

Whatif?

Capped-weight indices

June 2005

To cap, or not to cap? Is it even the right question?

'The difficulty lies, not with the new ideas, but in escaping from the old ones.' John Maynard Keynes (preface to *The General Theory*)

The issue of capped indices has raised its head in the UK once again (remember Vodafone at 12+ per cent?). This time it is prompted by the unification of Royal Dutch and Shell due in July, which will result in it having a weighting of over 7.5 per cent in the FTSE All-Share Index (from 3.2 per cent at 31 March 2005). The UK is a concentrated equity market – the top 10 stocks will account for over 45 per cent of the All-Share Index (relative to 42.7 per cent at end of 2004, and 28.4 per cent in 1997). Capped indices are seen as a way to mitigate the concentration risk. FTSE has proposed a cap that would kick in at 5 per cent.

On the positive side, the capped index will partially address the UK concentration issue (limiting company-specific risk) and increase diversity. However, the list of negatives is long:

- it is not clear that it will reduce volatility
- for passive managers it will increase turnover and thus trading costs
- the overall liquidity of this index will also be slightly lower
- capital allocation within the economy may be distorted
- capping will produce some new sector weightings.

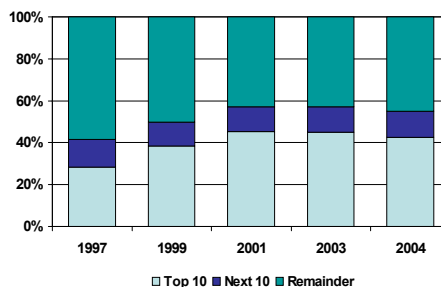
We note that there are other ways to address the UK concentration and

diversity issues – go global, use equal weights, use tiered equal weights, or use wealth weights. We would consider the capped index to be a case of 'right question; wrong answer', and so, on balance, we are not particularly supportive. However, we see this issue as part of an increasing recognition of the limitations of the current 'benchmarking to capitalisation weighting' framework, and we believe the area of benchmarking will increase in importance over the next few years.

Concentration

The chart below shows how the weighting of the largest 10 companies has increased from 28.4 per cent to 42.7 per cent since 1997 (or 45.3 per cent post the Royal Dutch and Shell consolidation). This trend could continue if companies expand globally through acquisitions and mergers and other companies, such as Unilever and Reed Elsevier, consolidate their share structures. Investors, therefore, need to consider whether it is appropriate or necessary to devote a large proportion of their portfolio to a small number of large companies.

Concentration in the FTSE All-Share Index



Different types of risk

Limiting exposure to individual companies does limit the effect of company-specific events – and there are many examples of such events including Elan (Ireland), WorldCom and Enron (US), and Marconi and Polly Peck (UK). However, and somewhat counter-intuitively, limiting exposure to individual companies does not necessarily reduce aggregate portfolio risk. The table below shows that the BARRA predicted risk of the FTSE All-Share Index as at 31 March 2005 was 10.73 per cent, while the same figure for a 5 per cent capped version would have been 10.76 per cent – fractionally higher but not significantly so.

Index	BARRA predicted risk
FTSE All-Share	10.73%
4% capped All-Share	10.79%
5% capped All-Share	10.76%
6% capped All-Share	10.75%

Source: BARRA and Barclays Global Investors

Unintended bets

While providing better diversity, capping equity weights within an index will also introduce unintended bets, for example a lowering of the oil and gas sector weighting (through capping BP and Shell) will increase the weighting in both the mining and the media sectors by nearly 0.5 per cent. In addition, the overall liquidity of the index will be slightly reduced, as the smaller stocks become more

heavily represented. For passive managers there are also additional trading costs to maintain a capped index compared to market cap. The table below shows the two-way turnover at the 2004 quarterly reviews. For active managers the implications are less clear – the extra index turnover is unlikely to be of a magnitude that affects their investment process, while the need to maintain the ‘risk control’ element of their portfolio could reduce.

Review	FTSE All-Share	5 % capped All-Share
Mar 2004	0.6 %	3.9 %
Jun 2004	0.3 %	1.8 %
Sep 2004	0.7 %	1.4 %
Dec 2004	0.9 %	2.3 %
All reviews	2.5 %	9.4 %

Source: Barclays Global Investors

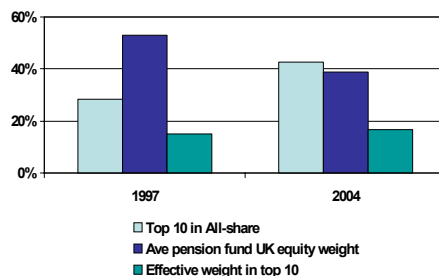
Performance measure or neutral portfolio?

