

## European Snapshot

## Who is exposed to China/EM APAC?

Quantitative Strategy

## Screen of the Week: high exposure to China/EM APAC

15 out of 29 Emerging Markets with manufacturing/whole economy PMI surveys show readings in expansionary territory. EM-exposed companies have seen the largest increase in 12m fwd EPS growth expectations out of all regions over the past 12 months (Exhibit 1), with half of the EM revenue exposure reported by Stoxx 600 companies coming from the Emerging APAC region. In our Screen of the Week, we once again show companies with high revenue exposure to China (Exhibit 5, see also: [European Snapshot: Who is exposed to China? 26 October 2023](#)) and add those with high exposure to Emerging APAC (Exhibit 4).

8<sup>th</sup> consecutive weekly outflow from Europe-focused funds

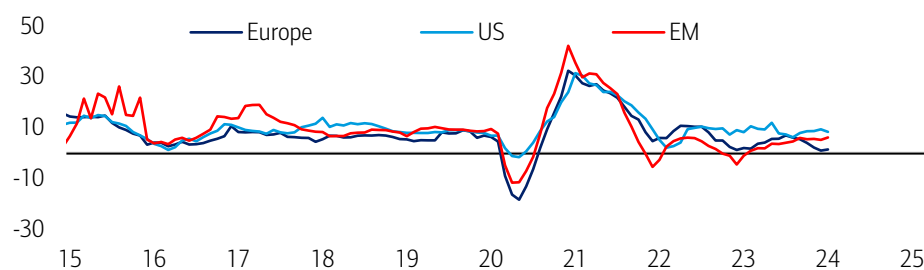
Europe-focused equity funds recorded their 8<sup>th</sup> consecutive weekly outflow of \$0.82bn, with a net -27.5% seeing net inflows. Outflows amounted to \$1.57bn from active funds and \$0.75bn of inflows moved into passive funds. Europe-focused funds have seen \$9.37bn of outflows YTD: \$12.07bn of outflows from active funds and \$2.7bn of inflows into passive funds. Size stocks (\$0.66bn), Switzerland (\$0.45bn) and Utilities (\$0.02bn) had the largest inflows last week, while the UK (\$0.7bn), Financials (\$0.28bn) and Value stocks (\$0.25bn) posted the largest outflows.

## BofA ERR: only European ratio increased over the week

The Global BofA 4-week EPS Revision Ratio decreased to 0.87, driven by declines in all regions except Europe (Exhibit 40). The European ratio increased over the week to 0.87 on the back of rises in Real Estate, Spain and Cheap Value. The largest decreases in Europe were seen in Communications, Switzerland and Falling Momentum.

**Exhibit 1: 12m Fwd EPS growth is the highest for the companies exposed to the USA (8.4%), but it has increased the most in the past 12 months among companies exposed to EM (to 6.2%)**

Europe Stoxx 600 companies: 12m fwd EPS growth (%) by revenue exposure baskets



Source: BofA European Equity Quant Strategy, IBES

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28 February 2024

Quant Strategy  
Europe

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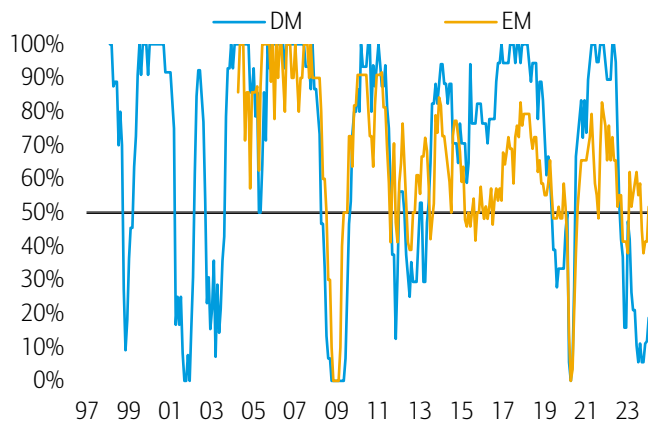
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Timestamp: 28 February 2024 12:30AM EST

## Screen of the week

### Exhibit 2: 15 out of 29 EM countries notes their manufacturing PMIs above 50 (in expansionary territory)

% of countries with PMI Mfg/Whole Economy readings above 50 in Developed Markets (light blue, includes Europe) and Emerging Markets (yellow)

