Intelligent Exchange Traded Funds (ETFs)

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Intelligent ETFs

The spectacular development of the ETF market worldwide has also seen a number of specialised niches being introduced. Within the equity ETF category, 'Intelligent' ETFs based on 'fundamental' or 'equal-weighted' indexes are increasingly being launched and they offer investors improved risk control together with the potential for higher equity returns over the medium to long term when compared to the traditional market value-weighted index ETFs.

Traditional Market Value-weighted Index ETFs

Traditionally, the weighting of a company in an index like the DJ Euro Stoxx 50, the S&P 500 Index or the FT 100 Index is determined by its market value or market capitalisation – i.e. what the company is worth in the market place. In other words, the vast majority of stock market indices are market value-weighted indices.

For this reason, up until recently, the vast majority of 'equity' exchange traded funds tracked market value-weighted stock market indices. So what is the point you might ask? Well, we'll get to the point soon.

The table on page 3 highlights the constituents of the FT 100 Index as of 12th August 2009 in descending order by market value as noted in column A. In column B, we show each company's weighting in the index, which is determined by its market value. For example, the market value of all 100 companies was £1,302,982 million at that date (see bottom of table). BP's market value was £95,085 million meaning that BP represented 7.3% of the overall total and hence would have a 7.3% weighting in the index.

Any ETF that was tracking the FT 100 Index would own each of the 100 companies in proportion to their index weightings as determined by their relative market values. Such an ETF would have 7.3% of its monies in BP plc on 12th Aug 2009.

Enter 'Fundamental' or 'Equal-weighted' Indexes

In contrast, in column C, we assume each company is given an equal weighting in the index irrespective of size. This would give an equal-weighted index, which is not the norm but, as we discuss later, has some advantages.

	A	B	C	D	E
Company	Market Value (£m)	Index Weighting	Equal Weighting	Dividends (£m)	Weighting by Dividends
HSBC Holdings	113,206	8.7%	1%	3,657	6.9%
Royal Dutch Shell	99,202	7.6%	1%	6,666	12.6%
BP	95,085	7.3%	1%	6,665	12.6%
Vodafone	67,949	5.2%	1%	4,281	8.1%
GlaxoSmithKline	61,794	4.7%	1%	3,312	6.3%
Unilever	47,063	3.6%	1%	1,967	3.7%
Astrazeneca	40,573	3.1%	1%	2,065	3.9%
Barclays	38,969	3.0%	1%	659	1.2%
Brit Amer	37,631	2.9%	1%	1,991	3.8%
Rio Tinto	35,222	2.7%	1%	736	1.4%
BG Group	34,720	2.7%	1%	444	0.8%
BHP Billiton	34,314	2.6%	1%	1,112	2.1%
Tesco	29,331	2.3%	1%	1,056	2.0%
Standard Chartered	27,657	2.1%	1%	827	1.6%
Lloyds Banking	26,301	2.0%	1%	16	0.0%
Royal Bank Of Scot.	25,449	2.0%	1%	0	0.0%
Anglo American	24,553	1.9%	1%	81	0.2%
Diageo	23,397	1.8%	1%	952	1.8%
Xstrata	22,423	1.7%	1%	204	0.4%
Sabmiller	21,039	1.6%	1%	604	1.1%
Reckitt Benckiser	19,739	1.5%	1%	667	1.3%
Imperial Tobacco	17,371	1.3%	1%	816	1.5%
National Grid	13,965	1.1%	1%	965	1.8%
Prudential	12,072	0.9%	1%	512	1.0%
BAE Systems	11,663	0.9%	1%	582	1.1%
Centrica	11,453	0.9%	1%	671	1.3%
BT Group	10,463	0.8%	1%	541	1.0%
S&S Energy	10,318	0.8%	1%	648	1.2%
Aviva	10,140	0.8%	1%	668	1.3%
ENRC	9,826	0.8%	1%	80	0.2%
Reed Elsevier	9,472	0.7%	1%	457	0.9%
BSkyB	9,360	0.7%	1%	320	0.6%
Tullow Oil	8,330	0.6%	1%	51	0.1%
Cadbury	7,966	0.6%	1%	249	0.5%
Rolls Royce	7,856	0.6%	1%	279	0.5%
Morrison	7,128	0.5%	1%	153	0.3%
Antofagasta	7,019	0.5%	1%	128	0.2%
Ass. British Foods	6,314	0.5%	1%	176	0.3%
Compass Group	5,909	0.5%	1%	261	0.5%
Sainsbury	5,873	0.5%	1%	274	0.5%
WPP	5,846	0.4%	1%	212	0.4%
Pearson	5,765	0.4%	1%	291	0.6%
Shire	5,648	0.4%	1%	35	0.1%
Experian	5,297	0.4%	1%	137	0.3%
Marks & Spencer	5,250	0.4%	1%	237	0.4%
Kingfisher	4,908	0.4%	1%	137	0.3%
Vedanta Resources	4,766	0.4%	1%	67	0.1%
Old Mutual	4,744	0.4%	1%	241	0.5%
Kazakhmys	4,571	0.4%	1%	4	0.0%
Man Group	4,518	0.3%	1%	432	0.8%

