

## Unconstrained global equity portfolios – when more stocks are better

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Concentrated portfolios have become popular because it is assumed they provide better returns to investors given that these portfolios are by definition more “active”. However, the first long term empirical studies from the US show no evidence that concentration increases returns. If this is the case, blends of concentrated portfolios in multi-manager structures will simply result in the same broad diversified portfolio of stocks we are trying to avoid but at higher cost (and potentially higher volatility). Rather than fear diversification, investors should embrace it and recognise that it is still possible to be diversified and highly “active”.

This paper begins with a review of why concentrated portfolios are popular, the problems of concentration and whether concentrated portfolios have delivered. Next we will explore how an unconstrained approach to global equity investing diversified across many hundreds of stocks can be more active than many concentrated managers providing investors with reduced risk without the need to sacrifice returns.

### Why are concentrated portfolios popular?

Investors frustrated with paying fund manager’s hefty fees only to see them go and deliver index-like returns are turning in greater numbers to managers who “back their views” – typically this has meant portfolios concentrated in fewer stocks. In addition the growing size and prevalence of multi-manager structures has required that individual managers increase risk so the aggregated portfolio does not itself become ‘index like’.

Many investors are already familiar with the perceived advantages of concentrated portfolios but let’s briefly recap them here:

- Belief that a portfolio only made up of a manager’s ‘best ideas’ should produce better returns;
- Better bang for your buck – why pay fund managers to deliver index like returns
- Diversification beyond 30-40 stocks doesn’t appear to deliver significant risk reduction
- Ideal strategy for boutiques who lack the resources to research the breath of global stocks available

### Concentration or conviction?

It is worthwhile noting at this stage that the objective of concentration is not in itself increased concentration – it is conviction and better risk adjusted rewards. However, the Australian funds management industry has increasingly adopted concentration as a measure of conviction. More on this later.

## What do we mean by concentration?

The marketing hype of concentrated portfolios has far outpaced the industry's research into the characteristics of concentration. There are few studies of the **effects** of concentration and no widely accepted **definition** of concentration so it is difficult to empirically test the effectiveness of concentrated portfolios. It is also easy to be distracted by the debate on concentration from the ultimate aim of investors, which is to find portfolios that are highly 'active' with the potential to generate high returns – ie. High conviction portfolios.

However, let's begin by looking at measures for portfolio concentration. Three measures will be outlined here:

1. Number of stocks
2. Percentage of portfolio in top 10 stocks
3. Concentration Coefficient – a measure of concentration vs returns

### 1. Number of stocks

Many investors typically look to the number of stocks in a portfolio to assess how concentrated it is. Simply counting the number of stocks in a portfolio is a poor measure of concentration. Consider two portfolios of 50 stocks:

Portfolio	Composition
1. Equal weighted	50 equally weighted stocks
2. Stock picker	1 stock, X, held at 51% 49 other stocks held at 1% each

Clearly Portfolio 2 is more concentrated than Portfolio 1 even though they both hold the same number of stocks. Portfolio 2 will also be more volatile because it is dominated by the stock specific risk of stock X held at 51%. The number of stocks is an inadequate measure of portfolio concentration.

A measure of concentration needs to take into account the portfolio weights of the holdings.

### 2. Percentage of portfolio in top 10 stocks

A better measure of concentration would be to look at the percentage of a portfolio in the top 10 stocks where portfolios with high concentration would have a large % of the total in the top 10 stocks. Consider the same two portfolios above:

Portfolio	Composition	Percentage of portfolio in Top 10 stocks
1. Equal weighted	50 equally weighted stocks	20%
2. Stock picker	1 stock, X, held at 51% 49 other stocks held at 1% each	60%

This measure clearly shows how Portfolio 2 is much more concentrated than Portfolio 1, a result which simply counting the number of stocks would not show.

### 3. Concentration Co-efficient (CC)

The Brandes Institute in the US, conducted a study of 475 portfolios in the US over the period 1992 to 2003 to see whether concentration was related to improved returns<sup>1</sup>. In that study they used a measure, called the Concentration Co-efficient (CC), to rank the concentration of portfolios.

