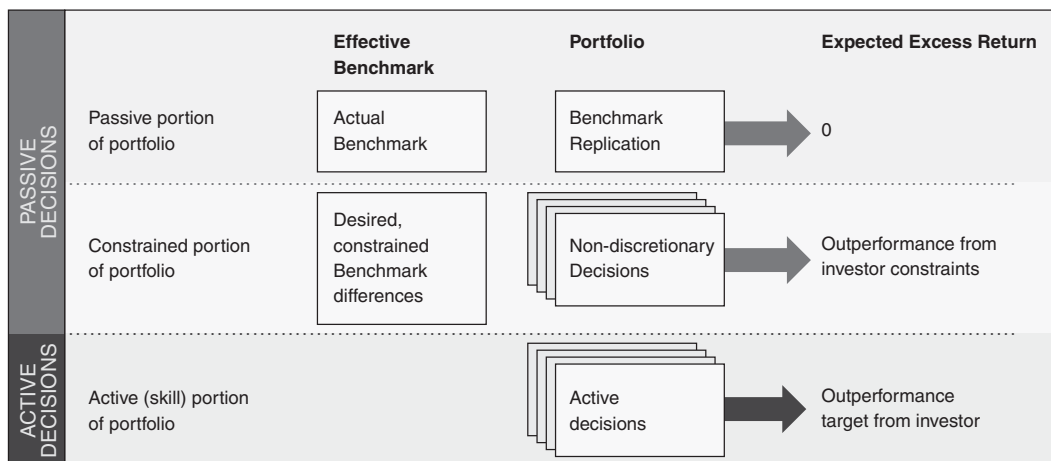

Figure 1: Strategy and scenario approach methodology.

Government bonds (Gilts). The iBoxx index is a broad UK index, covering 386 issuers across over 40 industry groups.

The first issue with the benchmark is that of replication. With the 1132 holdings and taking account of the minimum trade size of each of the 1132 securities. Table 1 shows that unless the fund value is over £2.25 billion, it is impossible to buy all of the 1132 securities at the exact benchmark weights.

With a fund of £50 million, over 100 issuers could not be bought and this results in a deviation to the benchmark's modified duration (Mod Dur) of −0.75. This implies a 75 basis point difference in the fund and benchmark performance with a 1 per cent change in yields. This could easily be bigger than the fund's outperformance target. Even in our £150 million fund, over 20 issuers in the benchmark are not held in the fund (over 30 actual securities) and this gives an implied 10 basis point of relative performance. It should be noted that given the breadth of the benchmark and the specific minimum trading sizes of the securities, a considerable additional fund size is required to gain exposure to the 'last few' issuers and securities.

We consider four separate funds running against this benchmark.

Fund 1:   benchmark replication fund with £150 million value and a 10bp Mod Dur difference to the benchmark.
Fund 2:   benchmark replication fund with £2.25 billion value and a 0bp Mod Dur difference to the benchmark.

Fund 3:   benchmark replication fund with £2.25 billion value but a 10 per cent constraint on banking stocks.
Fund 4:   As Fund 3, but actively managed.

Considering Fund 3, the blended benchmark contains just over 19.3 per cent in banking stocks.[2] Fund 3 is constrained to 10 per cent of the fund in banks. It has 'sold' the 9.3 per cent of banks into cash to fit its constraint.

To illustrate the difference between a 'traditional' total portfolio view and our strategy approach, consider Table 2, which shows a traditional asset allocation.

This view of the funds leads to the following interpretations: (Table 3)

Note that only where there are no bets (active or because of constraints) does the traditional view match the actual position.

In our example, Fund 4 has two active decisions: a decision to buy 1 per cent of the fund in Supermarkets and a decision to buy 1 per cent in Telecoms. Being a bond fund, buying the corporate bonds necessary to implement the decision has a duration impact on the fund. To offset this, the duration impact of the corporate bond purchase is hedged using Gilts. The active decisions therefore each have two separate elements that must stay together.

Consider the proposed strategy representation: (Table 4)

The difference in the funds, their constraints and also the active investment strategy is completely transparent. This is particularly true of Fund 4 where the traditional approach implied a decision to underweight Government bonds, but here the use of the government bonds as two separate hedges is clear.

Table 1:   Fund size based replication difference

Fund size	Issuers in benchmark with no fund exposure	Modified duration[a] difference to benchmark
£2.25 billion	0	0
£200 million	13	+0.04
£150 million	20	−0.10
£100 million	50	−0.28
£50 million	100	−0.75

[a]Modified duration is the percentage change in fund value for a one percent change in yields.