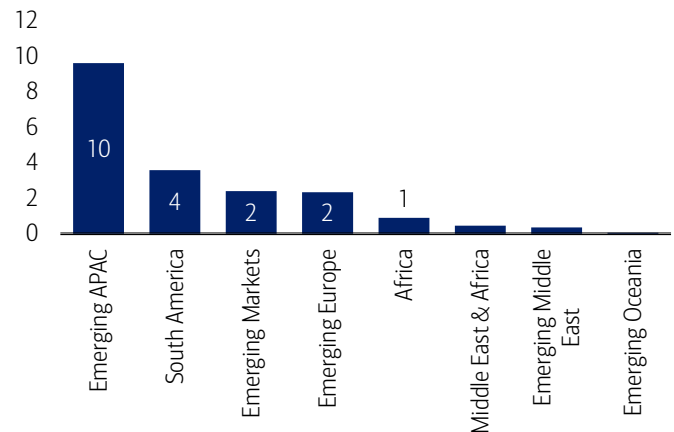


Source: BofA European Equity Quant Strategy, Refinitiv, S&P. PMI surveys conducted by the S&P/Markit.

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### Exhibit 3: Half of the EM revenue exposure of Europe Stoxx 600 index lies in Emerging APAC

Europe Stoxx 600: Revenue exposure to Emerging Markets broken down by subregions



Source: BofA European Equity Quant Strategy, Bloomberg, Factset, Refinitiv, 2022 annual reports  
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### Exhibit 4: European companies most exposed to Emerging APAC are mainly from Industrials and Germany

Top 50 European companies within Europe Stoxx 600 with the market cap > 5bn EUR and highest revenue exposure to Emerging APAC (%) as of 2022/2023 annual reported sales

BBG Ticker	Name	Country	Sector	Mkt Cap (EUR bn)	Sales exposure Emerging APAC (%)
ASML NA	ASML	Netherlands	Technology	348.7	81
ASM NA	ASM	Netherlands	Technology	25.9	66
RIO LN	Rio Tinto	UK	Basic Resources	65.4	61
UHR SW	Swatch	Switzerland	Consumer Pds & Svs	6.3	56
IFX GR	Infineon Technologies	Germany	Technology	43.2	53
AAL LN	Anglo American	UK	Basic Resources	26.0	50
CFR SW	Cie Financiere Richemont	Switzerland	Consumer Pds & Svs	75.3	48
RMS FP	Hermes	France	Consumer Pds & Svs	80.9	47*
MONC IM	Moncler	Italy	Consumer Pds & Svs	13.4	47
TEL NO	Telenor	Norway	Telecoms	6.5	43
BRBY LN	Burberry	UK	Consumer Pds & Svs	5.6	42
GLEN LN	Glencore	UK	Basic Resources	44.0	41
ALFA SS	Alfa Laval	Sweden	Industrial Gds & Svs	10.0	38*
STAN LN	Standard Chartered	UK	Banks	16.3	37
VACN SW	VAT	Switzerland	Industrial Gds & Svs	12.5	36
KNEBV FH	Kone	Finland	Industrial Gds & Svs	18.8	36*
SGSN SW	SGS	Switzerland	Industrial Gds & Svs	13.6	35
KER FP	Kering	France	Consumer Pds & Svs	30.3	35*
MRK GR	Merck	Germany	Health Care	20.5	33
SIGN SW	SIG	Switzerland	Industrial Gds & Svs	5.8	32
ANTO LN	Antofagasta	UK	Basic Resources	8.2	32*
CARLB DC	Carlsberg	Denmark	Food, Bev, Tobacco	12.6	32*
1COV GR	Covestro	Germany	Chemicals	9.7	32
P911 GR	Porsche	Germany	Autos & Parts	9.4	31
MC FP	LVMH	France	Consumer Pds & Svs	219.8	31*
ATCOA SS	Atlas Copco	Sweden	Industrial Gds & Svs	41.2	31
GF SW	Georg Fischer	Switzerland	Industrial Gds & Svs	5.7	30
SKFB SS	SKF	Sweden	Basic Resources	6.7	30
RI FP	Pernod Ricard	France	Food, Bev, Tobacco	31.6	30
OR FP	L'Oreal	France	Consumer Pds & Svs	109.2	30

