


TEMPO

STRUCTURED PRODUCTS

AN ALPHA REAL CAPITAL GROUP COMPANY

- FTSE 100 FDEW -
INTRODUCTION AND OVERVIEW

FOR PROFESSIONAL ADVISER USE ONLY
- NOT FOR USE WITH CLIENTS -

KEY ALPHA STATISTICS:

(as at 31 Mar 18)

£2.4bn+

AUM and capital commitments

100+

Professional team

10

Platforms

5

International offices

4

Core business areas

Alpha Real Capital LLP is an international co-investing fund management group.

Established in 2005, and headquartered in London, Alpha comprises an international network of offices in the UK, Europe and Asia. A 100+ strong professional team, combining experience and expertise with research, analysis and market knowledge, operates through 10 platforms, across diversified investment markets, offering listed and unlisted property vehicles, open and closed-ended property vehicles, and UK and international funds, products and wealth management services. Alpha engages with institutional investors, family offices, wealth managers and professional advisers / IFAs, as well as UHNW, HNW and private investors.

TIME Investments is the authorised wealth management and investment services arm of Alpha. TIME specialises in ground rent and other 'long income' property funds (having acquired the real estate asset management business of Close Brothers Group in 2011), Inheritance Tax Services, including Business Property Relief (BPR), and investment services, including Enterprise Investment Schemes (EIS).

Tempo Structured Products is a new Alpha platform, with four areas of focus: i) Retail: focusing on straightforward, lower risk structured products, for distribution through TIME Investments to UK Professional Advisers (IFAs and wealth managers); ii) Institutions / Pension funds: working with institutions / pension fund consultants, to develop 'smart structured products' (fusing structured, passive and smart beta strategies together); iii) HNW / UHNW / Family Offices: working with Alpha contacts to design bespoke structured product solutions for Family Offices, UHNW and HNW Individuals; iv) Strategic Alliances: partnering with other institutions, offering our expertise and issuer relationships as a specialist structured products unit, for the benefit of their clients and customers.

- **A brief introduction to and overview of smart beta:**
 - effective and efficient alternatives and complements to both traditional passive and active fund management
 - global AUM growth has been exponential
 - founded on academic evidence and real world investor interests
 - **The dominant rules / factors that have emerged**
 - **An overview of equal weighting: straightforward attributes and merits**
 - **So, where do structured products come in:**
 - there are some things that passive, smart beta and active fund management can't do
 - that structured products can do: and do 'by contract'
 - **The FTSE 100 FDEW:**
 - a FTSE Russell index
 - developed to provide the potential for improved structured product pricing and terms
 - diversification potential as an alternative and complement to FTSE 100
-

Smart Beta: a 'third way' ...

- **Smart beta is based upon custom indices, that have a rules-driven, factor-based approach in their methodology**
- **Smart beta seeks to provide alternatives and complements to indices measured by 'traditional' methodology, such as market capitalisation, with the aim of:**
 - presenting effective and efficient alternatives to both traditional passive and active fund management
- **Sometimes referred to as enhanced passive, smart beta blurs the lines between passive and active fund management, offering a 'third way'**

- **Key reasons for the surge in smart beta interest and use include:**
 - **passive / beta perspective:** academic support for and adviser / investor acceptance of passive investing, and the ascent of its use, coupled with the understanding that market capitalisation indices embed some issues that are potential limitations / flaws;
 - **active / alpha perspective:** academic and real world evidence and understanding of problems accessing alpha reliably and cheaply through active fund management;
 - **cost and delivery perspective:** the adviser / investor drive for cost effective, delivery efficient, reliable investment propositions, not least when considering the current and anticipated challenging investment environment
- **Growth in the use of smart beta has been global, driven by different providers operating in different markets, working with different investor types:**
 - ranging from sovereign wealth funds, institutional investors, pension funds, to retail investors

Global smart beta AUM growth has been exponential ...

The rise of smart beta in the retail space has been most evident in the US

However, in Europe institutional investors are outpacing their US counterparts

Three quarters of institutional investors see smart beta as a viable alternative to 'traditional' passive index strategies

Two thirds of institutional investors see smart beta as a viable alternative to active fund management

42% of institutional asset owners have smart beta allocations in their portfolios

A further 24% state that they expect to add smart beta in the future

Global smart beta AUM growth has been exponential ...

**Global smart beta AUM
surpassed \$1tn in December 2017***

**BlackRock and Vanguard dominate
smart beta, each with \$100bln + AUM****

**AUM increased by c.30% per year and
more than 207% over the last 5 years*****

**AUM growth makes smart beta the
fastest-growing section of the
asset management universe*****

**Smart beta index growth is outpacing
non-smart beta passive funds AUM,
which have risen 121%, to \$6.8tn,
over the same 5 year period*****

**Active funds AUM have grown 35%, to
\$26tn, over the same 5 year period*****

- **Extensive (more than 60 years) academic research underpins the evolution and ascent of passive investing:**

- > **Modern Portfolio Theory:**

- Harry Markowitz (1952)
... diversify portfolios across equities, bonds, commodities

- > **Capital Asset Pricing Model:**

- Jack Treynor (1961/62), William Sharpe (1964), John Lintner (1965), Jan Mossin (1966)
... two types of risk: specific risk (company specific) / market risk (market specific)
... beta is a measure of market risk

- > **Efficient Market Hypothesis:**

- Eugene Fama (1970)
... markets are efficient
... everything is in the price: all potential influences
... the only thing that can move prices is unknown information
... consistently beating markets is impossible

- **Academic evidence also supports the foundations underpinning smart beta, including recognition of dynamics (issues / limitations / flaws) that are inherent in market capitalisation weighted indices:**
 - market capitalisation indices tend to highly concentrate / over-weight a small number of mega-cap stocks and sectors ... more than many investors understand
 - market capitalisation underweight smaller capitalisation stocks, including those entering the index that are experiencing strong growth and price momentum; including as a result of being bought by passive funds due to their entry to the index;
 - market capitalisation indices also tend to buy high and sell low, literally as a rule (buying stocks increasing in price / market capitalisation and selling stocks decreasing in price / market capitalisation)
... and that is the opposite of one of the most basic principles and aims of investing
- **It should also be understood that market capitalisation weighting is a rule / factor-based approach:**
 - it just happened to become the generally accepted approach: and until recently was unquestioned and unchallenged
 - but imagine if equal weighting had preceded market capitalisation, such that market capitalisation was subsequently considered a 'smart beta' factor?
 - it's interesting to consider why market capitalisation indices should be the benchmark against which other rules and factor-based indices are judged ... and to question whether that makes sense

Types of smart beta and factors that have emerged include ...

- Smart beta as a generic term refers to an enormous number of strategy possibilities: as many as 300 rules / factors have been identified*
- While many of the smart beta factors may be considered technical and therefore specialist, a number of mainstream factors / rules have emerged:

DIVIDENDS

constituent stocks selected on the basis of high dividends, stability and growth of dividends, etc.

EQUAL WEIGHT / SIZE

the same constituent stocks as the market capitalisation index: but equally weighted

STYLE

constituent stocks selected on the basis of style characteristics such as 'value' / 'growth'

MOMENTUM

constituent stocks selected on the basis of strong recent / current (3-12 mths) performance

VOLATILITY

constituent stocks selected on the basis of low historical volatility / beta

QUALITY

constituent stocks selected on the basis of strong balance sheets, profit margin, etc.

* FTfm Smart Beta: What's in a Name, Nov 2017.