The CC is a simple to calculate measure where you sum the square of the weights of all the stocks in a portfolio<sup>2</sup> and then invert the result. Consider the same example above:

Portfolio	Composition	Concentration Co-efficient
1. Equal weighted	50 equally weighted stocks	50
2. Stock picker	1 stock, X, held at 51% 49 other stocks held at 1% each	3.8

The Concentration Coefficient makes specific allowance for all holding weights in a portfolio and the higher the coefficient the less concentrated the portfolio. This is probably the best measure we have today for the concentration of a portfolio.

Another way to interpret the CC is that it restates a portfolio in an equivalent number of equal weighted stocks. So in the example above, 50 stocks all equally weighted has a CC of 50. However, Portfolio 2 with Stock X at 51% and the other 49 stocks at 1% is equivalent to an equally weighted portfolio of 3.8 stocks in terms of concentration.

Regardless of whatever measure an investor chooses to measure a portfolio's concentration, where do we draw the line between a fund that is concentrated and one that is not?

A portfolio of 20-40 stocks is currently considered to be a concentrated Australian equity portfolio which would allow the best 2-3 stocks to be picked from each key sector.

However such a definition for a global equity portfolio would be extreme. A concentrated global equity portfolio of 20-40 stocks would miss many attractive investment opportunities. If one considers that there are 10 global sectors and 22 countries in the MSCI World ex Australia benchmark, simply picking the single best stock from each sector in each country would require a portfolio of hundreds of stocks<sup>3</sup>

With a universe of over 15,000 investable global stocks, even a portfolio of several hundred global stocks could still be considered concentrated relative to the whole universe.

Concentration is therefore a relative measure: relative to the peer group and relative to the universe of securities. Ultimately, a debate over who is more concentrated than someone else is only useful if it delivers improved risk adjusted returns. Again, it's reward for conviction which is the objective, not concentration per se.

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<sup>1</sup> "Concentrated Portfolios: An examination of their characteristics and effectiveness": Brandes Institute Sep 2004

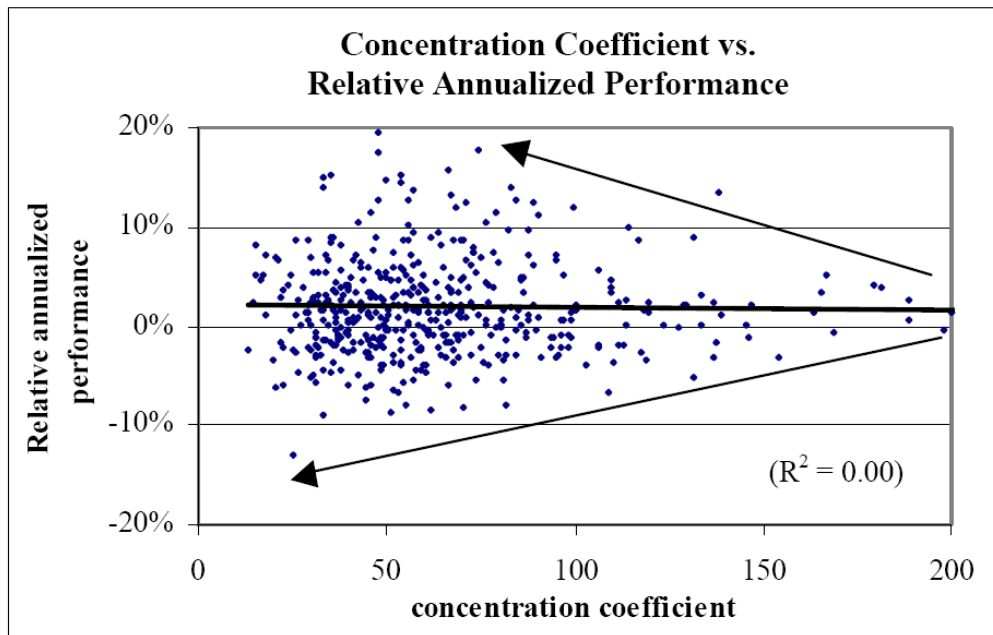
<sup>2</sup> This is also referred to as the Herfindahl Index and is a widely used measure for calculating concentration of industries in an economy.

<sup>3</sup> As all sectors do not exist in all countries, the total number of sector country combinations is <220

## Have concentrated portfolios delivered?

The first empirical evidence emerging from the US is that concentrated portfolios do not necessarily deliver better returns – they just deliver more volatile returns.

