STAY THE COURSE: STRIKING A BALANCE BETWEEN LONG AND SHORT TERM TRENDS

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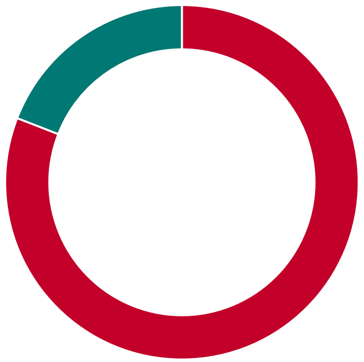
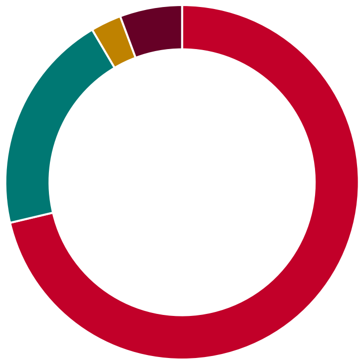
Vanguard vital statistics

Total assets worldwide: EUR 7.8 trillion

- The Vanguard Group was launched in 1975
- More than 28,200 institutional clients
- 17 global offices with 20,000 employees
- EUR 6,290 billion under management in index funds
- EUR 1,489 billion under management in active funds



80.9% Index
19.1% Active



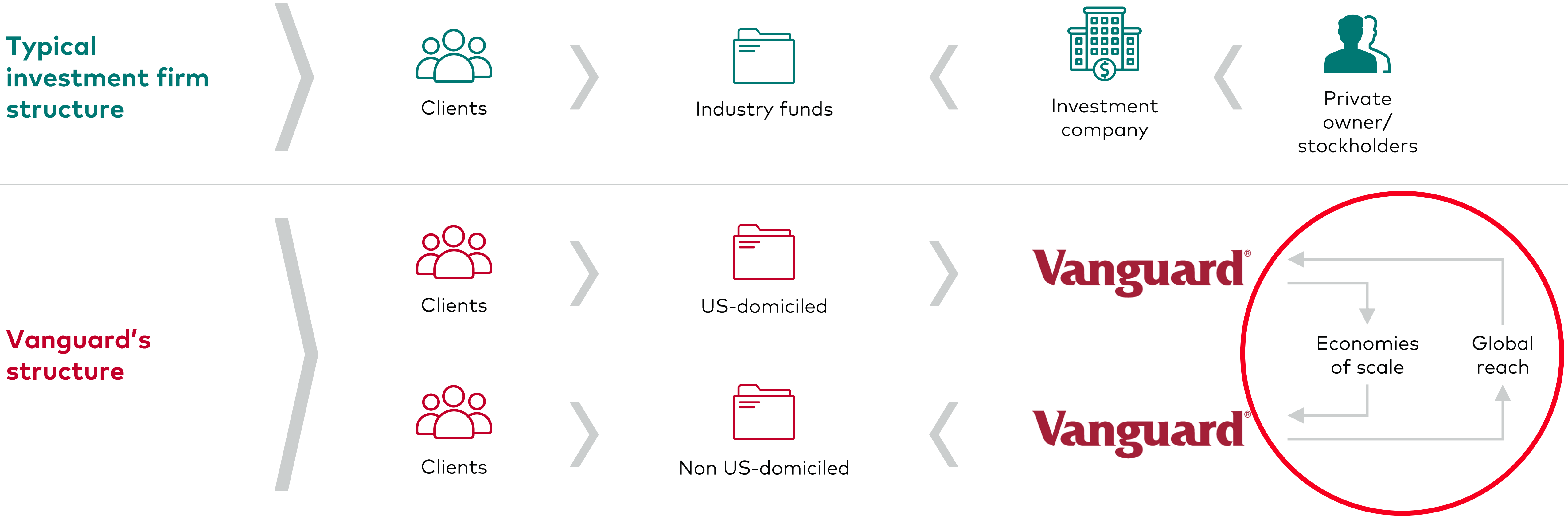
71.4% Equity
20.2% Fixed income
2.8% Balanced
5.7% Cash

70.7% Mutual funds
29.3% ETFs

Source: Vanguard. Data as at 31 December 2023.
Note: Figures may not add up to 100% due to rounding.