- **Equal weighting is a straightforward smart beta alternative to market capitalisation weighting**
- **There are a number of attributes, merits and potential benefits:**
 - the same constituent stocks as the market capitalisation weighted index are typically used, with the same periodic adjustment for stocks entering / exiting the index (e.g. quarterly for the FTSE 100)
 - increased diversification at stock and sector level, including less (no!) mega cap bias and overweight
 - ... concentration risk at stock, sector and dividend level is a recognised concern in market cap indices
 - ... as at 31 Dec 2018: the top 10 stocks made up 42.9% of the FTSE 100 (and the top 5 were 27.2%)*
 - increased weighting to smaller companies
 - periodic rebalancing, to maintain equal weighting, imposes a ‘buy low / sell high’ rule in the index
 - ... in contrast to market capitalisation weighting, which does the opposite
- **Equal weighting captures both size and (to a lesser degree) value factors, which are academically identified as drivers of long-term historical outperformance:**
 - Academic research re size factor: Rolf Banz (1980); Donald Keim (1982); Fama & French (1992)
 - Academic research re value factor: Basu (1977); Rosenberg, Reid & Lanstein (1985); De Bondt & Thaler (1987); Fama & French (1992)
- **Equal weight options are now available on many mainstream indices, via mainstream index providers:**
 - FTSE; S&P, MSCI; STOXX

* FTSE Russell 31 Dec 2018

- Fama-French (1992) observed that two types of stocks outperform the market: smaller companies and value stocks (low price to book, etc.)
- Equal weighting can capture the outperformance potential that is associated with both size (smaller companies) and value (attractive fundamentals) factors:

Size factor: equal weighting automatically increases exposure to smaller companies:

- the higher return premium of smaller companies is associated with increased risk (less liquidity, information uncertainty, etc.), but the smaller constituents of the FTSE 100 are still considered large cap stocks
... and historical performance analysis highlights less of a difference in volatility than might be anticipated

Value factor: re-balancing imposes a buy low / sell high rule, which captures elements of value:

- it is worth highlighting that while rebalancing increases turnover and therefore trading costs in equal weighted etf's this is not the case in the index itself ... and structured products calculate performance based upon the index (but do not physically invest in the stocks, so do not suffer turnover costs, or tracking error, as per an etf or mutual fund tracking an index)

So where do structured products come in ...

- **Structured products are typically based upon passive principles, with performance linked to indices:**
 - this is usually the price return index (not accounting for dividends)
 - however structured products can optimise the risk / return profile (in ways that passive funds / etf's can't)
 - **Market downside risk (the risk markets go down) can be removed, reduced or at least defined:**
 - depending on the product type and specific features
 - **And market upside risk (the risk markets don't go up) can be optimised:**
 - positive returns can generated even if the market / index is flat or falls
 - enhanced participation in index performance can be generated
 - **Notably, structured products can present value-adding attributes and merits for investors, in ways that passive fund management doesn't / can't provide:**
 - they can enhance both traditional passive and smart beta propositions
 - and 'do it all by contract': a significant USP of structured products
 - **Of course, the trade-off is that structured products introduce issuer / counterparty risk:**
 - if the issuing / counterparty bank becomes insolvent, through bankruptcy or a similar event, or fails to be able to meet its obligations, it is likely that investors will receive back significantly less than they invested
 - and the benefits of the payoff (from an upside and downside perspective) need to compensate for the exclusion of dividends: which may depend on the characteristics, objectives and needs of the investor
-

Structured products are starting to incorporate smart beta ...

- **Historically, the UK structured products sector has focused upon the price return FTSE 100**
- **However, some smart beta strategies, based on the FTSE 100, have been emerging, including:**
 - low volatility
 - equal weight
- **Professional adviser interest is evolving as awareness and knowledge of smart beta builds, coupled with the understanding that structured products can enhance the merits of passive and smart beta:**
 - presenting risk / return profiles that active, passive and smart beta funds and etf's cannot
 - offering potential portfolio diversification benefits for investors

FTSE 100 FDEW

FTSE 100 FIXED DIVIDEND EQUAL WEIGHT INDEX

A FTSE RUSSELL INDEX

- **There are some key considerations involved in identifying and selecting smart beta strategies:**
 - **strategy of index:** what is the index designed to achieve and what evidence supports the rationale for utilising a rules-based, passive approach in the specific market or asset class
 - **provider credentials:** mainstream index provider or proprietary / product provider
 - **construction / methodology of index:** how will the index achieve its strategy / objective: is its methodology transparent and simple
 - **rebalancing frequency / turnover:** consider both potential benefits / downsides and costs
 - **track record / back-testing:** and source
 - **license fees**
 - **access and liquidity**
 - **Information and performance availability:** for both professional advisers and investors
 - **future longevity / stability**
- **Let's look at the FTSE 100 Fixed Dividend Equal Weight Index (FTSE 100 FDEW) ...**

- **The FTSE 100 Fixed Dividend Equal Weight Index (FTSE 100 FDEW): launched on 1 Mar 2017:**
 - simulated performance back to 2001 is available
- **The FTSE 100 FDEW is a FTSE Russell index (not a proprietary index)**
- **The FTSE 100 FDEW comprises the same 100 stocks as the FTSE 100, with TWO key features in the methodology developed by FTSE Russell:**
 - 1: The index equal weights all stocks (at 1%):**
 - both the size and value factors are captured through equal weighting and rebalancing
 - 2: The index is constructed with a ‘fixed dividend’ feature:**
 - the index is based on a total return index, including all dividends paid by the constituent companies, with a fixed dividend of 50 index points p.a. deducted in the calculation of the daily index level



The FTSE 100 FDEW comprises the same 100 stocks as the FTSE 100. Equal weighting **reduces concentration risk and increases stock and sector diversification, increasing the weighting to smaller stocks.** Re-balancing, to maintain the equal weighting, **imposes a 'buy low / sell high' rule and value element** in the index.

The FTSE 100 FDEW is based on a total return index, **including all dividends** paid by the constituent companies. A **fixed dividend of 50 points p.a. is deducted** in the calculation of the daily index level. This is designed to address problems with hedging dividends, with the aim of **improving structured product terms.**

The FTSE 100 FDEW is a **FTSE Russell index** (it is not a proprietary bank index) using **methodology defined by FTSE Russell** and adhering to **FTSE UK Index Series Ground Rules.**

Similarities and differences: FTSE 100 / FTSE 100 FDEW ...

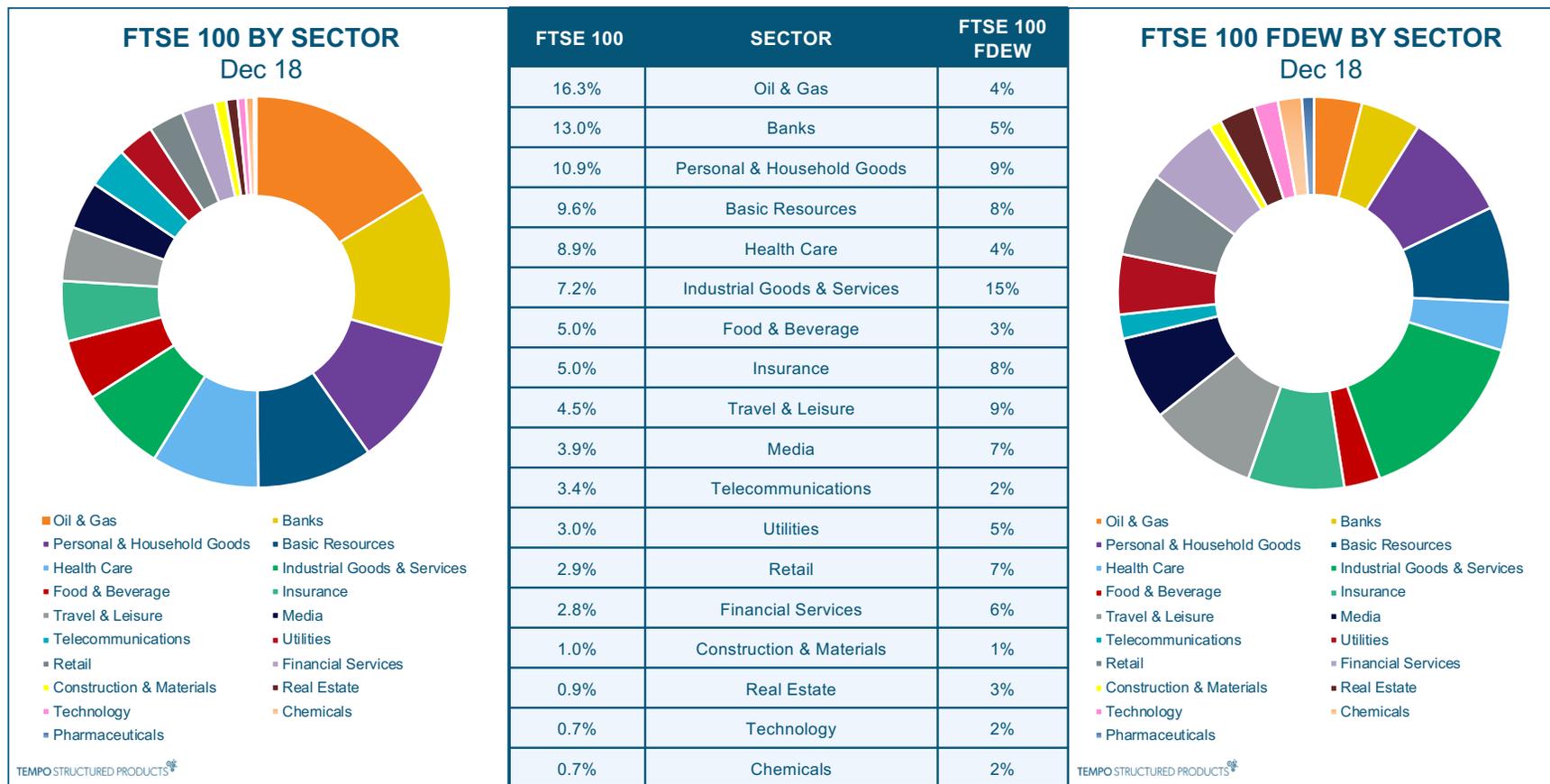
	FTSE 100	FTSE 100 FDEW
Index Provider	FTSE RUSSELL	FTSE RUSSELL
Exchange	LSE	LSE
Bloomberg Ticker	UKX	UKXFD
Constituent stocks	The 100 largest stocks listed on the LSE, by market capitalisation	The 100 largest stocks listed on the LSE, by market capitalisation
Weighting	Market capitalisation	Equal Weighting
Review	Quarterly	Quarterly
Rebalancing	-	Quarterly
Dividends	Not included in the price return index	Included in the index, with a fixed dividend deduction in the calculation of the index level