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BBG Ticker	Name	Country	Sector	Mkt Cap (EUR bn)	Sales exposure Emerging APAC (%)
BMW GR	BMW	Germany	Autos & Parts	31.8	29
SU FP	Schneider Electric	France	Industrial Gds & Svs	120.2	29*
LOGN SW	Logitech	Switzerland	Technology	12.8	29
MBG GR	Mercedes-Benz	Germany	Autos & Parts	57.3	28*
AKZA NA	Akzo Nobel	Netherlands	Chemicals	11.7	28*
AKE FP	Arkema	France	Chemicals	5.9	28
SCHP SW	Schindler	Switzerland	Industrial Gds & Svs	10.0	27*
HEXAB SS	Hexagon	Sweden	Technology	23.2	27*
AIR FP	Airbus	France	Industrial Gds & Svs	86.8	26
WRT1V FH	Wartsila	Finland	Industrial Gds & Svs	7.1	25
BAS GR	BASF	Germany	Chemicals	41.6	25*
GIVN SW	Givaudan	Switzerland	Chemicals	31.6	25
ADS GR	adidas	Germany	Consumer Pds & Svs	31.4	24
SRT GR	Sartorius	Germany	Health Care	8.4	24*
G1A GR	GEA	Germany	Industrial Gds & Svs	5.9	24
DSFIR NA	DSM-Firmenich	Netherlands	Food, Bev, Tobacco	17.8	24
SPX LN	Spirax-Sarco Engineering	UK	Industrial Gds & Svs	9.0	24
CRDA LN	Croda	UK	Chemicals	7.7	23
DIM FP	Sartorius Stedim Biotech	France	Health Care	6.1	23*
HLN LN	Haleon	UK	Health Care	23.7	23

**Source:** BofA European Equity Quant Strategy, FactSet, Bloomberg, Refinitiv, 2022/2023 annual reports. Disclaimer: The screen above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This screen was not created to act as a benchmark. Companies marked with \* show 2023 reported data. Note: Emerging Asia Pacific do not include Australia, Japan, Hong Kong, New Zealand and Singapore.

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#### Exhibit 5: European companies most exposed to China are mainly from Industrials, Germany and Switzerland

Top 53 European companies within Europe Stoxx 600 with the market cap > 5bn EUR and highest revenue exposure to China (%) as of 2022/2023 annual reported sales

BBG Ticker	Name	Country	Sector	Mkt Cap (EUR bn)	Sales exposure China (%)
RIO LN	Rio Tinto	UK	Basic Resources	65.4	54
IFX GR	Infineon Technologies	Germany	Technology	43.2	37
UHR SW	Swatch	Switzerland	Consumer Pds & Svs	6.3	32
P911 GR	Porsche	Germany	Autos & Parts	9.4	31
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CFR SW	Cie Financiere Richemont	Switzerland	Consumer Pds & Svs	75.3	23
ATCOA SS	Atlas Copco	Sweden	Industrial Gds & Svs	41.2	23
KER FP	Kering	France	Consumer Pds & Svs	30.3	22
ANTO LN	Antofagasta	UK	Basic Resources	8.2	22*
MC FP	LVMH	France	Consumer Pds & Svs	219.8	22
BMW GR	BMW	Germany	Autos & Parts	31.8	20
MONC IM	Moncler	Italy	Consumer Pds & Svs	13.4	20
RMS FP	Hermes	France	Consumer Pds & Svs	80.9	20
VACN SW	VAT	Switzerland	Industrial Gds & Svs	12.5	19
ITRK LN	Intertek	UK	Industrial Gds & Svs	8.8	19
CARLB DC	Carlsberg	Denmark	Food, Bev, Tobacco	12.6	18*
SKFB SS	SKF AB	Sweden	Basic Resources	6.7	18
MBG GR	Mercedes-Benz	Germany	Autos & Parts	57.3	17*
AKE FP	Arkema	France	Chemicals	5.9	15
SIGN SW	SIG	Switzerland	Industrial Gds & Svs	5.8	15