Structured to put clients first

Our unique mutual ownership structure aligns our interests with our clients*



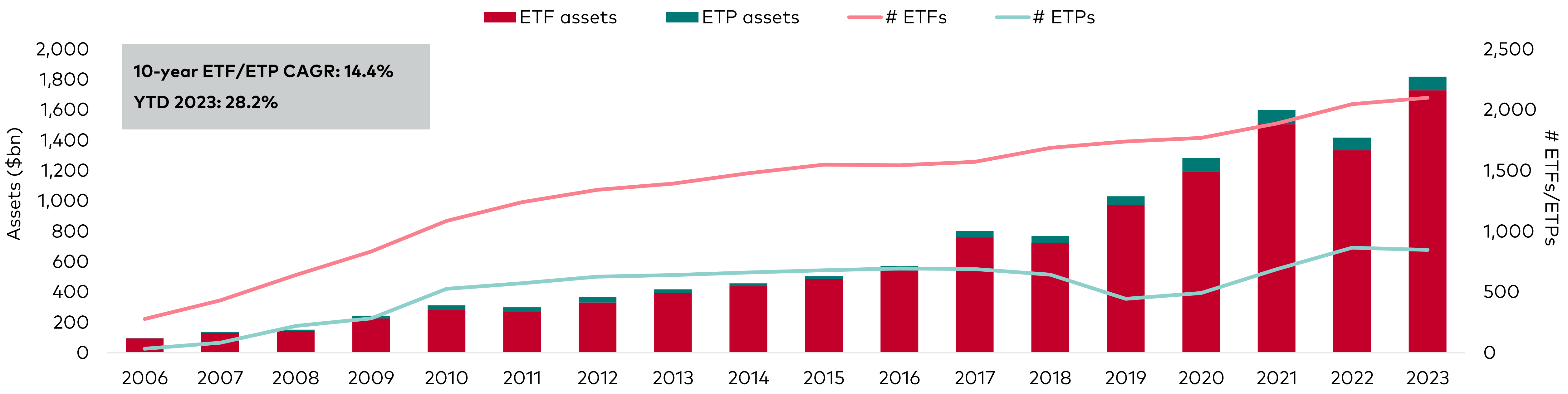
Source: Vanguard.
*The typical fund management company is owned by third parties, either public or private stockholders, not by the funds it serves. Those fund management companies have to charge fund investors fees that are high enough to generate profits for the companies' owners. In contrast, the Vanguard funds in the US own the management company known as Vanguard—a unique arrangement that eliminates conflicting loyalties. That means Vanguard fund investors keep more of any return their funds earn. Vanguard in Europe isn't directly owned by the Vanguard funds. We're owned by The Vanguard Group, which means that we think in exactly the same way and we share the same client focus.

Agenda

1. Snapshot of the UCITS ETF market, what happened and where are we?
2. What's new – Thematics: Interesting but do they work?
3. Core All World and Global Agg ETFs work, Multi Asset ETFs are growing!
4. A look back at asset class performance and market timing
5. A look ahead for asset classes
6. Investors need help, coach them for the long term and build their wealth

Despite turbulent times, UCITS ETF net cash flow and AUM continue to grow strongly

European ETF and ETP asset growth



# ETFs	278	431	640	835	1,086	1,241	1,342	1,394	1,479	1,549	1,544	1,572	1,688	1,741	1,770	1,888	2,048	2,100
# ETFs/ETPs	312	514	861	1,118	1,612	1,813	1,969	2,034	2,140	2,229	2,239	2,262	2,332	2,186	2,262	2,576	2,913	2,948
ETF assets ($bn)	94	131	143	226	281	268	331	395	438	487	542	762	726	974	1,194	1,506	1,333	1,729
ETF/ETP assets ($bn)	96	138	152	245	313	300	369	418	458	505	573	802	768	1,031	1,284	1,599	1,418	1,819

Source: ETFGI as at 31 December 2023. Note: "ETFs" are typically open-end index funds that provide daily portfolio transparency, are listed and traded on exchanges like stocks on a secondary basis as well as utilizing a unique creation and redemption process for primary transactions. "ETPs" refers to other products that have similarities to ETFs in the way they trade and settle but they do not use a mutual fund structure. The use of other structures including grantor trusts, partnerships, notes and depositary receipts by ETPs can create different tax and regulatory implications for investors when compared to ETFs which are funds.