- **Equal weighting mitigates concentration risk, through increased diversification at stock and sector level:**

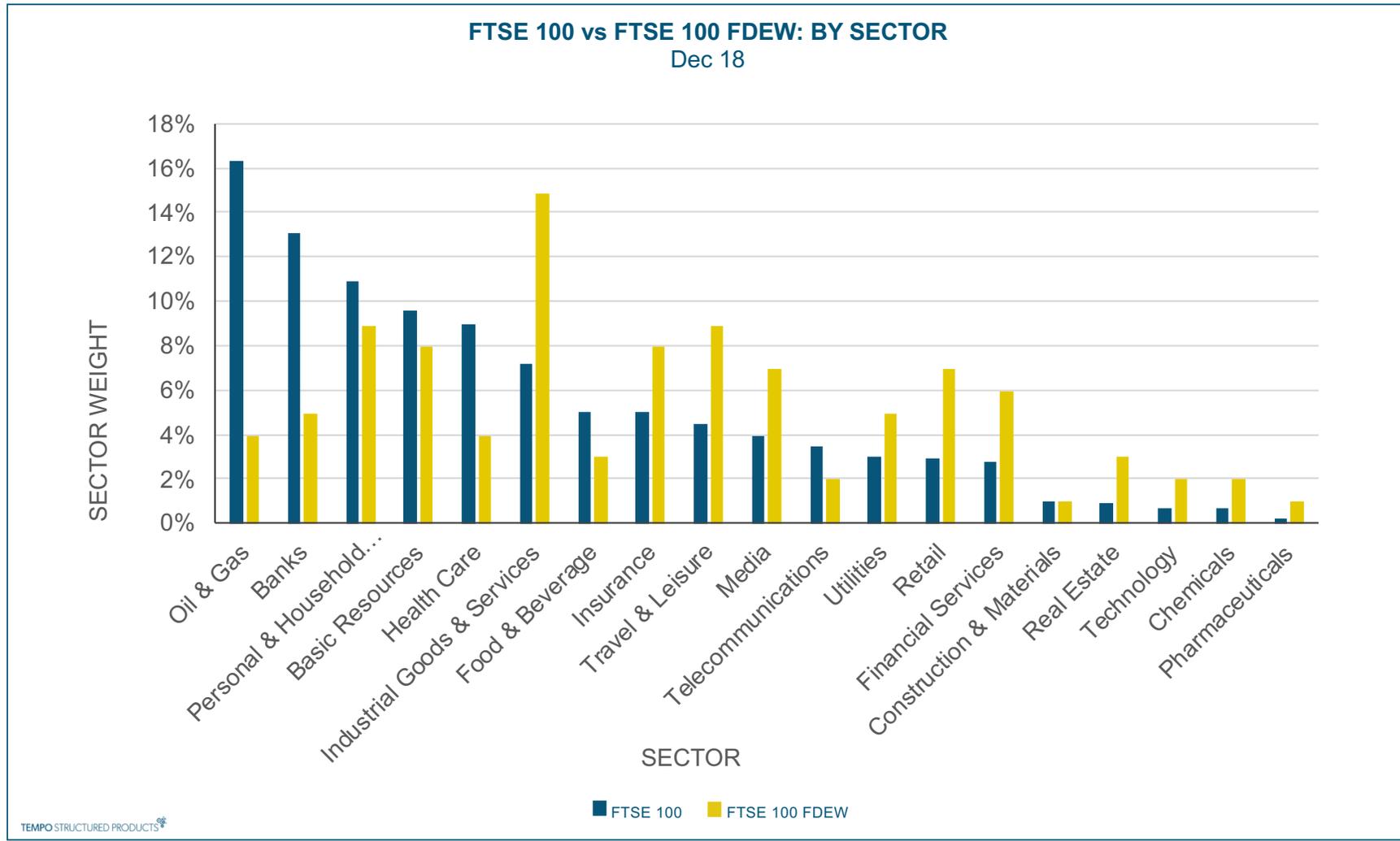
... concentration risk (at stock, sector and dividend level) in the FTSE 100 is a recognised issue / concern

... as at 31 Dec 2018: the top 10 stocks made up 42.9% of the FTSE 100 (and the top 5 were 27.2%)*

Equal weighting increases stock and sector diversification ...



Equal weighting increases stock and sector diversification ...



Source: FTSE Russell | Thomson Reuters | ICB sector classifications. 31 Dec 18

Equal weighting increases exposure to small companies ...

- **Equal weighting increases exposure to the smaller companies (within the blue chip FTSE 100), which captures the 'size' factor academically identified as a driver of long-term historical outperformance:**
 - academic research re size factor: Rolf Banz (1980); Donald Keim (1982); Fama & French (1992)
 - ... as at 31 Dec 2018: the bottom 10 stocks made up 2.3% of the FTSE 100*
 - ... in the FTSE 100 FDEW, at each quarterly review / rebalancing date, the bottom 10 stocks always make up 10% of the index (the same as the top 10 stocks)

* FTSE Russell / Thomson Reuters 31 Dec 2018

FTSE 100 FDEW: comprises all FTSE 100 stocks ...

Company	Sector	FTSE 100 Weight
HSBC Holdings PLC	Banks	7.0%
BP PLC	Oil & Gas	5.7%
Royal Dutch Shell PLC - A Shares	Oil & Gas	5.7%
Royal Dutch Shell PLC - B Shares	Oil & Gas	4.8%
GlaxoSmithKline PLC	Health Care	4.1%
AstraZeneca PLC	Health Care	3.9%
Diageo PLC	Food & Beverage	3.6%
British American Tobacco PLC	Personal & Household Goods	3.1%
Rio Tinto PLC	Basic Resources	2.6%
Unilever PLC	Personal & Household Goods	2.6%
Reckitt Benckiser Group PLC	Personal & Household Goods	2.3%
Glencore PLC	Basic Resources	2.2%
Vodafone PLC	Telecommunications	2.2%
Lloyds Banking Group PLC	Banks	2.1%
Prudential PLC	Insurance	2.0%
BHP Group PLC	Basic Resources	1.8%
RELX PLC	Media	1.7%
National Grid PLC	Utilities	1.5%
Royal Bank of Scotland	Banks	1.5%
Barclays PLC	Banks	1.4%
Compass Group PLC	Travel & Leisure	1.4%
Anglo American PLC	Basic Resources	1.4%
Imperial Brands PLC	Personal & Household Goods	1.2%
BT Group PLC	Telecommunications	1.2%
Tesco PLC	Retail	1.1%