Table 2:   Traditional asset allocation weights

Sector	Benchmark	Fund 1	Fund 2	Fund 3	Fund 4
Cash	—	—	—	9.3	9.3
Corporate	60.0	59.5	60.0	50.7	52.7
Government	40.0	40.5	40.0	40.0	38.0
Total	100.0	100.0	100.0	100.0	100.0

Table 3: Interpretation based on traditional view (Table 2) and actual bets placed

Fund	'Traditional' interpretation	Actual bets
Fund 1	Appears to have bets (underweight corporate and overweight government)	No active bets, just a benchmark replication error because of the fund's size
Fund 2	No bets	No bets
Fund 3	Underweight corporate, overweight cash	No active bets, underweight corporate is because of a client constraint
Fund 4	Underweight corporate and government, overweight cash	Mixture of active bets and client constraint

Table 4: Strategy view of the funds

Strategy	Sector	Benchmark	Fund 1	Fund 2	Fund 3	Fund 4
Benchmark replication	Corporate	60.0	59.5	60.0	60.0	60.0
	Government	40.0	40.5	40.0	40.0	40.0
Total replication		100.0	100.0	100.0	100.0	100.0
Banking constraint	Cash	—	—	—	9.3	9.3
	Corporate	—	—	—	−9.3	−9.3
Total constraints		—	—	—		
Total passive		100.0	100.0	100.0	100.0	100.0
Buy supermarkets	Corporate	—	—	—	—	1
	Government	—	—	—	—	−1
Total buy supermarkets		—	—	—	—	0
Buy telecoms	Corporate	—	—	—	—	1
	government	—	—	—	—	−1
Total buy telecoms		—	—	—	—	0
Total active		—	—	—	—	
Total		100.0	100.0	100.0	100.0	100.0

UNDERSTANDING THE DECISION

As has been shown earlier in this article, there are many types of investment decision: asset allocation, stock selection, interest rate play, currency hedge, tactical trade and so on. The type of decision itself is not important in this analysis, as it will vary across the skill centres of each different management firm. What is important is that the management firm is clear on the investment rationale behind the decision and that it is made inside one of the management firm's skill centres. It should be noted that although the decisions are made at different times, they are not truly independent of each other. As Polakow and Gebbie (2008) highlight, applications using breadth frequently assume only the number of separate bets not the number of independent bets.

This is compounded where the institutional investor has segregated the portfolio into separate asset classes and assigned a separate benchmark to each portion of the portfolio. For example, the portfolio may have a 60/40 equity/fixed income split. The management firm will then give the equity portion of the portfolio to the equity desk and the fixed income portion to the fixed income desk. The two managers will make decisions independently of each other, but with a potentially large degree of interaction. To see this interaction effect, the managers need to stress test their bets under their expected market conditions, in order

to see if the decision generates the expected performance. This will also show the interaction with other bets on the portfolio. If the benchmark is completely replicated, there is no point in stress testing the whole portfolio, as it will generate zero relative performance on the replication portion on the fund and merely generate returns on the active portion.

If one considers a fund made up of two separate funds – one equity and one fixed income of equal size – the equity and fixed income funds are run by the separate equity and fixed income skill centres. The equity manager wants to overweight Banks by 5 per cent and expects the sector to rise by 6.5 per cent. They run the scenario and they see the expected 33bp return. The fixed income manager wants to overweight Insurance by 4.5 per cent and expects the sector to rise by 4 per cent. They run the scenario and they see the expected 18bp return. This is shown in Table 5.

The issue arises at the Total Fund level because these decisions are separate but not independent. The Total Fund has a constraint that the fund cannot overweight the Financial Sector (which includes Banks and Insurance) by more than 5 per cent. The individual decisions do not breach the constraint, but the combination of the decisions and their combined performance under the expected scenario does. This will therefore require the modification of one of the decisions. The advantage of the scenario approach is that this can be done before dealing rather than after the fact.

THE IMPLEMENTATION OF THE DECISION

When the manager has made their investment decision, there are multiple possible methods that implement the decision. A decision to buy the banking sector could be through funds, equity, bonds, cds and so on, but each would bring potentially different performance.

Let us consider a fund where the investment decision involves a change in yield curve shape around the 5- and 10-year points, with yields at these points of the curve rising and falling, respectively. This will lead to falling bond prices at the 5-year point and rising bond prices around the 10-year point and, therefore, prospective outperformance if this can be captured. The question is how to implement the decision in the best manner, as there are several options. The potential methods should be tested under the expected scenario, with the appropriate compliance constraints. Let us consider a scenario where the 5-year point will rise 1 per cent and the 10-year point will fall 1 per cent, with a bond fund constrained from using derivatives (Fund A) and one allowed to use derivatives (Fund B). The size of the decision is 2 per cent. Both these funds are perfectly matched to the benchmark, so we can ignore the benchmark behaviour under the scenario and also the passive section of the fund (Table 6).