The choice of an index will matter more if its primary function is to act as a neutral portfolio, and less if its primary function is to be used as a guide to how the manager is performing. For example, for an index-tracking manager the choice of index is imperative (the performance measure and the neutral portfolio are one and the same), whereas for a long-term absolute return equity manager holding, say, 20 positions, the index will have no influence on portfolio construction and will only have meaning as a guide to (long-term) performance. For the latter manager, the precise choice of index is a relatively unimportant decision. The choice of index should therefore depend on the context in which it is to be used.

More on concentration

Considering UK equities in a total fund context may reduce the level of concern. The following chart shows the concentration in the 10 largest UK companies rising from 28.4 per cent of the index to 42.7 per cent between 1997 and 2004. However, over the same period, the average pension

fund weight in UK equities fell from 53 per cent to 39 per cent.



Consequently, the assets ‘at risk’ in the top 10 companies increased less markedly from approximately 15.1 per cent of assets to 16.7 per cent (or 17.7 per cent post the Royal Dutch/Shell consolidation). While this may represent an unnecessary and undesirable level of portfolio concentration, we do not believe that it is cause for alarm. Indeed, our preferred solution to the UK concentration issue is more long-term in nature – a continued reduction in the UK equity weighting in favour of an increased exposure to global (including the UK) equities.

Conclusion

In this paper we have outlined the major advantages and disadvantages of introducing a cap to index weighting schemes. We note our preference for diversity which is easily and cheaply available in the form of a global market cap index. In passing, we would also note that we have an increasing preference for wider manager discretion – so that for active managers the choice of index is less important as it plays less of a part in portfolio construction. Both of these address the issue of stock concentration from different angles.

With respect to the problem at hand, however, there are various alternatives for investors who are concerned about concentration risks. We explore a number of these in the following appendix. None of the suggestions are without complications, and all carry the issue of the transaction costs associated with making a change, and so it is not possible to provide definitive

guidance in this paper. We would, however, be happy to assist clients with these issues, and would be particularly interested in discussing the newer idea of wealth weights (and a related, but more active, risk-weighted approach) with any clients who are interested.

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Thinking Ahead

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Appendix

Index weighting alternatives

1 Market cap weights

It is no coincidence that the vast majority of equity benchmarks are market cap weighted, as they carry a number of compelling advantages. They are recognised, investable, typically cover a large proportion of the available universe, reflect the differing liquidity to be found in large versus small stocks, and are difficult to ‘game’ (in other words it is difficult for companies to influence their share price). As a slight technical aside, most market cap indices are now ‘free-float adjusted’, which means the weight in the index is based upon the number of shares freely available for purchase and sale rather than the total number of shares, some of which may, in effect, be privately held. The free-float adjustment further reduces the ability to game the index, but results in a less theoretically ‘pure’ index, as the size of the company in the index no longer necessarily reflects its economic importance.

Due to the advantages listed above, we believe that market cap is the pre-eminent *performance* benchmark. In other words, it defines the return on the opportunity set against which all other approaches are compared. We therefore suggest there are strong grounds for continuing to use the market cap weights within the FTSE All-Share index as the benchmark for UK equities.

That said, we do not believe that market cap weights always represent the most efficient portfolio. In other words we believe there are alternative ways to build portfolios of equities to generate more efficient outcomes (in terms of risk and return) – any investor employing active management implicitly agrees with this. We believe that greater efficiency is associated with greater diversity – a more even spread of exposures. Obviously, the greater the concentration in the index, the less diverse the exposures. Any UK investor concerned about diversity

(and not able to move to a more global allocation) should consider an alternative to market cap.

2 Capped weights

As alluded to earlier in this note, capped weights represent a first, small step towards greater diversity, which we believe is a good thing. In addition, capped weights have the advantages of being simple, intuitively appealing and pragmatic. However capped weights clearly violate any notion of efficient allocation of capital and, besides, we have been here before – for example, when Vodafone acquired Mannesmann and there was talk of capping index weights at 10 per cent. If 10 per cent was the right number then, why are we now talking about 5 per cent? The rhetorical question is intended to note that the level is a rather arbitrary decision; there is no ‘correct’ answer. (As an aside, the Vodafone/Mannesmann case also highlighted the problems of regional indices, with Mannesmann disappearing from the German index. A global market cap index would have been unaffected by this particular issue.)