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Thematics will always generate headlines but do they build <u>your</u> wealth?

Top 5 themes Q1 2021 and latest 3 year performance return

1. Battery Solutions **-7.57%**
2. Clean Water **+26.81%**
3. Emerging Markets Internet and Ecommerce **-51.28%***
4. Cloud Computing **-12.91%**
5. MSCI Disruptive Technology ESG Filtered **-16.70%**

These were the future once, now…

1. The Television Fund
2. The Whiskey ETF
3. The Kids Fund
4. The Pure Play Internet Fund
5. Procure Space

CLOSED / MERGED

*"This analysis suggests [526] **specialised ETFs do not create value for their investors** by providing outperforming investment strategies. Consequently, the high fees and lack of diversification of these products remains a puzzle."*

Past performance is not a reliable indicator of future results.
Sources: ETF Stream March 2021. *Competition for attention in the ETF space* - Fisher College of Business Working Paper, Jan 2021
*Performance returns are 3yr index exposure returns to end Dec 2023 with the exception of Emerging Markets Internet and Ecommerce return which is a listed ETF as the index is not publicly quoted.
All performance calculated in USD with gross income reinvested.

Themes from the past year – *déjà vu* is not what it used to be!

health

global clean water

cloud technology equal weight

tech megatrend equal weight

china clean energy

procure space

essential metals producers

ev charging infrastructure

cybersecurity

future of defence

*"In **2018**, **2019**, **2021**, **2022**, and again so far this year [in **2023**], theme funds **trailed** the market average. **Higher risk** + **lower** aggregate **returns** + fewer bright spots = **investment failure**."*