	A	B	C	D	E
Company	Market Value (£m)	Index Weighting	Equal Weighting	Dividends (£m)	Weighting by Dividends
Land Securities	4,513	0.3%	1%	212	0.4%
Smith & Nephew	4,230	0.3%	1%	84	0.2%
Standard Life	4,194	0.3%	1%	271	0.5%
British Land	4,102	0.3%	1%	224	0.4%
RSA Insurance	4,094	0.3%	1%	286	0.5%
Capita Group	4,091	0.3%	1%	113	0.2%
International Power	4,030	0.3%	1%	183	0.3%
Fresnillo	3,991	0.3%	1%	49	0.1%
Wolseley	3,979	0.3%	1%	12	0.0%
Carnival	3,965	0.3%	1%	167	0.3%
Legal & General	3,825	0.3%	1%	230	0.4%
Cable & Wireless	3,697	0.3%	1%	248	0.5%
Thomson Reuters	3,596	0.3%	1%	128	0.2%
Foreign & Colonial	3,425	0.3%	1%	99	0.2%
Cairn Energy	3,346	0.3%	1%	0	0.0%
Next	3,274	0.3%	1%	109	0.2%
United Utilities	3,100	0.2%	1%	235	0.4%
Smiths Group	3,034	0.2%	1%	133	0.3%
Johnson Matthey	3,012	0.2%	1%	80	0.2%
Autonomy	2,992	0.2%	1%	0	0.0%
G4S	2,989	0.2%	1%	112	0.2%
Petrofac	2,886	0.2%	1%	82	0.2%
Randgold Resources	2,871	0.2%	1%	7	0.0%
ICAP	2,803	0.2%	1%	114	0.2%
TUI Travel	2,737	0.2%	1%	141	0.3%
Lonmin	2,733	0.2%	1%	4	0.0%
Hammerson	2,714	0.2%	1%	108	0.2%
Schroders	2,704	0.2%	1%	88	0.2%
Admiral Group	2,701	0.2%	1%	149	0.3%
Sage Group	2,701	0.2%	1%	101	0.2%
Home Retail Group	2,670	0.2%	1%	129	0.2%
Liberty International	2,645	0.2%	1%	92	0.2%
Inmarsat	2,479	0.2%	1%	100	0.2%
Alliance Trust	2,439	0.2%	1%	73	0.1%
Amec	2,334	0.2%	1%	59	0.1%
Severn Trent	2,307	0.2%	1%	167	0.3%
Cobham	2,224	0.2%	1%	66	0.1%
Intercon. Hotels	2,064	0.2%	1%	70	0.1%
Invensys	2,025	0.2%	1%	30	0.1%
Serco Group	2,025	0.2%	1%	30	0.1%
London Stock Ex.	1,988	0.2%	1%	68	0.1%
Thomas Cook	1,974	0.2%	1%	104	0.2%
British Airways	1,972	0.2%	1%	0	0.0%
3i Group	1,900	0.1%	1%	57	0.1%
Friends Provident	1,778	0.1%	1%	92	0.2%
Bunzl	1,771	0.1%	1%	74	0.1%
Intertek Group	1,763	0.1%	1%	43	0.1%
Balfour Beatty	1,658	0.1%	1%	68	0.1%
Rexam	1,627	0.1%	1%	63	0.1%
Pennon Group	1,582	0.1%	1%	78	0.1%
Total	**£1,302,982m**	**100%**	**100%**	**£52,816m**	**100%**