As stated above, the Brandes Institute Study covered 475 portfolios in the US over the period 1992 to 2003 to see whether concentration was related to improved returns<sup>4</sup>. They found no statistical relationship between concentration and performance as shown in the chart below:



Source: The Brandes Institute; Global Wealth Allocation; Russell/Mellon Analytical Services. Performance is historical, as reported to Russell/Mellon Analytical Services.

No such long term studies exist in Australia and given that concentrated portfolios are a relatively new phenomenon it is unlikely that any meaningful statistical results will be available for some time.

## The cost of concentration

One of the factors behind the trend towards concentrated funds is the 'barbell' of institutional portfolios into a passive core with high tracking error concentrated portfolio satellites.

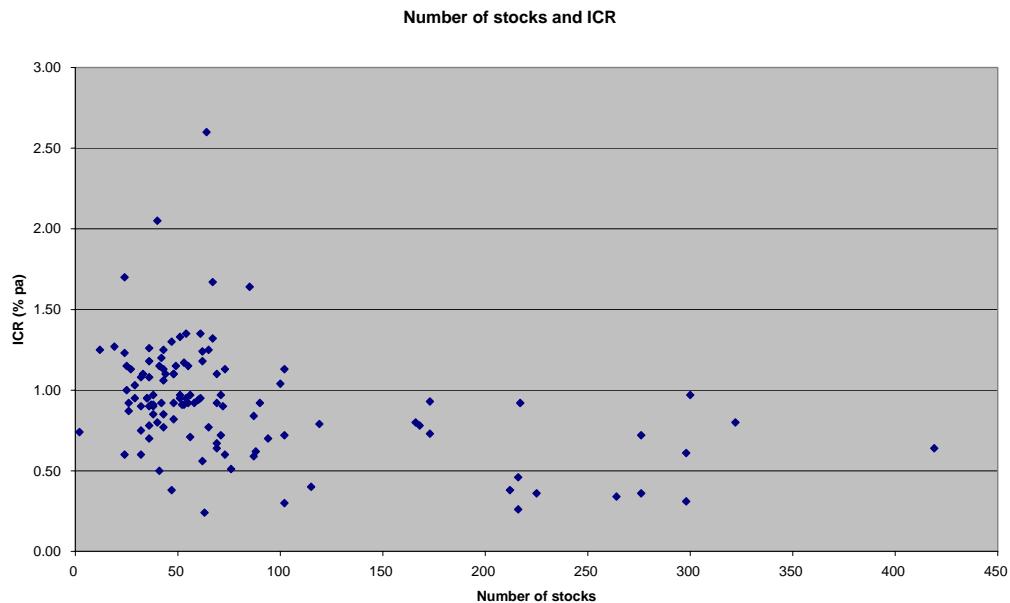
The passive core is relatively cheap while investors pay more for the concentrated strategies. The cost savings for investors from this approach are likely to be illusory unless the concentrated strategies employ appropriately structured performance based fees.

Concentrated portfolios are likely to deliver more volatile results – higher chance of 'shooting the lights out' or getting it horribly wrong. With increased dispersion of returns it becomes very important for investors to

<sup>4</sup> "Concentrated Portfolios: An examination of their characteristics and effectiveness": Brandes Institute Sep 2004

get their manager selection right. The Brandes Institute results shown earlier indicate the 'average' concentrated manager simply delivers the same returns as the average traditional manager in which case one doesn't want to pay more for this performance.

However, investors are more willing to pay higher fees for concentrated strategies but they are buying more volatility of returns which is likely to average out over the long term to deliver similar results to less concentrated managers but at higher cost. The following chart shows the relationship between number of stocks and the Indirect Cost Ratio for all institutional Australian equity funds on the Morningstar database.



Source: Morningstar Direct, Institutional categorised Australian equity funds.

The above chart appears to show that the fewer the number of stocks the higher the fee. There are no strategies with more than 100 stocks charging more than 1% pa but plenty of funds with less than 100 stocks charge in excess of 1% pa.

A better strategy would be to demand well structured performance based fees from concentrated managers with appropriate performance fee caps, loss carry forward provisions and high water marks.

### **Is concentration the only way for a manager to be “active”**

We have looked at various measures of concentration but in some ways this distracts investors from the ultimate end game. Concentration is about 'conviction', managers having the courage to create portfolios that look very different from the benchmark/peers.