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BBG Ticker	Name	Country	Sector	Mkt Cap (EUR bn)	Sales exposure China (%)
ADS GR	adidas	Germany	Consumer Pds & Svs	31.4	14
ALFA SS	Alfa Laval	Sweden	Industrial Gds & Svs	10.0	14*
SU FP	Schneider Electric	France	Industrial Gds & Svs	120.2	14*
SCHP SW	Schindler	Switzerland	Industrial Gds & Svs	10.0	14*
BAS GR	BASF	Germany	Chemicals	41.6	14*
ABBN SW	ABB	Switzerland	Industrial Gds & Svs	68.5	14*
HEXAB SS	Hexagon	Sweden	Technology	23.2	14
ASML NA	ASML	Netherlands	Technology	348.7	14
SIE GR	Siemens	Germany	Industrial Gds & Svs	131.3	13
SPX LN	Spirax-Sarco Engineering	UK	Industrial Gds & Svs	9.0	13
BVI FP	Bureau Veritas	France	Industrial Gds & Svs	8.0	13
PHIA NA	Philips	Netherlands	Health Care	14.7	13*
AZN LN	AstraZeneca	UK	Health Care	185.6	13
AKZA NA	Akzo Nobel	Netherlands	Chemicals	11.7	13
MRK GR	Merck	Germany	Health Care	20.5	13
SIKA SW	Sika	Switzerland	Construction & Materials	41.3	12*
RI FP	Pernod Ricard	France	Food, Bev, Tobacco	31.6	11
LOGN SW	Logitech	Switzerland	Technology	12.8	11
SOLB BB	Solvay	Belgium	Chemicals	1.7	11
SHL GR	Siemens Healthineers	Germany	Health Care	15.2	11
STMN SW	Straumann	Switzerland	Health Care	18.0	10
G1A GR	GEA	Germany	Industrial Gds & Svs	5.9	10
BN FP	Danone	France	Food, Bev, Tobacco	38.9	10
UPM FH	UPM-Kymmene	Finland	Basic Resources	15.9	10
STERV FH	Stora Enso	Finland	Basic Resources	6.9	10
RR/ LN	Rolls-Royce	UK	Industrial Gds & Svs	34.8	9
NOVOB DC	Novo Nordisk	Denmark	Health Care	369.6	9
RACE IM	Ferrari	Italy	Autos & Parts	45.3	8*
SRT GR	Sartorius	Germany	Health Care	8.4	8*
HSBA LN	HSBC	UK	Banks	135.6	6*

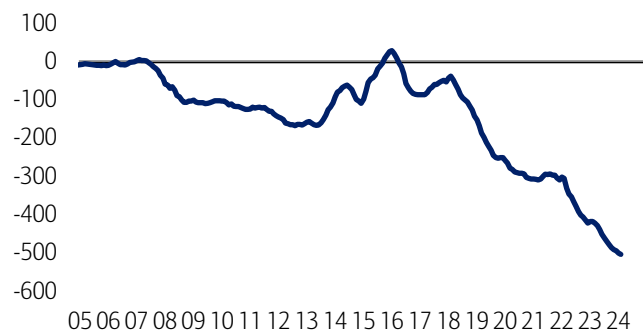
**Source:** BofA European Equity Quant Strategy, FactSet, Bloomberg, Refinitiv, 2022/2023 annual reports. Disclaimer: The screen above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This screen was not created to act as a benchmark. Companies marked with \* show 2023 reported data.

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# Flows

## Exhibit 6: Europe-focused equity funds have seen \$495bn of outflows since 2005 (active funds: -\$623bn, passive funds: \$128bn)

Long-term cumulative flows into Europe-focused equity funds (\$bn)

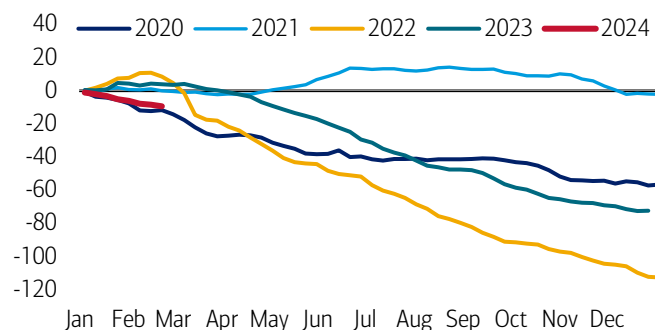


Source: BofA European Equity Quant Strategy, EPFR Global

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## Exhibit 8: Europe-focused equity funds have seen \$9.37bn of outflows YTD, with \$9.75bn of outflows from European-domiciled funds and \$0.32bn of inflows into US-domiciled funds