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In column D, we list the dividends each company was forecast to pay out at that date and in column E we calculate the weighting each company would have had in the index if weighting were calculated according to dividends rather than market value.

For example, if weightings in the FT 100 Index were determined not by market value but by the quantity of dividends each company was paying, then Royal Dutch Shell would have had a weighting in the index of 12.6% instead of 7.6%, Vodafone would have had a weighting of 8.1% instead of 5.2% and Xstrata a weighting of 0.4% instead of 1.7%. On the same basis, neither Cairn Energy nor Royal Bank of Scotland would have had any weighting in the index.

Tracking Alternative or 'Intelligent' Indexes

The growth of passive index tracking funds since the early 1970s reflects the fact that the majority of active funds do not deliver the market return on a 10-year view i.e. over a ten-year period, the majority of active funds will fail to match the index return. If this is the case, and for whatever reason, an investor might as well opt for the index return (or average return) by investing through an index tracking fund.

But investing in a passive index tracking fund (like an ETF) that tracks a market value-weighted index may not be the optimum way to achieve the 'indexing' goal. After all, market value-weighted indexes may be the norm but there is a growing body of evidence that suggests that 'fundamental-weighted' indexes can deliver higher returns.

For example, with market-weighted indexes, the higher a company's share price goes the higher its market value will be and the higher a proportion it will represent in a given index. This results in recently good performing shares (which are potentially over-priced) gaining a proportionately higher weighting in an index. By the same token, companies whose share prices have recently lagged the market (and are potentially under-valued) gain a proportionately smaller weighting in the index.

The suggestion is that, investors, as a group, tend to over-buy (and therefore over-value) companies which have recently been doing well and to over-sell (and therefore under-value) companies which have recently been doing poorly. Funds following market value-weighted indexes are, in effect, forced to 'buy high' and 'sell low'.

The compilers of 'Intelligent' or 'Fundamental' indexes argue that there are better ways to compile an index other than by market value and that 'fundamental' or 'intelligent' indexes can lead to improved returns over the market value-weighted indexes. This is the core of the issue – improved returns from indexes that weight their components by some value factor or a combination of value factors. After all, if a company offers better value (in many cases because its share price has fallen heavily) then it makes sense that it should get proportionately higher weighting in an index.

Research Affiliates Fundamental Indices (R.A.F.I.)

The Californian-based investment consultancy company, R.A.F.I., has produced compelling evidence in support of 'fundamental-weighted' indexes. It found that, on a rolling 10-year basis over the past 80 years, three out of the top ten stocks on the market value-weighted indices outperformed the average stock while seven out of ten underperformed. In other words, if one takes the top ten stocks in an index by market value at a point in time (e.g. the top ten stocks in the S&P 500) then over the next ten years, seven of those ten stocks (or 70% of them) will under-perform the index return. The conclusion must be that seven out of the top ten stocks were over-valued at the outset – and most probably so because they were selected on the basis of the market value.