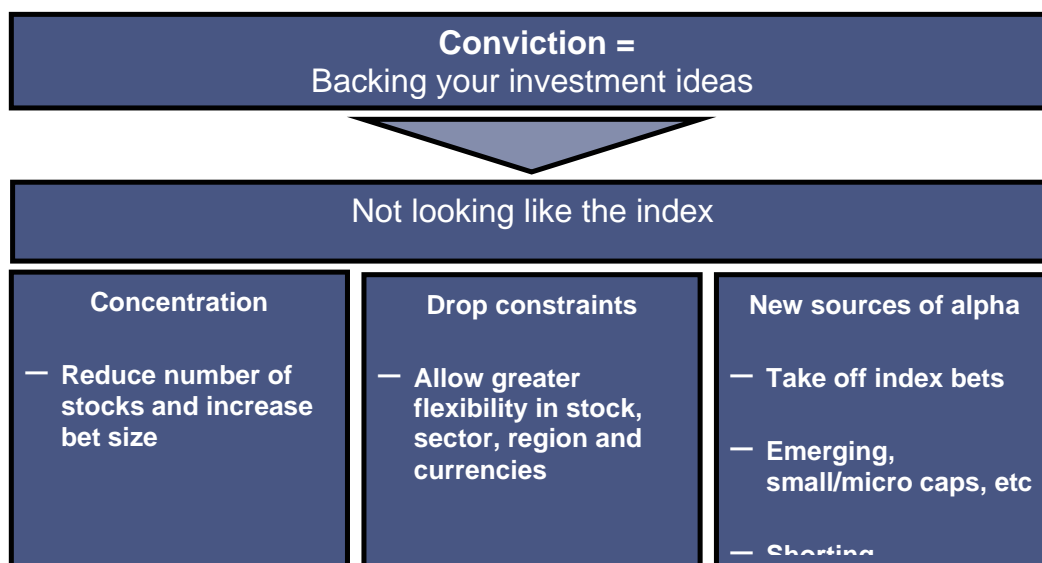
An active manager's conviction should not be measured by the number of stocks held but by how different those holdings look from the benchmark.

Constraints have limited many managers' ability to create highly active portfolios because they usually limit a manager's ability to deviate from benchmark positions eg. Stock positions +/-2% around benchmark, country weights +/-5% around benchmark.

Dropping constraints allows a manager the freedom to fully exploit their skills and reducing the number of stocks will certainly lead to a fund becoming more "active". However, concentration is not the only way to create a portfolio that looks and behaves differently from a benchmark. Other equally important approaches are:

- Investing off benchmark
- Dropping constraints so that stock weights can be vastly different to their weights in a benchmark.
- Shorting of stocks

The following chart shows the relationship between conviction and concentration. The point being that concentration is just a subset of the many strategies at a manager's disposal to achieve the end objective of creating a portfolio with high conviction.



Source: Schroders

Rather than be so narrowly focused on concentration, investors would be better served looking at alternative measures of how a fund differs from a benchmark. Typically Tracking Error is used as the measure for how fund performance deviates from the benchmark but a better measure is 'Active Share'.

The topic of "Active Share" has been circulating in various financial publications recently<sup>5</sup>. Active Share refers to the portion of the portfolio that is "non-benchmark". For example, if we own a stock at a 3% weight that is 1% in the index (ie. A 2% active weight), the 2% would count towards our Active Share. A fund with an active share of 80% would mean that 80% of the portfolio is different from the benchmark.

<sup>5</sup> FT Funds Management, 23 July 2007

Active Share is a far better indicator of how 'active' a fund is rather than measuring how concentrated it is or looking at its tracking error. Active Share looks at the actual level of commonality of holdings with the benchmark and produces different results from tracking error which measures volatility and cross correlation of stock positions with the benchmark. These measures can differ depending on the style of a manager. For example, a diversified stock picker who picks the best stock from each sector might have a low tracking error but a high Active Share. Tactical asset allocators who make big market timing bets but hold stocks at index weights would have a high tracking error but low Active Share.