Cumulative annual flows into Europe-focused equity funds (\$bn)

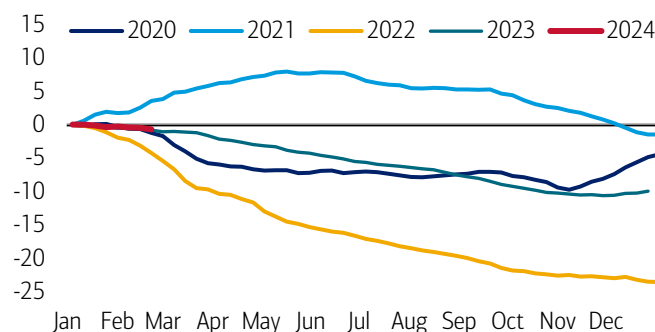


Source: BofA European Equity Quant Strategy, EPFR Global

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## Exhibit 10: SMID focused European equity funds have seen \$0.65bn of outflows YTD, \$0.82bn of outflows from active funds and \$0.17bn of inflows into passive funds

Cumulative annual flows into SMID-focused European equity funds (\$bn)

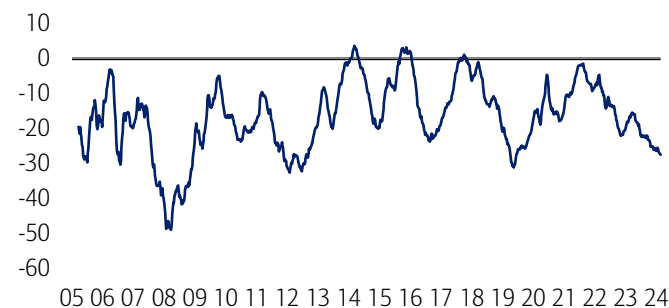


Source: BofA European Equity Quant Strategy, EPFR Global

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## Exhibit 7: A net -27.5% of Europe-focused funds saw inflows last week, the lowest reading since Jun '19

Net % of Europe-focused equity funds seeing inflows on weekly basis (12w mva)

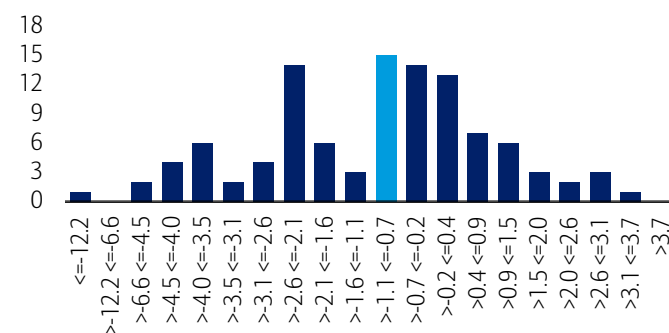


BofA European Equity Quant Strategy, EPFR Global. Note: Net % calculated as % of funds that saw inflows minus % of funds that saw outflows

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## Exhibit 9: Europe-focused equity funds saw \$0.82bn of outflows last week, 8th consecutive weekly outflow and most common weekly flow in last 2 years

Distribution of weekly flows into Europe-focused equity funds over the last two years (\$bn)

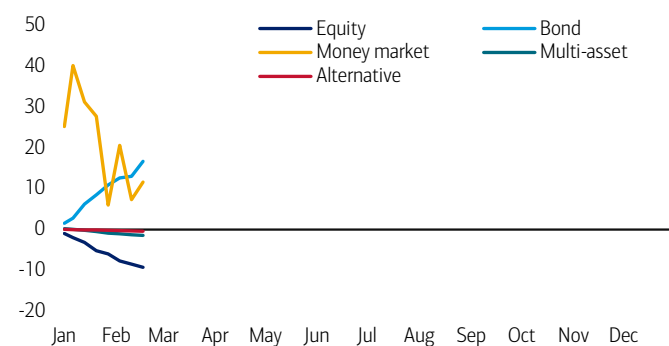


Source: BofA European Equity Quant Strategy, EPFR Global

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## Exhibit 11: Equity funds have seen the largest outflows YTD (\$9.4bn), while Bond funds have seen the largest inflows (\$16.7bn)