Company	Sector	FTSE 100 Weight
Standard Chartered PLC	Banks	1.1%
CRH PLC	Construction & Materials	1.0%
Associated British Foods PLC	Food & Beverage	1.0%
Experian PLC	Industrial Goods & Services	0.9%
Rolls-Royce Holdings PLC	Industrial Goods & Services	0.9%
BAE Systems PLC	Industrial Goods & Services	0.9%
Aviva PLC	Insurance	0.8%
London Stock Exchange Group PLC	Financial Services	0.8%
Legal & General Group PLC	Insurance	0.8%
Smith & Nephew PLC	Health Care	0.7%
Ferguson PLC	Industrial Goods & Services	0.7%
Int'l Consolidated Airlines Group SA	Travel & Leisure	0.6%
SSE PLC	Utilities	0.6%
WPP PLC	Media	0.6%
Coca-Cola HBC AG	Food & Beverage	0.5%
Whitbread PLC	Travel & Leisure	0.5%
Ashtead Group PLC	Industrial Goods & Services	0.5%
Hargreaves Lansdown PLC	Financial Services	0.5%
Melrose Industries PLC	Industrial Goods & Services	0.4%
Antofagasta PLC	Basic Resources	0.4%
InterContinental Hotels Group PLC	Travel & Leisure	0.4%
Informa PLC	Media	0.4%
Bunzl PLC	Industrial Goods & Services	0.4%
Intertek Group PLC	Industrial Goods & Services	0.4%
3i Group PLC	Financial Services	0.4%

Source: FTSE Russell | Thomson Reuters. 31 Dec 18

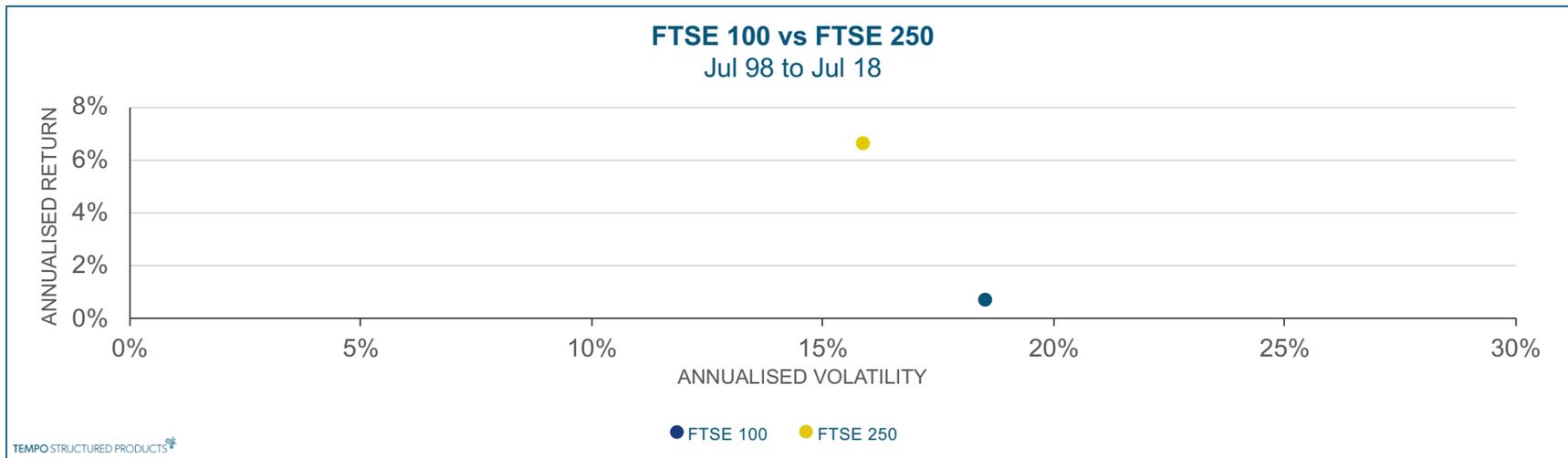
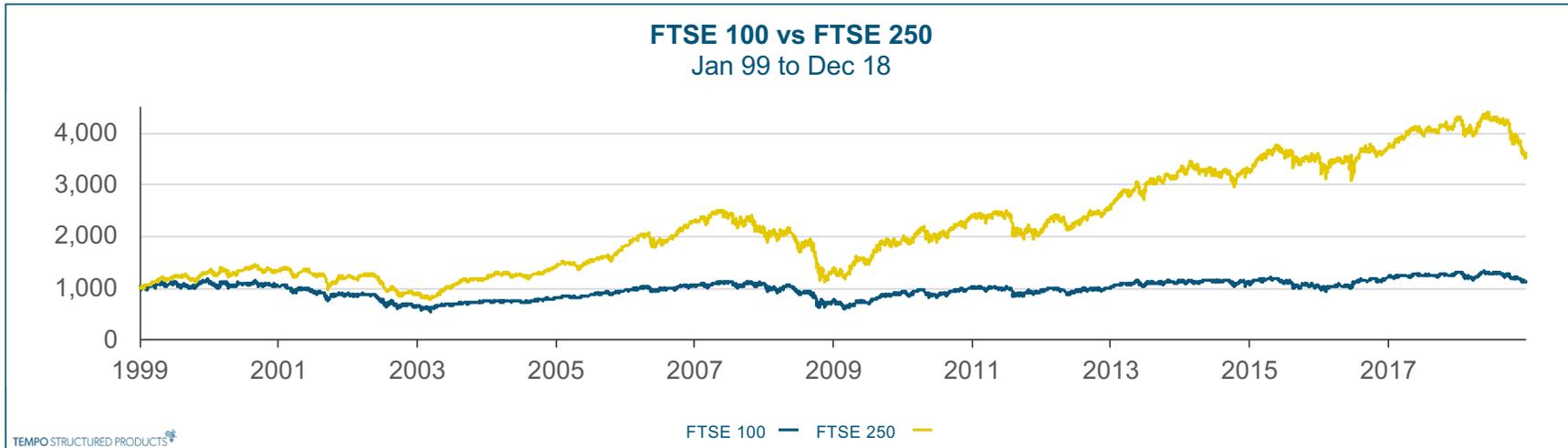
FTSE 100 FDEW: comprises all FTSE 100 stocks ...

Company	Sector	FTSE 100 Weight
Pearson PLC	Media	0.4%
Centrica PLC	Utilities	0.4%
Burberry PLC	Personal & Household Goods	0.4%
Scottish Mortgage PLC	Financial Services	0.4%
Persimmon Group PLC	Personal & Household Goods	0.4%
EVRAZ PLC	Basic Resources	0.4%
Tui AG-DI	Travel & Leisure	0.4%
Fresnillo PLC	Basic Resources	0.4%
Carnival Group PLC	Travel & Leisure	0.4%
Standard Life Aberdeen PLC	Financial Services	0.4%
Next PLC	Retail	0.4%
Sage Group PLC	Technology	0.4%
Croda International PLC	Chemicals	0.3%
Mondi PLC	Basic Resources	0.3%
DCC PLC	Industrial Goods & Services	0.3%
Rentokil Initial PLC	Industrial Goods & Services	0.3%
Segro PLC	Real Estate	0.3%
Micro Focus International PLC	Technology	0.3%
Land Securities Group PLC	Real Estate	0.3%
J Sainsbury PLC	Retail	0.3%
Ocado Group PLC	Retail	0.3%
Schroders PLC	Financial Services	0.3%
Admiral Group PLC	Insurance	0.3%
NMC Health PLC	Health Care	0.3%
Smiths Group PLC	Industrial Goods & Services	0.3%