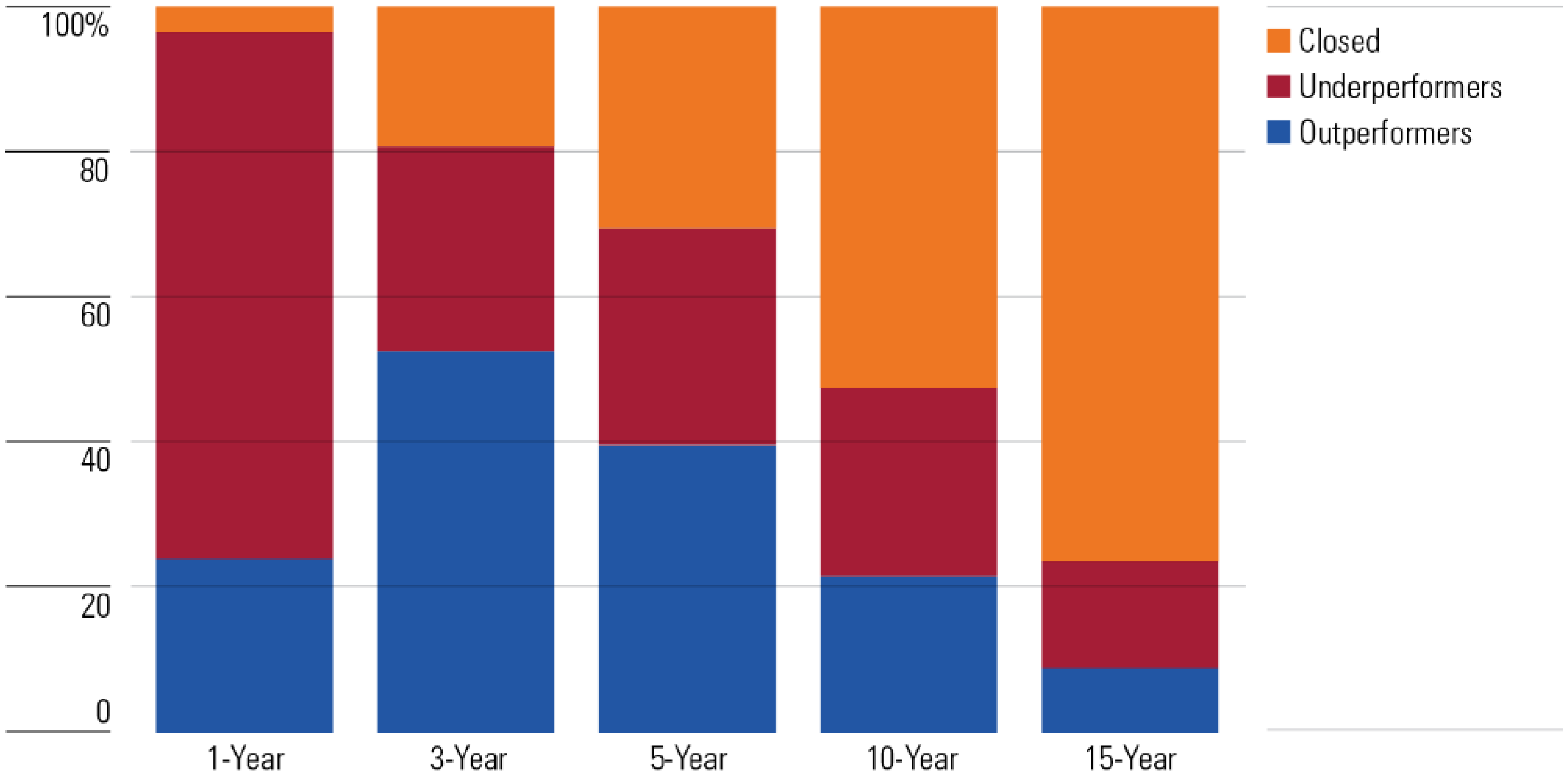
– Morningstar, 12 June 2023

Five thematic ETFs to potentially outperform in 2024 (!)

Past performance is not a reliable indicator of future results.
Source: ETF Stream "Five thematic ETFs to outperform in 2024", '*Thematic Investing Appeals to Our Worst Instincts*' Morningstar, as at 12 June 2023.

Do not be distracted by exciting names and themes

European thematic fund survival and success rate



*"A **recent** study from **Morningstar** shows that investors are usually quite bad at timing the market, leading to a gap in their return compared to the fund's total return.*

*And **thematic funds seem to be one area where investors struggle the most**. "*

Past performance is not a reliable indicator of future results.
Source: Morningstar Research. Data table as at 31 December 2021. Thematic funds are defined as those that select holdings based on their exposure to one or more investment themes. These themes may pertain to macroeconomic or structural trends that transcend the traditional business cycle. Performance is based on total return in USD. Quote from 16 November 2023.

Whilst thematics were busy distracting people, look at what happened to the core exposures

Core exposures continue to dominate AUM, NCF and average flow and assets per product in the top ten

Provider	Number of funds	Total AUM (US$bn)	Average AUM per fund (US$bn)	Total 2023 net flows (US$bn)	Average flow per fund (US$m)
Vanguard	**34**	**122.2**	**3.6**	**20.0**	**587**
iShares	404	798.2	2.0	71.0	176
Xtrackers	249	187.8	0.8	22.5	90
UBS ETFs	138	96.0	0.7	-0.4	-3
SPDR ETFs	104	71.1	0.7	7.0	67
Amundi ETF	346	228.6	0.7	12.1	35
Invesco	142	81.4	0.6	4.9	34
HSBC ETFs	57	32.5	0.6	4.9	86
BNP Paribas	53	26.2	0.5	4.1	77
WisdomTree	261	27.6	0.1	-0.6	-2
Total market of UCITS ETFs	**2,765**	**US$1,817 billion**	**US$0.7 billion**	**US$158 billion**	**US$57 million**

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Past performance is not a reliable indicator of future results.
Source: ETFbook, as at 31 December 2023.