YTD cumulative flows into Europe-focused funds by asset-class (\$bn)

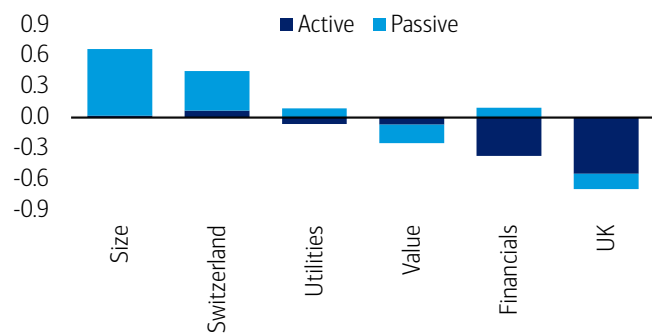


Source: BofA European Equity Quant Strategy, EPFR Global

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**Exhibit 12: Size stocks recorded the largest inflows (\$0.66bn), while the UK noted the largest outflows (\$0.70bn) last week**

Top and bottom inflows/outflows last week into Europe-focused equity funds/stocks by country, sector, style split into active and passive (\$bn)

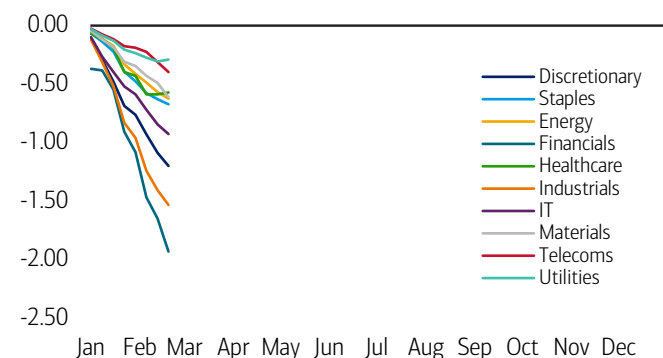


Source: BofA European Equity Quant Strategy, EPFR Global. Note: flows into styles are aggregated from stock level data

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**Exhibit 13: Utilities noted the smallest outflows YTD (\$0.3bn), while Financials recorded the largest outflows (\$1.9bn)**

YTD cumulative flows into Europe-focused equity funds by sector (\$bn)

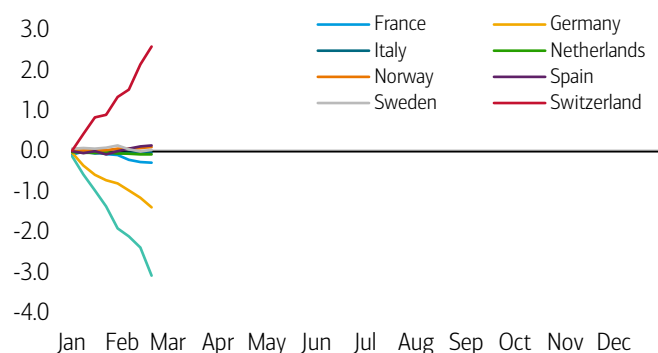


Source: BofA European Equity Quant Strategy, EPFR Global

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**Exhibit 14: Switzerland noted the largest inflows YTD (\$2.6bn), while the UK recorded the largest outflows (\$3.1bn)**

YTD cumulative flows into Europe-focused equity funds by country (\$bn)

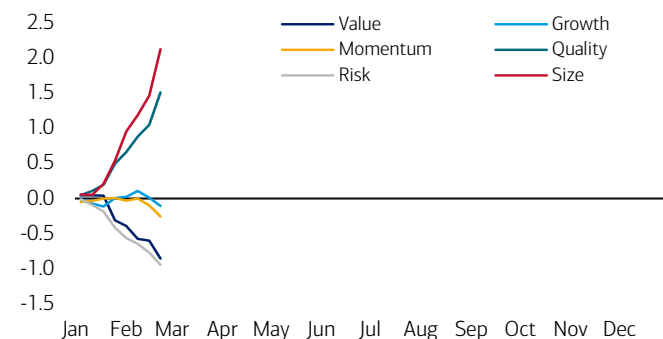


Source: BofA European Equity Quant Strategy, EPFR Global.