Company	Sector	FTSE 100 Weight
Johnson Matthey PLC	Chemicals	0.3%
ITV PLC	Media	0.3%
RSA Insurance Group PLC	Insurance	0.3%
HALMA PLC	Industrial Goods & Services	0.3%
St James's Place PLC	Insurance	0.3%
WM Morrison Supermarkets PLC	Retail	0.3%
British Land PLC	Real Estate	0.3%
United Utilities Group PLC	Utilities	0.3%
Paddy Power Betfair PLC	Travel & Leisure	0.3%
Taylor Wimpey PLC	Personal & Household Goods	0.3%
Barrat Developments PLC	Personal & Household Goods	0.3%
Smurfit Kappa PLC	Industrial Goods & Services	0.3%
Berkeley Group PLC	Personal & Household Goods	0.3%
Kingfisher PLC	Retail	0.3%
Spirax-Sarco Engineering PLC	Industrial Goods & Services	0.3%
EasyJet PLC	Travel & Leisure	0.2%
Marks & Spencer Group PLC	Retail	0.2%
DS Smith PLC	Industrial Goods & Services	0.2%
Hiscox Ltd	Insurance	0.2%
Direct Line Insurance Group PLC	Insurance	0.2%
Severn Trent PLC	Utilities	0.2%
Auto Trader Group PLC	Media	0.2%
Rightmove PLC	Media	0.2%
GVC Holdings PLC	Travel & Leisure	0.2%
John Wood Group PLC	Oil & Gas	0.2%
HIKMA Pharmaceuticals PLC	Pharmaceuticals	0.2%

Source: FTSE Russell | Thomson Reuters. 31 Dec 18

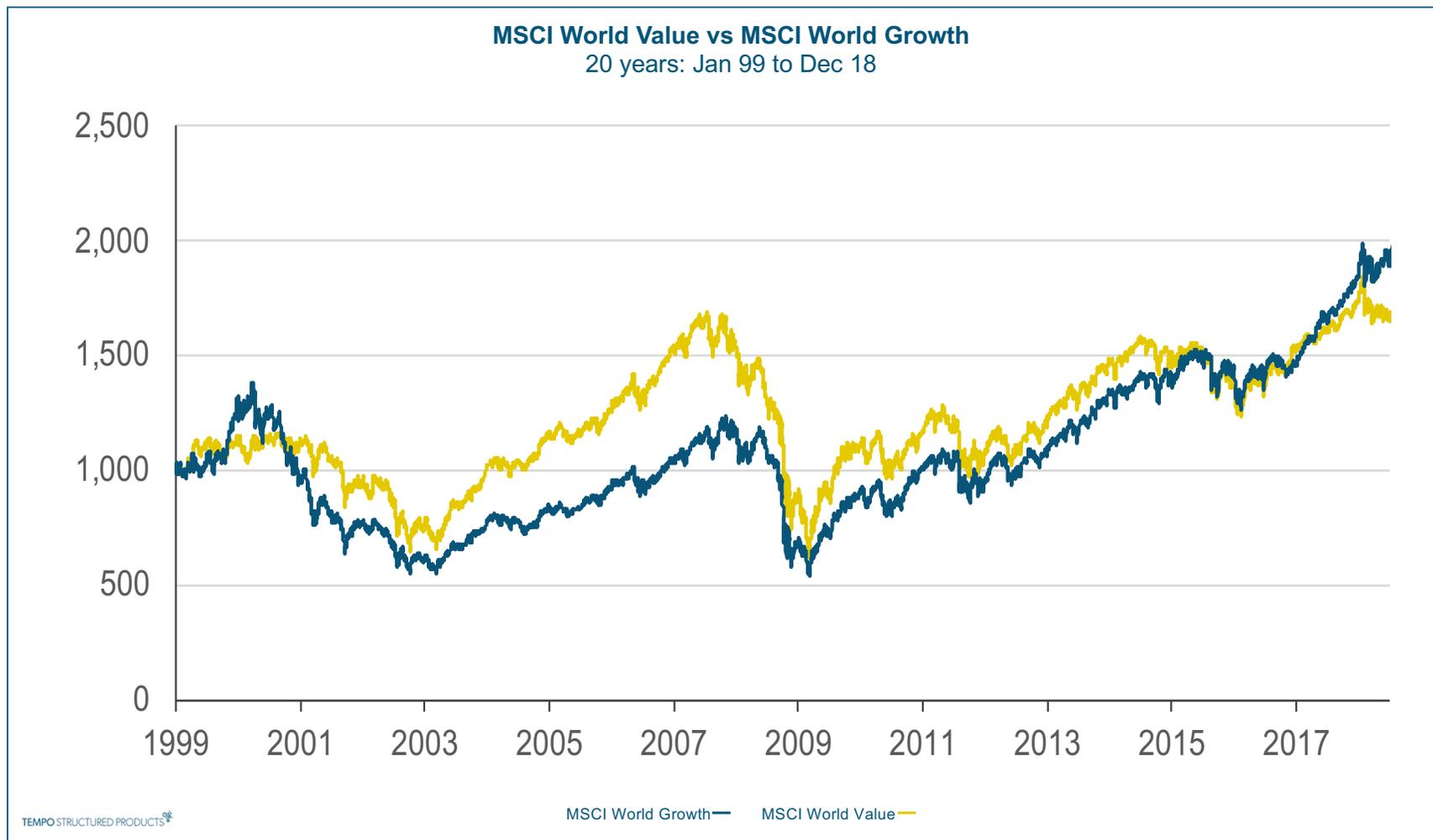
History shows that smaller companies outperform, longer term ...



Source: Thomson Reuters | Bloomberg, 31 Dec 18. Past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation.

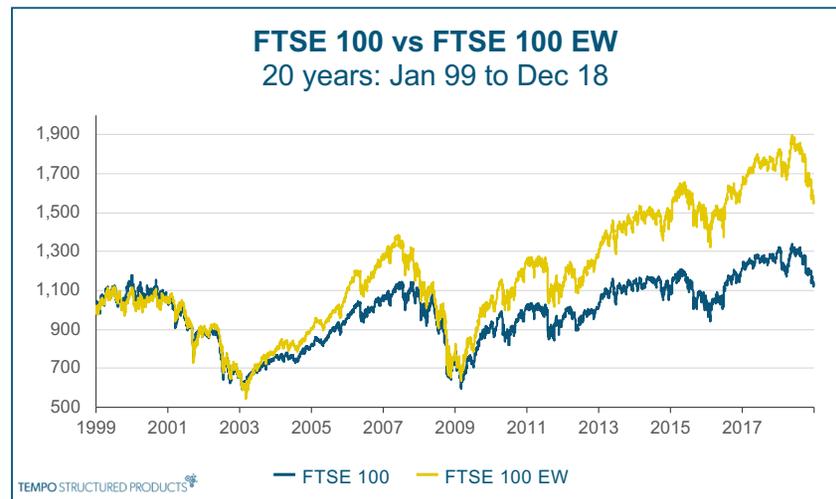
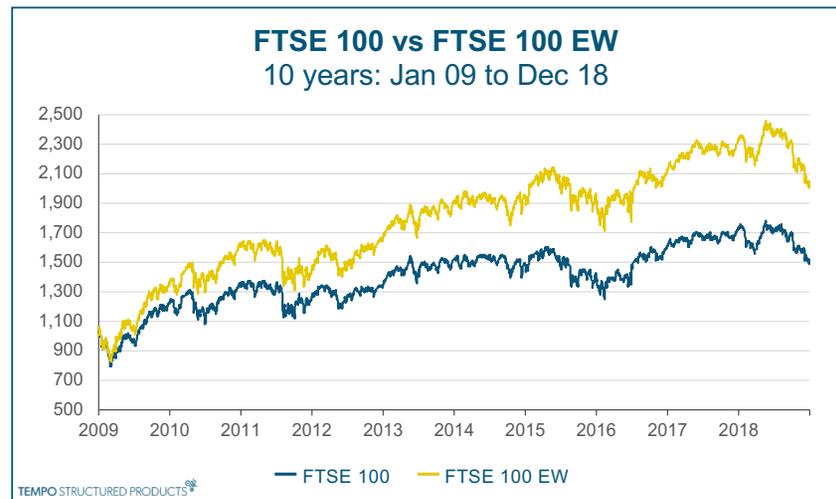
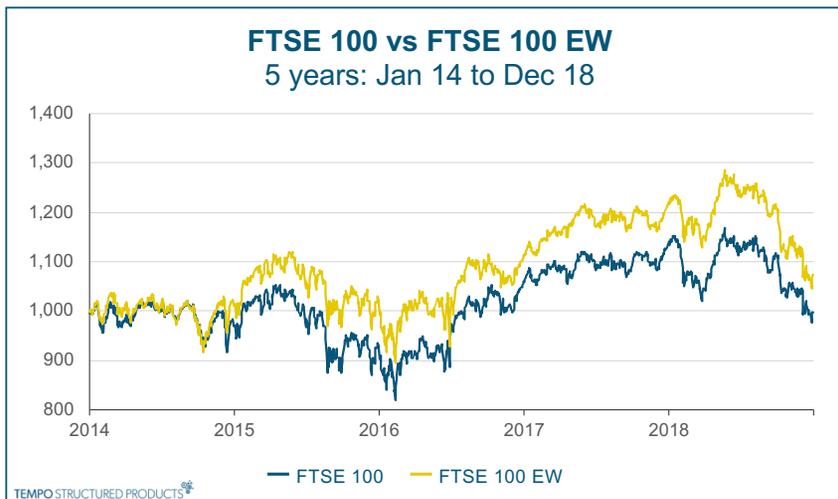
- **The regular rebalancing process that is involved in equal weighting an index imposes a 'buy low / sell high' rule, which captures the value factor:**
 - generally speaking, buying companies when they are cheap and selling them when they are expensive is hard to argue with as a sensible principle when investing in the stock market (yet the market cap weighted FTSE 100 does the opposite)
 - the FTSE 100 FDEW effectively does this every quarter, when it is rebalanced: companies where the share price, market capitalisation and weighting have increased are sold back down to 1%; and companies where the share price, market capitalisation and weighting have decreased are bought back up to 1%
 - it is worth highlighting that while rebalancing increases turnover and therefore trading costs in etf's this is not the case in the index itself: structured products calculate performance based on the index (but do not physically invest in the stocks or suffer turnover costs, or tracking error, as per an etf or mutual fund tracking an index)