Investor cash flows tend to lag fund performance

Cash flows in market segments wax and wane over time, dependent on trailing performance

	YEAR	EQUITIES	BONDS
A	1999	$164B	–$6B
	2000	$262B	–$51B
B	2001	$82B	$83B
	2002	$42B	$133B
C	2006–2007	$388B	$194B
D	2008–2012	–$59B	$1,251B
E	2019–2022	$175B	$1,289B

Five-step, rational, decision-making process

Ideally investors would invest rationally and not chase performance

Past performance is not a reliable indicator of future results.
Source: Vanguard Investment Advisory Research Centre, based on data from MSCI, Bloomberg and Morningstar, Data from 1 January 1990 to 31 December 2022.
Data as at 31 December for each year cited. Excess return is the difference between return of broadly diversified world stocks and that of US bonds. World stocks represented by MSCI All Country World Index; US bonds represented by Bloomberg US Aggregate Bond Index.

There is little persistence in asset class performance

Key bond and equity index returns (%), ranked by performance

2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
28.2	14.5	16.9	16.4	-0.3	34.0	10.2	36.6	-5.1	22.3
27.3	11.1	15.8	12.7	-0.6	29.6	6.9	27.9	-8.5	18.5
22.9	10.9	11.9	12.4	-1.0	28.4	6.8	26.1	-11.5	18.4
20.6	9.6	8.3	9.5	-1.5	26.2	6.0	25.4	-12.3	12.4
19.3	6.8	8.3	8.8	-3.3	22.8	5.4	10.9	-13.7	12.3
15.7	6.3	4.6	7.0	-4.5	20.8	3.3	9.3	-14.2	10.5
15.6	6.0	0.8	0.8	-8.7	17.5	3.1	7.7	-16.9	8.8
10.2	5.8	-3.1	-1.5	-9.0	13.5	2.1	5.0	-23.6	6.0
8.5	4.2	-4.4	-2.0	-10.1	12.8	-0.6	3.1	-29.1	5.4
5.8	-5.6	-10.5	-2.0	-10.5	12.6	-14.6	1.0	-38.0	3.0

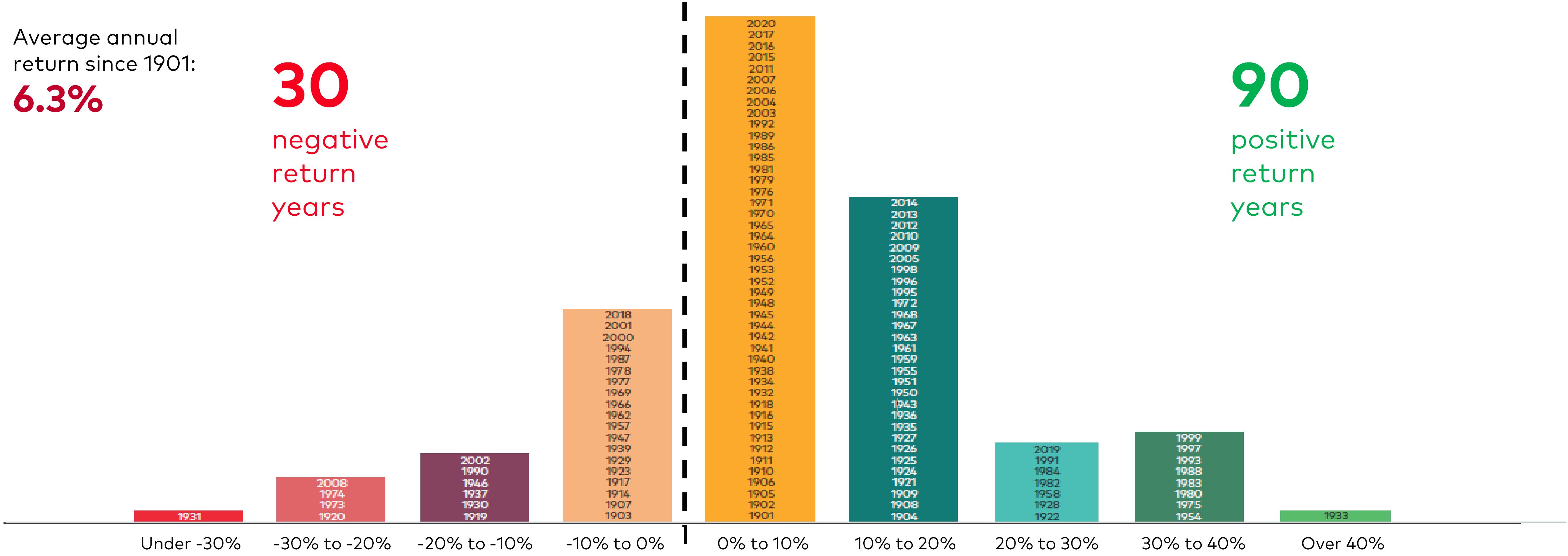
Global equities
North American equities
Emerging market equities
Developed Asia equities
European equities
UK equities
UK government bonds (gilts)
UK index-linked gilts
UK investment grade corporate bonds
Hedged global bonds