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**Exhibit 15: Size has seen the largest inflows YTD (\$2.1bn), while Risk has recorded the largest outflows (\$0.9bn)**

YTD cumulative flows into European equities by style (long-short, \$bn)

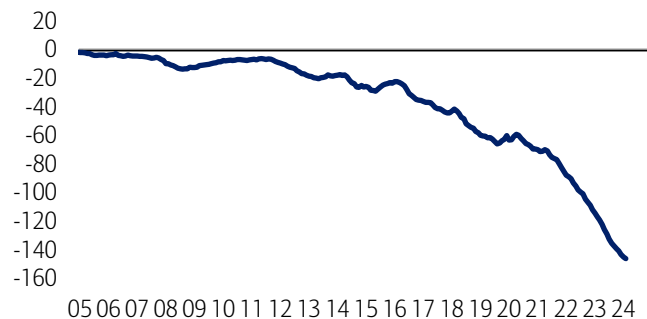


Source: BofA European Equity Quant Strategy, EPFR Global. Note: flows into styles are aggregated from stock level data

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**Exhibit 16: UK-focused equity funds have seen \$144bn of outflows since 2005 (active funds: -\$163bn, passive funds: \$18bn)**

Long-term cumulative flows into UK-focused equity funds (\$bn)

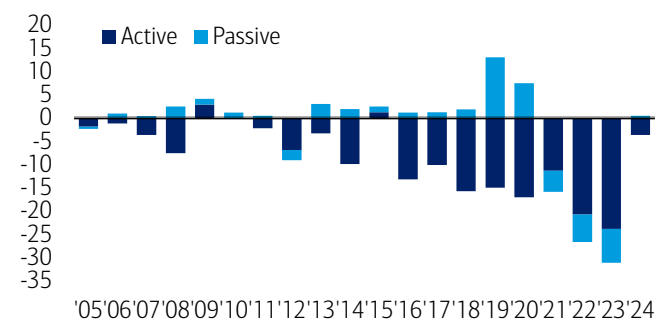


Source: BofA European Equity Quant Strategy, EPFR Global

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**Exhibit 17: YTD UK-focused equity active funds have seen \$3.6bn of outflows, while passive funds recorded \$0.5bn of inflows**

Yearly flows into UK-focused equity funds (\$bn) split between active and passive funds

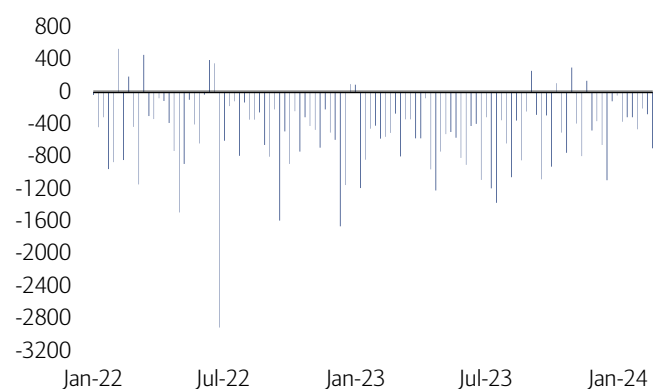


Source: BofA European Equity Quant Strategy, EPFR Global

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**Exhibit 18: UK-focused equity funds saw \$0.7bn of outflows last week, the 13<sup>th</sup> consecutive weekly outflow**

UK-focused equity funds weekly flows (\$mn)

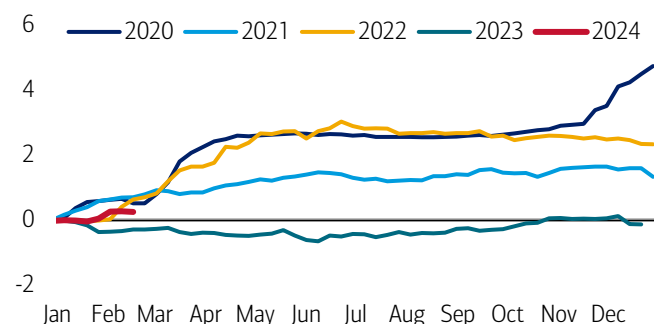


Source: BofA European Equity Quant Strategy, EPFR Global.