Equal weighting imposes a 'buy low / sell high' value rule ...



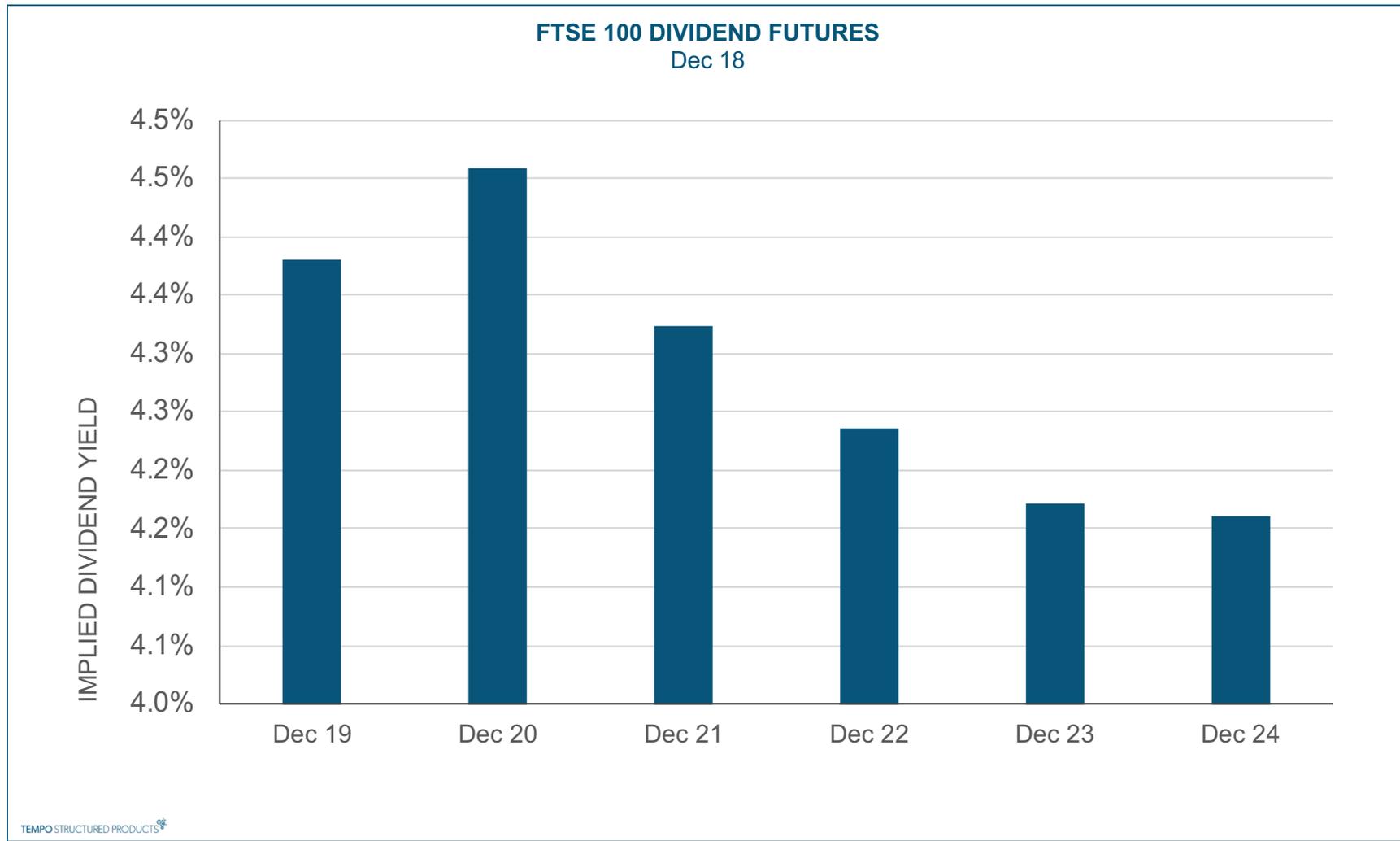
Source: Thomson Reuters | Bloomberg, 31 Dec 18. Past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation.

Market cap vs equal weight: historical performance comparison ...



Source: Thomson Reuters | Bloomberg, 31 Dec 18. Past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation.

- **The FTSE 100 is a price return index:**
 - dividends paid by the constituent companies are not included in its calculation
- **The FTSE 100 FDEW is based on a total return index:**
 - dividends paid by the constituent companies are included
 - however, a fixed dividend of 50 points per year is deducted in the calculation of its level
- **The fixed dividend approach has been developed by FTSE Russell in order to address an issue that investment banks manufacturing structured products encounter:**
 - when using the price return FTSE 100 investment banks need to hedge the dividends that are not accounted for within the price return index, by purchasing dividend futures in the market
 - however the futures market can price future dividend levels at a discount, particularly in the longer term: which can impact the pricing and terms of structured products linked to the FTSE 100
- **The FTSE 100 FDEW has been developed by FTSE Russell in order to improve the terms of structured products that link to it:**
 - the fixed dividend approach of the FTSE 100 FDEW has been designed to address this issue, removing the uncertainty / variability of dividends and the reduction in the value of future dividends: with the aim of providing the potential for materially improved structured product pricing and terms
 - this may potentially include either (or both) higher returns and / or lower risk

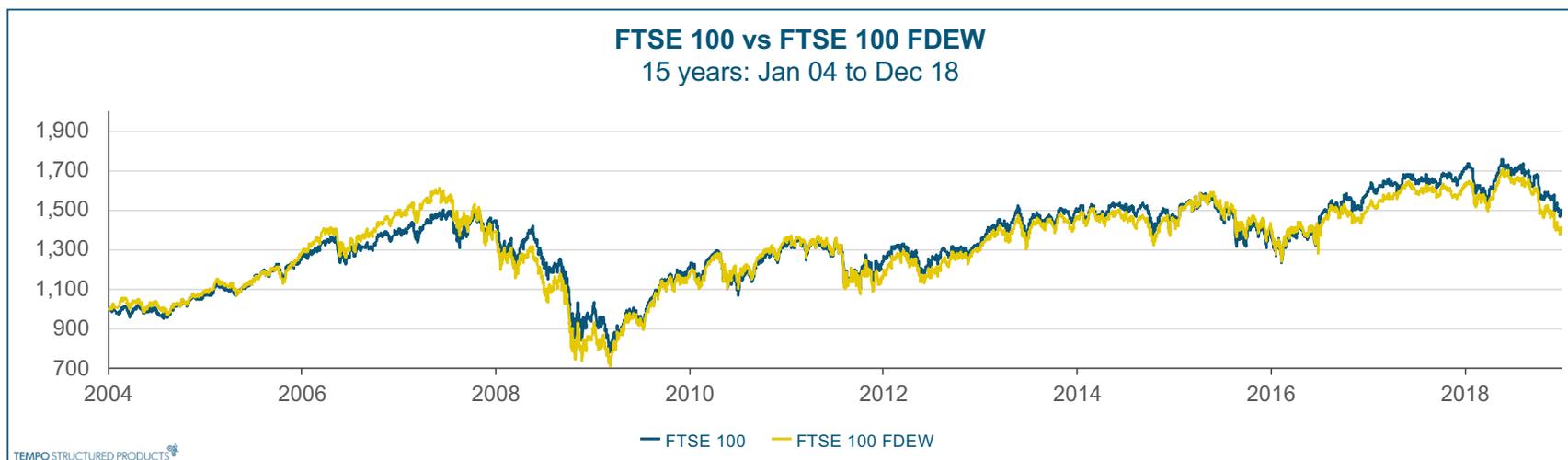


Source: Bloomberg. 31 Dec 18

Material impact on pricing and product terms: an example ...