Research Affiliates (and other similar index promoters) promotes the use of 'fundamental' indexes. This involves selecting, ranking and weighting companies by the size of their operations (i.e. by turnover, profits, assets and dividends etc). By approaching index weightings in this way, the linkage between the index weighting and the market value of a stock is severed. According to Research Affiliates, 'fundamental' indexes can add circa 2% p.a. to returns over the long haul. This is impressive in the context of long term equity market returns of 9-10% per annum.

Some Criticisms of 'Fundamental' Indexes

Supporters of traditional market value-weighted indexes argue that these new 'fundamental' indexes need to be re-balanced regularly which leads to extra costs (and taxes) within such funds (such as ETFs) and that over time the added costs erode some, if not all, of the possible out-performance claimed.

That valid but minor criticism aside, fundamental-weighted indexes are more logical indexes and they can assist investors in avoiding some of the pitfalls embedded in market value-weighted indexes. ETFs that follow 'fundamental' indexes offer investors a further low-cost choice in the area of passive funds management.

More evidence in Favour of 'Fundamental' Indexes

Another piece of compelling evidence in favour of fundament-weighted indexes comes from research published by David Dreman in 1998 in his book 'Contrarian Investment Strategies'. ***Chart A*** highlights that over the 27-year period from 1970-1996, the top 20% of stocks from the top 1,500 in the US market selected on the basis of either a low price-to-earnings, a high dividend yield or a low price-to-cashflow ratio outperformed the market returns.

The InvestR Centre's own research on the UK FT 100 Index has thrown up similar anomalies. ***Chart B*** highlights that over the 15-year period from 1995 to 2009 the top 20% of stocks from the top 75 stocks in the UK market selected on the basis of either a low price-to-earnings, a high dividend yield or a low price-to-cashflow ratio outperformed the market returns. The out-performance was not achieved in each year but nonetheless was significant over the period.

Obviously, if investors in aggregate switched away from the traditional market value-weighted indices and converted to tracking 'fundamental' indices then the anomaly (i.e. the opportunity to gain returns over and above the market returns) would disappear. But market value-weighted indices remain the standard so it is likely that investors can benefit from the likely superior medium term returns of fundamental indexes (through 'intelligent' ETFs) for some time yet.

The two main alternative indices to traditional market value-weighted indices are;

(i) Fundamental Indexes

(ii) Equal Weighted Indices

'Fundamental' Indexes & 'Intelligent' ETFs

As a reminder at this stage, stock weightings in fundamental indexes are not calculated according to the market value of the stocks in the index. Rather, they are weighted using a combination of fundamental factors such as their earnings, sales, dividends and book value (assets).

Several institutions have developed their own series of proprietary fundamental indexes including RAFI, PowerShares (part of Invesco), Wisdom Tree and Rydex among others.

Research Affiliates has teamed up with the index compiler FTSE International to develop an alternative series of fundamental indexes (FTSE RAFI indexes) on nternational markets.

RAFI Indexes Licensed to PowerShares & Lyxor

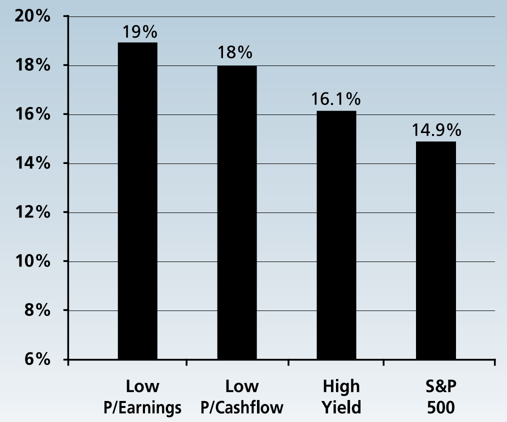
To date, the FTSE RAFI indexes have been licensed to PowerShares in the US and Lyxor in Europe and both these companies have sponsored ETFs that replicate the performance of a number of the FTSE RAFI fundamental indexes.