Past performance is not a reliable indicator of future results.
Source: Vanguard calculations, data from 1 January 2014 to 31 December 2023, using data from Barclays Capital and Thompson Reuters Datastream and FactSet. Global equities as the FTSE All World Index, North American equities as the FTSE World North America Index, Emerging market equities as the FTSE All-World Emerging Index, Developed Asia equities as the FTSE All World Developed Asia Pacific Index, European equities as the FTSE All World Europe ex-UK Index, UK equities is defined as the FTSE All Share Index, UK government bonds as Bloomberg Sterling Gilt Index, UK index-linked gilts as Bloomberg UK Govt Inflation-Linked UK Index, UK investment grade corporate bonds as Bloomberg Sterling Aggregate Non-Gilts – Corporate Index, Hedged global bonds as Bloomberg Global Aggregate Index (hedged in EUR). Performance shown is cumulative and denominated in EUR. It includes the reinvestment of all dividends and any capital gains distributions. The performance data does not take account of the commissions and costs incurred in the issue and redemption of shares.

Time in the market, not timing the market

Positive and negative return years of an investment in 60% equities and 40% bonds since 1901

Average annual return since 1901:
6.3%



Past performance is not a reliable indicator of future results.
Source: Vanguard. Data: Bloomberg. Data period from 1 January 1901 to December 2020. Bond returns are represented by the DMS World Bond Total Return Index from 1901 to 1999 and thereafter by the Bloomberg Barclays Global Aggregate Index (hedged in euros). Equity returns are represented by the DMS World Equity Total Return Index from 1901 to 1969 and thereafter by the MSCI World Index. The returns are net returns in euros (Deutsche Mark before 2002), fees and taxes are not taken into account. Returns include reinvestment of dividends. The performance of an index is not an accurate representation of a particular investment as you cannot invest directly in an index.