Active Share is now a measure that one can find on research databases like Morningstar and provides investors with a good insight into how different a fund is to a benchmark or even other funds. Recent academic studies<sup>6</sup> have shown that it is Active Share and not Tracking Error which is a good predictor of whether managers are likely to generate excess returns over a benchmark. Cremers and Petajisto in their paper "How Active is your fund manager: A new measure that predicts performance" conclude that:

*"Active management, as measured by Active Share, significantly predicts fund performance. Funds with the highest Active Share significantly outperform their benchmarks both before and after expenses, while funds with the lowest Active Share underperform after expenses. In contrast, active management as measured by tracking error does not predict higher returns if anything, using this traditional measure makes active funds seem to perform worse."*

A possible explanation for these results is that there are enough small inefficiencies in the pricing of individual stocks to allow the most active diversified stock pickers to generate a positive alpha, and this is the dimension captured by Active Share. In contrast, fund managers in general do not seem to have timing ability with larger factor portfolios (factor bets refer to sector, industry or country bets), so the high tracking-error concentrated funds struggle to add value with their unavoidable significant factor bets.

The summary results of the Cremers and Petajisto study are reproduced here.

#### **Panel A: Net equal-weighted alphas for all-equity mutual funds in 1990-2003**

Results are sorted by Active Share and Tracking Error quintiles. Net fund returns are the returns to a fund investor after fees and transaction costs. Index funds are excluded from the sample. The table shows annualised returns, followed by *t*-statistics (in parentheses) based on White's standard errors.

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<sup>6</sup> Cremers, M and Petajisto. A "How Active is your fund manager? A new measure that predicts performance" January 15, 2007

Panel A: Benchmark-adjusted return

Active Share quintile	Tracking error quintile						
	Low	2	3	4	High	All	High-Low
High	1.20 (1.06)	0.60 (0.53)	1.45 (1.40)	2.04 (1.56)	1.63 (0.75)	1.39 (1.51)	0.42 (0.16)
4	1.00 (1.16)	0.83 (1.01)	0.44 (0.46)	-0.31 (-0.21)	0.02 (0.01)	0.39 (0.40)	-0.98 (-0.34)
3	0.44 (0.64)	-0.54 (-0.67)	-0.85 (-0.93)	-0.93 (-0.73)	-1.31 (-0.57)	-0.64 (-0.67)	-1.75 (-0.71)
2	-1.17 (-2.24)	-0.39 (-0.51)	-1.18 (-1.36)	-1.44 (-1.28)	-2.73 (-1.77)	-1.38 (-1.73)	-1.56 (-1.02)
Low	-1.20 (-4.49)	-1.13 (-2.71)	-0.91 (-1.65)	-1.62 (-2.44)	-2.21 (-2.40)	-1.41 (-2.88)	-1.01 (-1.23)
All	0.05 (0.10)	-0.12 (-0.22)	-0.21 (-0.33)	-0.45 (-0.47)	-0.92 (-0.54)	-0.33 (-0.48)	-0.97 (-0.51)
High-Low	2.40 (2.06)	1.73 (1.38)	2.36 (1.94)	3.67 (2.90)	3.84 (2.10)	2.81 (2.90)	

As the Active Share quintile increases the excess returns also increase and the results are statistically significant. However as tracking error increases excess returns fall (although the results are not statistically significant).

Rather than look for a fund with a small number of stocks and high tracking error investors should be looking for funds with a high Active Share.

### A highly active diversified approach to global equity investing

Unnecessary constraints limit a skilful managers' ability to generate returns and prevent a manager from being as active as they could be. The typical unconstrained approach is to concentrate the number of holdings in order to generate higher returns. However, although this increases the dispersion of those returns we have seen it does not necessarily increase return<sup>7</sup>.

Most people would agree with the benefits of diversification, but few realise it can also be a way to generate high returns from unconstrained investing. At any given time, there are many attractive investment opportunities to exploit but in order to capture these you need many more stocks than a conventional portfolio can invest in. The number of stocks in a concentrated, unconstrained approach can itself be a constraint on achieving these returns.

Investors should consider a global equity portfolio that is unconstrained and high conviction but also very diversified (for example: Schroder Global Active Value Fund (Hedged)). Limits can remain in place at the stock, sector, industry level to prevent extreme outcomes but apart from that the unconstrained portfolio

<sup>7</sup> See "Concentrated Portfolios" The Brandes Institute (September 2004) which finds no statistical relationship between concentration and performance in the US. Indeed as concentration increases (i.e. fewer stocks), the dispersion of results increases.



should be allowed to seek out attractive opportunities wherever they may be and not be forced to buy stocks, sectors or countries simply because they are in a benchmark.