PowerShares

www.invescopowershares.com
www.invescopowershares.co.uk

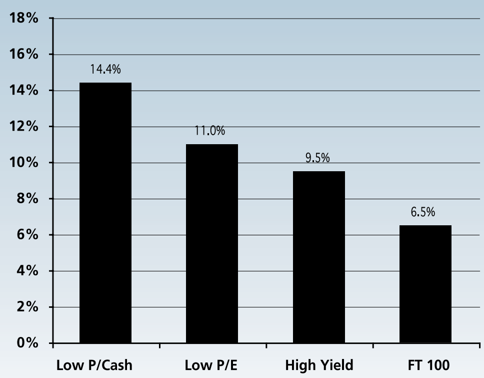
PowerShares Capital Management LLC is a US-based asset management company and is part of the Invesco Funds Management Group. PowerShares developed and continues to maintain its own in-house range of 'Dynamic Market Intellidex' indexes. It also sponsors ETFs based on third party 'intelligent' indexes such as the FTSE RAFI fundamental indexes. PowerShares is therefore both an Index creator and ETF sponsor.

Dremen Study (US Market 1970 - 1996)
Top Quintile Perf. - Annualised Returns



Source: Contrarian Investment Strategies, David Dreman

FT 100 Value Approaches
Compound p.a. Returns (1995 - 2009)



Source: The InvestR Centre

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To date, the range of 'fundamental' or 'intelligent' ETFs that PowerShares has sponsored includes;

a) Its own in-house developed 'Dynamic Market Intellidex' ETFs on the US and international markets

b) Outsourced 'FTSE RAFI' fundamental index ETFs on the US and international markets

c) Outsourced QSG fundamental index ETFs on the US and international markets

PowerShares in-house 'Intellidex Indexes' & ETFs

Intellidex indexes first try to control risk and second to generate out-performance. They employ multifactor models (using 25 independent factors) to select stocks for inclusion in one of their indexes. The selection criteria include valuation, fundamental, timeliness and risk factors. The goal of an intellidex index is to find the right stocks to include in an index i.e. not all stocks in the equivalent market value-weighted index would be included in a PowerShares Intellidex Index. PowerShares then launches ETFs to replicate these indices which seek to:

a) out-perform the relevant market-weighted index by using objective (quantitative) stock selection criteria; and

b) similar to RAFI, PowerShares re-balances it Intellidex indexes quarterly, semi-annually or annually which avoids the build up of any concentration whether to big-cap stocks or sectors.

As an example, the first 'intelligent' ETF that PowerShares sponsored was the PowerShares Dynamic Market Portfolio ETF (code: PWC US) in 2003. This ETF selects stocks from a broad range of stocks in the US market adhering to its strict quantitative screening process while aiming to replicate the broader market. This ETF is an ideal substitute for traditional market value-weighted funds providing exposure to the broader US markets.

PowerShares RAFI 'Intelligent' ETFs

We have covered the rationale and methodology behind RAFI (Research Associates Fundamental Indexes) earlier in this note and now move to the QSG Indexes.

PowerShares QSG Indexes' & ETFs

Similarly, PowerShares sponsors and lists ETFs based on a series of proprietary indexes developed by QSG – the Quantitative Service Group. QSG develops indexes by evaluating, sorting and ranking more than 10,000 stocks worldwide using proprietary multi-factor models based on numerous measures of out-performance.

As an example, PowerShares sponsored and listed the PowerShares Dynamic Developed International Opportunities ETF (code: PFA US) in 2007. It selects stocks from the QSG Developed International Index which, using QSG's proprietary quant screening model, seeks to identify stocks with above average appreciation potential from 10,000 securities worldwide. The index (and ETF) is rebalanced quarterly.

Wisdom Tree

www.wisdomtree.com

Wisdom Tree is a newer entrant to the ETF arena and provides investors and traders with a range of fundamental ETFs designed to track indexes weighted by dividends and earnings in the US and international markets. Like PowerShares, WisdomTree is both an index creator and ETF sponsor. It has a spread of US and international ETFs to choose from.