In this example, Fund A is excluded from two possible implementations and has the choice between a more conservative 'Sell 5-year bonds', which just hedges the downside risk, and the more aggressive switch that attempts to maximise both the 5-year and

Table 5: Scenario results for equity, fixed income and total fund

	Scenario	Equity fund		Fixed income fund		Total fund	
		Weight	Projected return	Weight	Projected return	Weight	Projected return
Banks	6.5%	5.0%	0.33%	—	—	2.5%	0.16%
Overweight banks		—	—	—	—	—	—
Insurance	4.0%	—	—	4.5%	0.18%	2.25%	0.09%
Overweight insurance		—	—	—	—	—	—

Table 6: Scenario results for fund A (No derivatives) and fund B (Derivatives)

	Scenario		Fund A		Fund B	
	Yield change (%)	Return (%)	Weight (%)	Projected return (%)	Weight (%)	Projected return (%)
Cash		0.50	2	0.01	2	0.01
5Y	1	—	−2	0.02	−2	0.02
Sell 5-year bonds				**0.03**		**0.03**
5Y	1	—	—	—	−2	0.02
Sell 5-year Bond Futures			**NA**	**NA**		**0.02**
5Y	1	—	−2	0.02	−2	0.02
10Y	−1	—	2	0.02	2	0.02
Switch 5 year into 10 year bonds				**0.04**	—	**0.04**
5Y	1	—	—	—	−2	0.02
10Y	−1	—	—	—	2	0.02
Switch 5 year into 10 year futures	—	—	**NA**	**NA**		**0.04**

Note: Bold rows are subtotals.

10-year point movements that brings an additional 1bp of projected performance. Fund B can implement any of the options. An additional benefit of the strategy-based approach used with scenario analysis is that it is possible to measure the accuracy of the forecasts, formalised as the inputs into the scenario. This adds to the fund management firm's ability to demonstrate one of their key skills.

When the fund manager implements their decision, they also need to demonstrate that they are treating each client fairly and in the same manner. When looking at implementing the decision across multiple portfolios, there is an increased risk that different portfolios with different outperformance targets require different size trades. If this is done one fund at a time, then the management firm's business will not scale. The other issue with multiple portfolios is that they may have different constraints. For example, one portfolio may have a 5 per cent limit on any issuer and another may have a 6 per cent limit. The less constrained portfolio may be able to implement the decision through one trade, but the more constrained portfolio may need to implement the decision through two trades. The important point is that the manager and management firm can explain why there is a difference between the two funds. The strategy-based approach makes this clear.

ON-GOING MANAGEMENT OF THE DECISION

Brown and Goetzmann (1995) find that as year-end approaches fund managers, whose current performance is lagging behind the benchmark used to evaluate their performance, tend to adopt riskier positions. Those who are beating the benchmark as year-end approaches use option strategies to lock in gains. As has been argued throughout, it is important that the rationale of the decision is clear and measurable.

This requires the manager to track the individual decisions, and also dictates that performance measurement and attribution is performed at the strategy level. There is an obvious need for data to be held at this level and not the aggregated position level. This allows the manager to track performance, close out positions that are not working, and increase bets that are working. In fact, it focuses on using their skill centres to generate outperformance.

Returning to our original example funds, let us consider the performance of the funds. Original table of fund weights: Table 2.

Table 7 shows the return contributions (to two decimal places) in each fund (Table 7).

● Fund 1 shows a 2-basis point underperformance versus the benchmark from the two implied decisions: overweight

Government giving $+1$bp and the underweight Corporate giving -3bp.
- Fund 2 is our perfect benchmark replication fund and not surprisingly gives the exact benchmark returns.
- Fund 3 shows a 46bp underperformance ($+9$bp from Cash, -56bp from Corporate).
- Fund 4 shows a 38bp underperformance ($+9$bp from Cash, -44bp from Corporate and -4bp from Government).

How could we use the above data to choose a fund management firm? The data appear to support the premise that active management adds no value, as our passive fund, Fund 2, has performed the best and the next best fund is Fund 1, which is a passive fund with replication errors. You could also argue that the managers running Fund 3 have performed the worst, even though the underperformance is totally because of the Banking constraint on the fund.

If we look at the performance from a strategy perspective, does it help us choose the best manager? Repeating the original table of fund weights: Table 4.