KICK-OUT PRODUCT		
PRODUCT TYPE	Kick-Out	
TERM	10 years	
KICK-OUT FREQUENCY	Annual	
KICK-OUT LEVEL	100% of start level	
BARRIER LEVEL / TYPE	60% of initial level / end of term	
INDEX	FTSE 100	FTSE 100 FDEW
POTENTIAL COUPON	8%	12%

Historical performance comparison and analysis ...



	1 YEAR		3 YEAR		5 YEAR		10 YEAR		15 YEAR	
	CUM	ANN	CUM	ANN	CUM	ANN	CUM	ANN	CUM	ANN
FTSE 100	-12.48%	-12.48%	7.78%	2.53%	-0.31%	-0.06%	51.73%	4.26%	50.29%	2.75%
FTSE 100 FDEW	-13.39%	-13.39%	-0.54%	-0.18%	-3.69%	-0.75%	61.01%	4.88%	41.38%	2.34%

	ANNUALISED VOLATILITY				SHARPE RATIO			
	1 YEAR	5 YEARS	10 YEARS	15 YEARS	1 YEAR	5 YEARS	10 YEARS	15 YEARS
FTSE 100	12.72%	13.58%	15.87%	17.34%	-0.98	0.00	0.27	0.16
FTSE 100 FDEW	12.57%	13.80%	16.76%	18.23%	-1.07	-0.05	0.29	0.13

Source: Thomson Reuters: 31 Dec18. Performance data prior to the inception of the FTSE 100 FDEW on 1 Mar 2017 is simulated historical data.

Past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation.

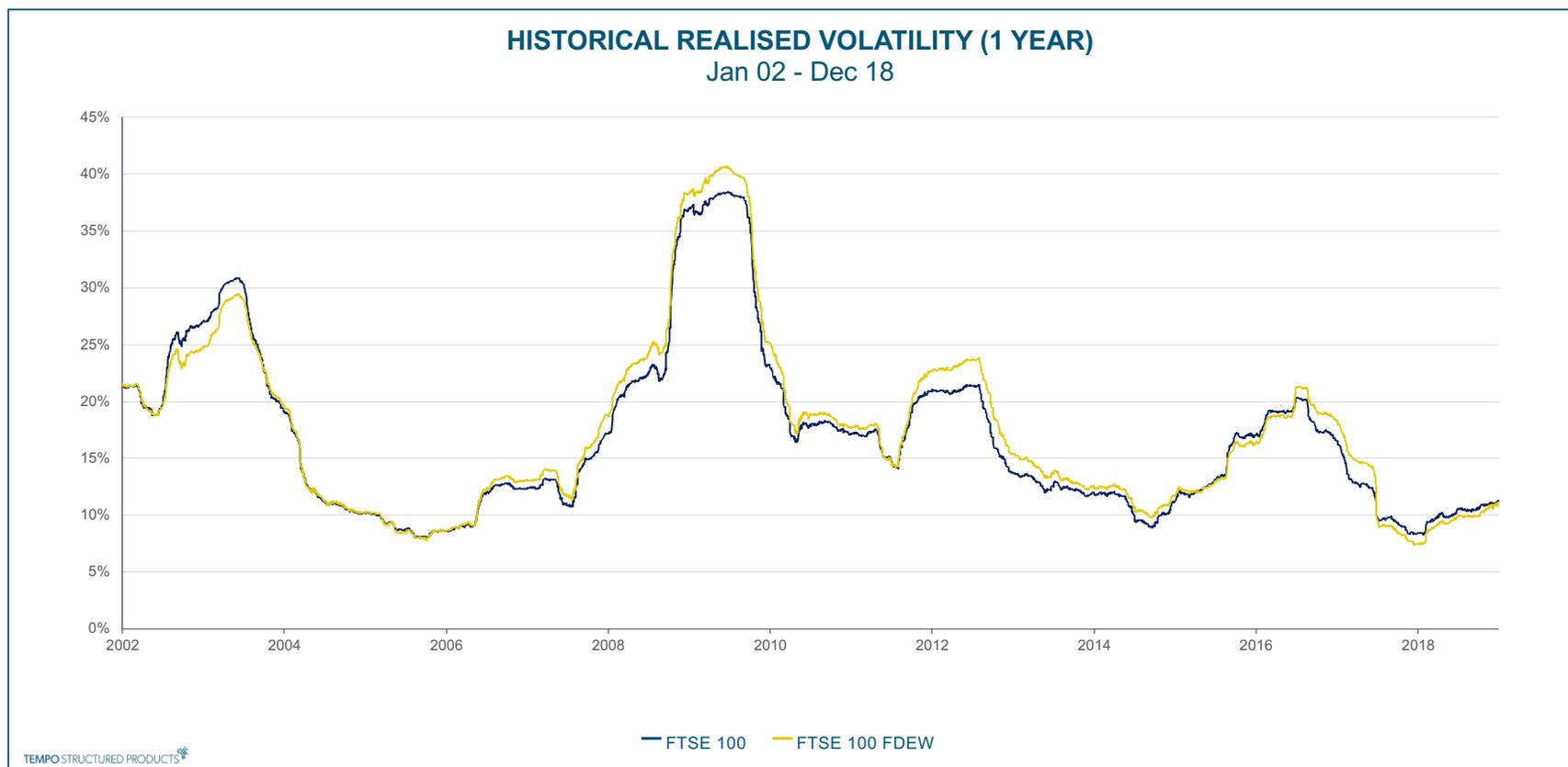
Historical performance comparison and analysis ...

PERFORMANCE DIFF.	FTSE 100		YEAR	FTSE 100 FDEW		PERFORMANCE DIFF.
	OUTPERFORMS	PERFORMANCE		PERFORMANCE	OUTPERFORMS	
+0.91%	2018	← -12.48%	2018	-13.39%		
			2017	7.83%	→ 2017	+0.20%
+7.83%	2016	← 14.43%	2016	6.60%		
			2015	-2.22%	→ 2015	+2.71%
			2014	-0.94%	→ 2014	+1.77%
+1.11%	2013	← 14.43%	2013	13.32%		
			2012	10.73%	→ 2012	+4.89%
+7.25%	2011	← -5.55%	2011	-12.80%		
			2010	13.96%	→ 2010	+4.96%
			2009	34.27%	→ 2009	+12.20%
+5.58%	2008	← -31.33%	2008	-36.90%		
+10.01%	2007	← 3.80%	2007	-6.22%		
			2006	15.80%	→ 2006	+5.09%
			2005	17.36%	→ 2005	+0.65%
			2004	9.40%	→ 2004	+1.86%
+1.99%	2003	← 13.62%	2003	11.63%		
+2.10%	2002	← -24.48%	2002	-26.58%		
+6.14%	2001	← -16.15%	2001	-22.29%		
	9 / 18 YEARS	125.77%	UP	140.90%	9 / 18 YEARS	
		97.63%	DOWN	121.35%		
		28.14%	NET	19.55%		