This type of highly diversified unconstrained global equity strategy can have a high Active Share. The following table shows the active share of some popular global equity funds used by advisers sorted by % of assets held in the top 10 stocks:

Fund name	% Asset in Top 10	# of Stocks	Active Share
Schroder Global Active Value Fund Hedged	4.5	576	0.88
Vanguard – Index International Shares Fund	9.8	1456	0.10
Dimensional – Global Value Trust	14.4	900	0.75
AXA – Wholesale Global Equity – Core Fd	14.8	456	0.66
Templeton Global Equity Fund	18.5	98	0.83
Walter Scott Global Equity Fund	21.2	61	0.92
ABN Amro – Global Equity Fund	22.5	80	0.83
MFS Fully Hedged Global Equity Trust	23.9	92	0.84
Platinum International Fund	28.2	169	0.94
GVI Global Industrial Share Fund	30.0	64	0.89
Perpetual W/S International Share Fund	30.6	65	0.84
PM Capital – Absolute Performance Fund	44.1	44	0.92
Morgan Stanley Global Franchise	49.5	31	0.95
T. Rowe Price Global Equity Fund	86.7	77	0.96

Source: Morningstar Direct, July 2007. Fund holding data for each manager depends on when each manager supplied information to Morningstar which varied from Dec 06 to May 07

Concentrated global equity funds typically have a high active share but it is also worth noting that the most diversified fund in the Morningstar global equity universe, the Schroder Global Active Value Fund Hedged, has an active share similar to other concentrated managers.

### **How to access a diversified unconstrained global equity portfolio**

The Schroders Global Active Value Fund in both its hedged and unhedged versions is one example of how investors can access a highly diversified unconstrained global equity portfolio. There are few alternatives offering the same level of diversification in an unconstrained approach. The strategy has a high Active Share as a result of:

1. Widening the opportunity set and investing outside the index (around 90% of stock weights are outside the index)
2. Focusing on Value as a long term winning strategy<sup>8</sup>
3. Adopting non market-cap weightings as part of a completely unconstrained investment process

<sup>8</sup> Ibbotson date back to 1969 estimate the geometric return to All Value stocks in the US to be 11.6% compared to 9.3% for Growth Stocks whilst the return to Small-Cap Value stocks was even more impressive at 15.4%. For examples of International comparisons, see Fama and French in "Value versus Growth: The international evidence" (1998) or Carlo Capaul, Ian Rowley, and William F. Sharpe (FAJ, 1993).

The performance of the Global Active Value (GAV) strategy has been anything but index-like and although the performance track record is short it does show that diversification can reduce volatility (GAV has the lowest volatility of all funds in the market) without sacrificing returns (GAV has the highest returns of all funds in the market).

### **Where does a diversified unconstrained global equity fund fit in an investor's portfolio?**

Global equity portfolios are typically benchmark constrained large cap equity strategies. An unconstrained global equity strategy, such as GAV, could be complementary to existing global equity managers because such a highly diversified strategy would typically have the following differentiating characteristics:

- Less likely to be dominated by momentum factors which are an unavoidable characteristic of capitalisation weighted benchmarks and portfolios
- Greater exposure to mid-cap stocks rather than mega/large cap stocks

Even for investors employing a passive core and concentrated satellite manager approach would benefit from blending a diversified unconstrained global equity strategy. The passive core would follow a capitalisation weighted benchmark which is akin to momentum investing putting more weight in stocks which are rising in price and less in those stocks falling in price.

A highly diversified unconstrained global equity strategy is unlikely to have such momentum characteristics as the lack of constraints affords the unconstrained strategy the freedom to rotate out of expensive stocks, sectors or countries. A significant portion of the core could be replaced by the diversified unconstrained strategy or it could be an additional satellite.

### **Conclusions**

Concentration is a means to an end – the end being the creation of portfolios which are highly active with the potential to deliver significant absolute returns and beat benchmarks which investors can purchase through index funds at relatively low cost.

However, the objective of creating highly active portfolios can also be achieved through widening the opportunity set, dropping benchmark relative constraints or by going short. These strategies can be utilised in portfolios with hundreds and hundreds of stocks without reducing the 'activeness' of the fund, as measured by Active Share.

Investors should consider diversified unconstrained equity strategies as a means to enhance returns and reduce risk. Such a diversified unconstrained equity portfolio would be complementary to almost every style of equity portfolio employed by investors today whether global or local.