There are further complications such as deciding on the frequency of rebalancing (if Shell is 5 per cent today, but outperforms and increases its weight, when do we bring it back to 5 per cent?), and increased opportunity for gaming (for example, Shell could split into two, with each part being less than the 5 per cent weight limit, thereby causing increased institutional buying, possibly increasing its share price). A final point would be to note that there is some potential for regret, albeit small, should market cap weights outperform.

So while capped weights move us towards greater diversity and carry some appeal, they do introduce a much larger subjective element than with market cap weights and do not take us very far down the road of enhanced efficiency.

3 Equal weights

We can address these shortcomings by adopting an equal weights benchmark. Diversity (by capital allocation) is maximised – we will have only one egg in each of our baskets – and the subjective element is eliminated as the construction is entirely transparent and rules-based. Empirical evidence would suggest that over long time periods equal weights can significantly outperform market cap weights, but that over shorter-term periods they can underperform significantly. There is, therefore, considerable scope for regret.

Furthermore, the objection can be raised that, while ‘mathematically efficient’, equal weights have no relationship to economic importance. However, by far the largest drawback of equal weights is the illiquidity of the portfolio – the smallest stock in a market cap index will have a much higher weight in an equal weight index, making it difficult and extremely expensive to trade (if possible at all). As an aside, equal weights indices would not be immune from the gaming problem.

Consequently we may note that equal weights are intellectually interesting but almost entirely impractical (it would be possible for a very small number of investors, with appropriate beliefs and convictions, to run small amounts of money this way).

4 Tiered equal weights

The practical limitations of equal weights can be addressed through a number of tiers, each of which contains equally-weighted stocks. For example, and assuming for simplicity that the FTSE All-Share contains 800 companies, we could assign the top 100 companies to one tier with each weight being 0.8 per cent (80 per cent for the tier); we could assign 200 companies to the next tier, each with a weight of 0.075 per cent (15 per cent for the tier); and the third tier would comprise the remaining 500 companies, each with a weight of 0.01 per cent (5 per cent



for the tier). This tiering gives very low weights to the very largest companies, which could be seen as a problem (certainly in terms of liquidity). An alternative approach would be to have equal capitalisation tiers – three tiers of 33.3 per cent each, or four tiers of 25 per cent each and so on. The top capitalisation tier would contain very few stocks – the top four companies would account for around the first 25 per cent, and so in this example would have a weight of around 8 per cent - while each successive tier would have an increasing number of stocks and consequently a much reduced weight.

We would have given up some diversity, but addressed the majority of the liquidity problems. However, we are back to the problems of subjectivity/arbitrariness – how many tiers, how many stocks in each, at what weights? The opportunity for gaming would also be present and turnover may be higher, resulting in greater cost. Nevertheless, despite the disadvantages, we believe that this approach has the merits of promoting greater diversity while retaining simplicity.

5 Wealth weights

Our final suggestion for an alternative equity index is one comprised of wealth weights. Unlike the other options above, which are essentially about exerting some mathematical control over one or more weights, wealth weights have a different philosophical basis. Here we are not concerned about the weight of any particular company, but rather we are interested in how much wealth that company generates. Risk is then about the company having too large a weight in the index relative to its share of wealth creation and, conversely, there is opportunity if another company has a lower index weight relative to its wealth creation. In our current context, if Shell generates 10 per cent of all the wealth created by UK companies, then its 7.5 per cent market cap weight is ‘too low’ (and if Shell generates only

4 per cent of total wealth, it is ‘too high’).

It is possible to use accounting data (such as earnings) to develop wealth weights for all UK companies, which have the significant appeal of relating the size of the exposure to the economic importance of the company. What is missing is the forward-looking element that is assumed to be present in market cap weights. In other words, an investor adopting a wealth-weighted index would need to believe that current fundamental data is a better forecast of future wealth creation than are the consensus growth forecasts (collective wisdom) embedded within market cap. The limited empirical evidence available suggests that wealth weights could be more efficient than market cap weights.

Summary

A summary of our views on the alternatives to market capitalisation weights is shown in the table below.

	Reduce company-specific risk	Reduce overall risk	Relative cost	Adding expected return
Capped weights	✓	✗	✗	✗
Equal weights	✓✓	✓	✗ ✗	✓
Tiered equal weights	✓	✓	✗	✓
Wealth weights	✓	✓	✗	✓