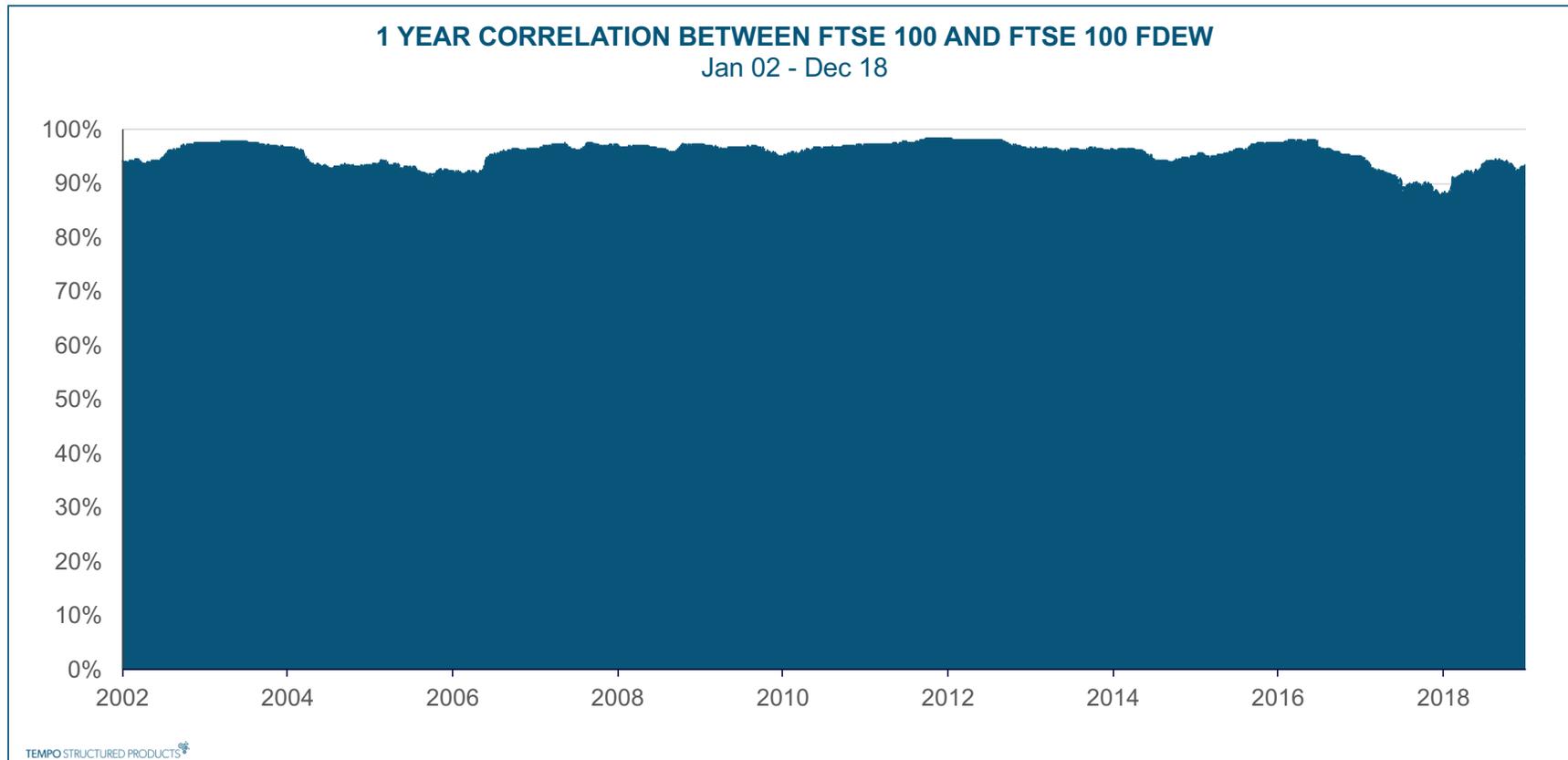
Source: Thomson Reuters: 31 Dec 2018. Performance data prior to the inception of the FTSE 100 FDEW on 1 Mar 2017 is simulated historical data.

Past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation.

Volatility comparison and analysis: highly similar ...



- The historical volatility analysis highlights the long term similarity of the two indices



- **The historical correlation highlights the similarities of the two indices, as would be expected for indices based on the same stocks: but with the FTSE 100 FDEW presenting diversification potential, without changing market, stocks or index provider**

Source: Thomson Reuters: 31 Dec 2018. Performance data prior to the inception of the FTSE 100 FDEW on 1 Mar 2017 is simulated historical data.

Past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation.

- **The FTSE 100 FDEW was launched as a live published in March 2017: the performance analysis simulate how the FTSE 100 FDEW would have performed, including volatility and correlation, over the last 15 years, compared with the FTSE 100**
 - **It is important to understand that the FTSE 100 FDEW Index will perform differently to the FTSE 100, due to the equal weighting and the total return and fixed dividend approach:**
 - the fixed dividend approach of the FTSE 100 FDEW is different to the approach of the FTSE 100, where dividends are not included
 - the fixed dividend of 50 points per year may be more than the average level of dividends paid by the companies in the index, which would reduce the level and performance of the index
 - while the fixed dividend approach can help provide higher potential returns or lower risks for structured products, it can affect the level and performance of the index negatively, including during periods when the UK stock market moves sideways or falls.
 - **Neither equally weighted nor market capitalisation weighted indexes are better or worse than the other. Each offers a different approach and has different merits:**
 - risks and returns will be different for each and will depend on the future stock market environment and the performance of the companies in each index.
 - **This means that the returns from structured products that are linked to the FTSE 100 FDEW might be higher or lower than the returns from a similar product linked to the FTSE 100**
-

- **The FTSE 100 FDEW level and further information can be accessed through the FT website:**
 - <https://markets.ft.com/data/indices/tearsheet/summary?s=GPSOC002:FSI>
 - it can also be accessed via other financial portals, such as Bloomberg and Thomson Reuters
- **Tempo provides a page for the FTSE 100 FDEW, with various resources for Professional Advisers, via its website:**
 - <https://tempo-sp.com/adviser-resources/about-the-ftse-100-fdew>

- **Smart beta is increasingly recognised as an established portfolio component, presenting ‘a third way’ option for advisers / investors, that sits between active and passive funds and products:**
 - smart beta counters some of the limitations / drawbacks of both active and passive investments
 - **The FTSE 100 FDEW is created, calculated and published by FTSE Russell, the leading index provider, as an addition to its range of index options (it is not a proprietary index developed by a bank):**
 - it comprises the same 100 stocks, uses the same methodology re quarterly reviews and constituents, and adheres to the same FTSE UK Index Series Ground Rules as the FTSE 100
 - **The FTSE 100 FDEW was created by FTSE Russell in order to help investment banks provide better terms for certain types of structured product:**
 - analysis of past performance, including sharpe ratios, volatility and correlation, for the FTSE 100 FDEW and FTSE 100, highlights the attributes, merits and risks of both, and the potential benefits of using both in diversified and balanced portfolios
 - **In summary, the FTSE 100 FDEW presents a highly comparable index to the FTSE 100 (as would be expected for two indices based on the exact same stocks), that can add significant value for investors through improved structured product terms, also offering diversification benefits (as an alternative and / or complement to the FTSE 100) without changing market, stocks or index provider, for investors who may be overweight structured products linked to just the FTSE 100 market capitalisation index**
-

Important notice

- **It should always be understood that:**
 - structured products are not suitable for everyone
 - past performance is not a reliable indicator of or guide to future performance and should not be relied upon, particularly in isolation
 - the value of investments and the income from them can go down as well as up
 - the value of structured products may be affected by the price of their underlying investments
 - capital is at risk and investors could lose some or all of their capital

- **The ‘Important risks’ section of our website highlights the key and other risks of structured products, in addition to explaining important information for Professional Advisers who wish to access the current products area of our website and who may use our structured product plans with their clients:**
 - www.tempo-sp.com/home/important-risks

- **Professional Advisers should access and read the relevant plan documents relating to any structured product plan of interest, in particular: the plan brochure; plan application pack, including, the terms and conditions of the plan; and the issuer’s securities prospectus, final terms sheet and key information document (KID), before making a recommendation to their clients**

- **Professional advisers should not invest in, or advise their clients to invest in, any investment product unless they and their clients understand them, in particular the relevant risks**

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