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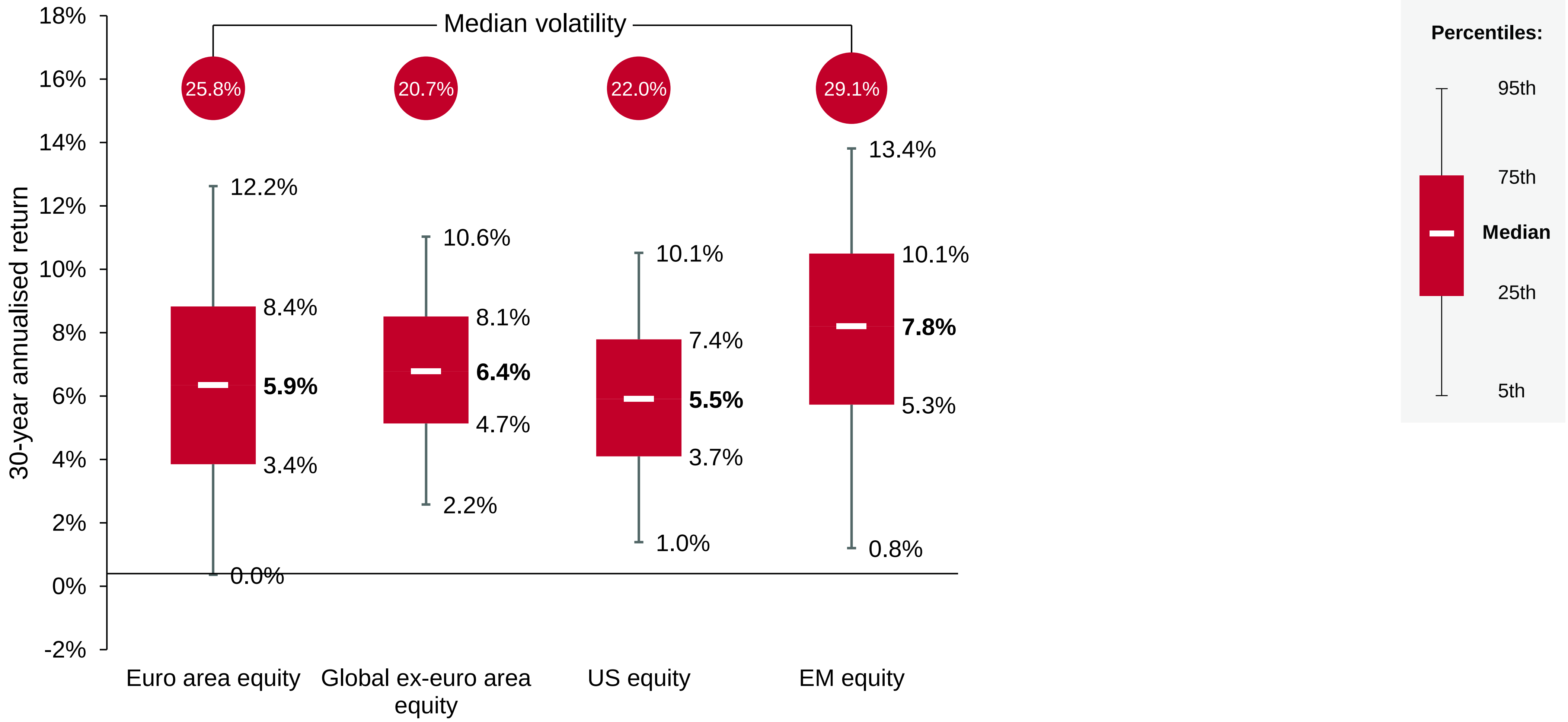
Equity return expectations for the next 30 years