Table 8 shows the return contributions (to two decimal places) in each fund (Table 8).

How could we use the above data to choose a fund management firm? Here we can see that in Fund 4, the active decisions returned 8bp, and allowing for the constraints, it was the only fund to generate returns in excess of the benchmark. Using this approach, the difference in each fund is completely clear.

The totally transparent, decision-centric, approach has advantages not only to the managers running the funds, but also to the management firm when trying to retain their clients and to win new business. The clarity of the information and the mechanism to convey the investment style and skill centres of the management firm are invaluable.

Table 7: Benchmark and fund returns

Sector	Return (%)	Benchmark	Fund 1	Fund 2	Fund 3	Fund 4
Cash	1	0.00	0.00	0.00	0.09	0.09
Corporate	6	3.60	3.57	3.60	3.04	3.16
Government	2	0.80	0.81	0.80	0.80	0.76
Total		4.40	4.38	4.40	3.94	4.02

Table 8: Strategy based return attribution

Strategy	Sector	Return (%)	Bench mark	Fund 1	Fund 2	Fund 3	Fund 4
Benchmark replication	Corporate	6	3.60	3.57	3.60	3.60	3.60
	Government	2	0.80	0.81	0.80	0.80	0.80
Total replication			4.40	4.38	4.40	4.40	4.40
Banking constraint	Cash	1	—	—	—	0.09	0.09
	Corporate	6	—	—	—	−0.56	−0.56
Total constraints	—	—	—	—	—	−0.47	−0.47
Total passive			4.40	4.38	4.40	3.94	3.94
Buy supermarkets	Corporate	6					0.06
	Government	2	—	—	—	—	−0.02
Total buy supermarkets							0.04
Buy telecoms	Corporate	6	—	—	—	—	0.06
	Government	2	—	—	—	—	−0.02
Total buy telecoms			—	—	—	—	0.04
Total active			—	—	—	—	0.08
Total			4.40	4.38	4.40	3.94	4.02

CONCLUSION

We have shown that only by using a strategy and scenario-centric approach can a fund management firm truly differentiate themselves. The differentiation comes from the ability to demonstrate clearly and concisely that their investment process is transparent and efficient, as well as being implemented through skill centres, which add positive returns. The use of skill centres and strategies to deliver the outperformance matches how the investor will breakdown complex problems (that is, which fund manager to choose and how to be sure that they will outperform in the future) into separate, simpler mental accounts.

The use of strategies and scenarios allows the correct decisions to be made across the multiple funds that the firm will run, choose the correct implementation method for each decision, and manage the decision throughout its lifetime on the fund – allowing strategies that are working to be kept or increased, and strategies that are not working to be closed down. The fact that the fund manager enters their market expectations in the form of a scenario allows them to prove that their decision will provide positive return. It also allows the impact of separate but not necessarily independent decisions to be studied before trading. The other major advantage of fund managers formalising their expectations is that it adds clarity of the reasons behind a decision and therefore to the differentiation. However, it also allows a fund management firm to assess which fund managers are skilful and those that are merely lucky.

NOTES

1. Kryzanowski and Rahman (2008) prove that an active manager can almost always obtain a positive alpha by exploiting benchmark inefficiency, without having any market-timing or stock-picking ability. Thomas (2005) states that the search for higher quality investments should be superceded by the search for diversified investments and that diversification is paramount to investment success. Polakow and Gebbie (2008) agree, stating that the benefits of portfolio diversification are a central tenet implicit in modern financial theory and

practice. In contrast, Polakow and Gebbie (2008) believe that to the skilled fund manager, diversification may actually be an impediment. Mulvey et al (2006) propose applying an overlay strategy to further improve performance. Kritzman and Page (2002) highlight that one of the most debated issues of investment management is the relative importance of asset allocation and security selection, and the overwhelming consensus is that asset allocation is more important. However, they do believe that choosing stocks within the equity component of a portfolio is substantially more important than choosing a portfolio's exposure among stocks, bonds and cash. Kaushik and Barnhart (2008) agree, noting that although the argument in favour of holding a fund whose assets are concentrated in a small number of companies is in conflict with the common recommendation of diversification in the 2001–2006 year period, investors have shown great interest in more narrowly focused, non-diversified funds, such as sector funds and exchange-traded funds. Eakins and Stansell (2007) concluded that rebalancing reduced investor exposure to sectors that have grown rapidly, possibly experiencing reduced performance as a result. The specific method used to rebalance is not as important as the consistency with which it is done.
2. Using Bloomberg Industry Group classification scheme.

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