The dividend-weighted indexes capture all of the dividend-paying companies and, rather than using their market value to weigh them in the index, Wisdom Tree weighs the indexes according to the cash dividends paid by these companies. Wisdom Tree's indexes are reconstituted annually and related ETFs are rebalanced annually to reflect the changes in the underlying index.

The logic underpinning its dividend-focused indexing methodology is well understood – for example, since 1926 over 40% of the total return on the US market has been generated by dividends. In addition, there is an ever growing body of evidence supporting the claim that dividend-weighted indices (portfolios) outperform traditional market

value-weighted indices in the medium to long term. Again, David Dreman's evidence in the US market and our own research in the UK market also support Wisdom Tree's claims (see tables on page 9).

'Equal-weighted' Indexes and ETFs

Rydex Investments

www.rydexfunds.com/etf

Rydex has also been a leading investment firms in developing specialised investments to construct and enhance portfolios. The firm's first ETF listing was the Rydex equal-weighted S&P 500 Index ETF (code: RSP US). It is re-balanced quarterly.

Rydex creates 'equal-weighted' indexes on both entire markets (like the S&P 500) and on individual sectors. One of the points Rydex makes in support of its 'equal-weighted' indexes and related ETFs is that the risk of over concentration on a few large companies is magnified when investing in the traditional market value-weighted indexes. The risks are particularly high when looked at from a sector viewpoint. An ETF that provides investors with exposure to a particular sector that is dominated by a few enormous companies gives a false sense of diversification and can have a higher level of risk in it than perhaps the investor appreciates.

Like 'fundamental' indexes, equal-weighted indexes have to be re-balanced periodically to ensure that the weighting of strong performers is reduced and the weighting of weak performers is increased. In effect, then, equal weighting ensures that an index does not follow and become over-weighted to fads.

Rydex argues that there is ample evidence that the performance of equal-weighted indices can deliver better returns over time than the traditional market value-weighted indexes. We also have evidence in the UK, US and Irish markets which supports Rydex's view.

Table C opposite highlights that from 1996-2006, an equal-weighting S&P 500 Index outperformed the standard S&P 500 market-weighted index.

Table C **S&P 500 Index Annualised Returns**

S&P 500 Index	Weighted	Unweighted
1996-2000	132%	120%
2001-2005	1.0%	51%
Total (1996-2006)	**133%**	**171%**

Source: Rydex

Table D **FT100 Index Annualised Returns**

FT100 Index	Weighted	Unweighted
1995-1999	96%	84%
2000-2008	11%	45%
Total (1995-2008)	**107%**	**129%**

Table E **DJ Euro Stoxx Index Annualised Returns**

DJ Euro Stoxx Index	Weighted	Unweighted
1995-1999	143%	138%
2000-2008	-5.0%	29%
Total (1995-2008)	**138%**	**167%**

During the build up to the technology bubble which peaked in early 2000, the traditional market value-weighted S&P 500 Index outperformed the equal-weighted index by a cumulative 12% from 1996-2000. However, by early 2000, the technology sector's out-sized gains saw its weighting rise substantially in the S&P 500 Index. The subsequent bursting of the tech bubble in mid 2000 dragged down the index returns over the next couple of years. In comparison, the equal-weighted S&P 500 Index, through constant re-balancing, had a smaller exposure to the tech sector and suffered less in the aftermath of the tech burst.

Tables D & E opposite also highlight that equal-weighted indices on both the UK FT 100 and the DJ Euro Stoxx have also shown better performance than the traditional market value-weighted versions of these indices.

Rydex also has a range of nine equal-weighted global sector ETFs – they are based on the S&P Global Sector Indexes – Rydex analysed these indexes and has reconfigured them into equal-weighted indices and, in turn, has sponsored and listed ETFs to replicate their performance.

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Uncovering value for investors

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