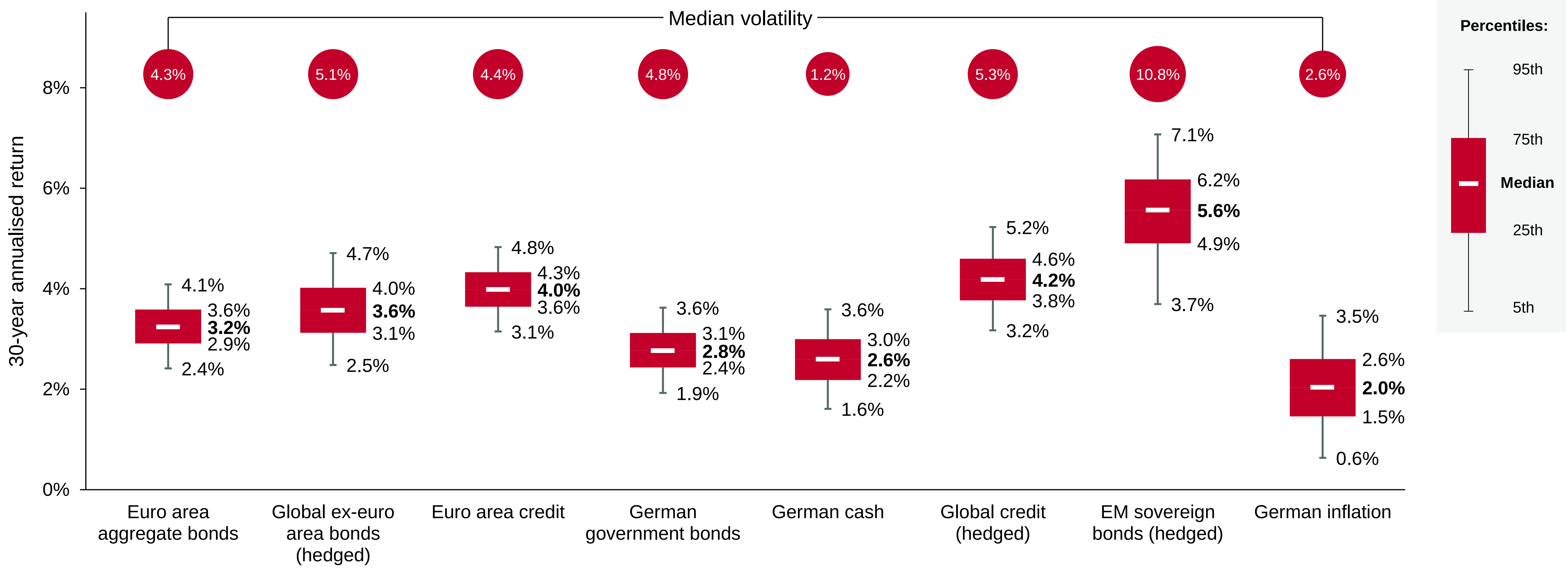
Distribution of annualised expected returns over the next 30 years



Any projections should be regarded as hypothetical in nature and do not reflect or guarantee future results.
Notes: Distribution of 30-year annualised return outcomes in EUR from the VCMM are derived from 10,000 simulations for each modelled asset class. See appendix section for further details on the VCMM and asset classes.
Source: Vanguard calculations, as at 31 December 2023.

Bond return expectations for the next 30 years

Distribution of annualised expected returns over the next 30 years



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Source: Vanguard calculations, as at 31 December 2023.

Low costs, balanced asset allocation, don't try to time markets and model good investing behaviours

- Low-cost, multi-asset solutions provide ready-made, balanced and diversified portfolios

- Blending low-cost, mutually complementary index and active funds can enhance returns and lower drawdowns

- Excessive fees can pressure managers to assume outsized risks

VCMM – benchmarks used for asset classes

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Asset classes in EUR

- Euro area equity: MSCI Economic and Monetary Union (EMU) Total Return Index.
- Global ex-euro area equity: MSCI AC World ex EMU Total Return Index (EUR).
- US equity: MSCI USA Total Return Index (EUR).
- EM equity: MSCI Emerging Markets Total Return Index (EUR).
- Euro area aggregate bonds: Bloomberg Euro-Aggregate Bond Index.
- Global ex-euro area bonds (hedged): Bloomberg Global Aggregate ex Euro Bond Index (EUR Hedged).
- Euro area credit: Bloomberg Euro-Aggregate Credit Bond Index.
- German government bonds: Bloomberg Germany Treasury Bond Index Euro.
- German cash: German 3-month sovereign yield.
- Global credit (hedged): Bloomberg Global Credit Index (EUR Hedged).
- EM sovereign bonds (hedged): Bloomberg EM USD Aggregate Sovereign (EUR Hedged).
- German inflation: Consumer Price Index. Source: Deutsche Bundesbank.

Vanguard Capital Markets Model

IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and over time.

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More important, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model® is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include US and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, US money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

Investment risk information

The value of investments, and the income from them, may fall or rise and investors may get back less than they invested.

Past performance is not a reliable indicator of future results.

Any projections should be regarded as hypothetical in nature and do not reflect or guarantee future results.

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