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**Exhibit 20: UK-focused equity funds benchmarked to FTSE 100 have seen \$0.25bn of inflows YTD**

Cumulative annual flows into UK-focused equity funds benchmarked to FTSE 100 index (\$bn)

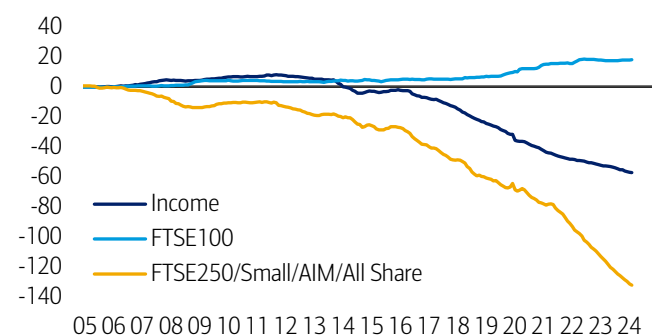


Source: BofA European Equity Quant Strategy, EPFR Global.

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**Exhibit 19: Since 2005, UK equity-focused income funds saw \$57bn of outflows, \$18bn of inflows into FTSE100 benchmarked funds and \$133bn of outflows from FTSE250/AIM/All Share/Small caps**

Long-term cumulative flows into UK-focused equity funds (\$bn) split by focus

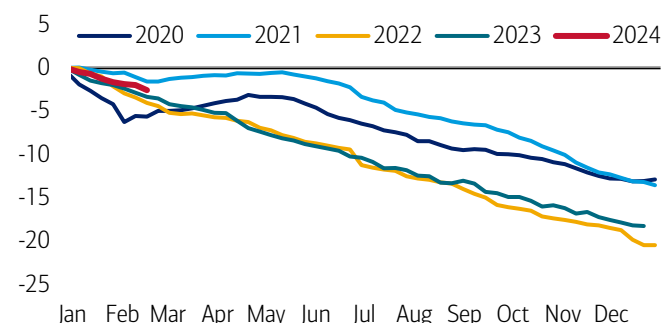


Source: BofA European Equity Quant Strategy, EPFR Global.

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**Exhibit 21: UK-focused equity funds benchmarked to FTSE 250/Small/AIM/All Share indices have seen \$2.56bn of outflows YTD**

Cumulative annual flows into UK-focused equity funds benchmarked to FTSE 250/AIM/Small/ALL Share indices (\$bn)



Source: BofA European Equity Quant Strategy, EPFR Global.

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**Exhibit 22: Azelis has seen the largest inflows last week as % of mcap, while Pennon largest outflows across funds**

Top 5 and bottom 5 European companies that are part of Europe Stoxx 600 index and saw the largest inflow/outflow from different types of funds last week as % of market capitalisation

**Stocks that saw the highest inflows last week**

BBG Ticker	Name	Sector	Country	Flow as % of mcap	Group
AZE BB	Azelis	Industrial Gds & Svs	Belgium	0.15	Active
PNDORA DC	Pandora	Consumer Pds & Svs	Denmark	0.11	Active
BESI NA	Be Semiconductor	Technology	Netherlands	0.11	Active
CBK GR	Commerzbank	Banks	Germany	0.09	Active
IMCD NA	Imcd	Chemicals	Netherlands	0.09	Active
HUSQB SS	Husqvarna	Consumer Pds & Svs	Sweden	0.07	Passive
ADEN SW	Adecco	Industrial Gds & Svs	Switzerland	0.05	Passive
LMP LN	Londonmetric Property	Real Estate	UK	0.05	Passive
KGH PW	Kghm	Basic Resources	Poland	0.05	Passive
HO FP	Thales	Industrial Gds & Svs	France	0.04	Passive

**Stocks that saw the highest outflows last week**

BBG Ticker	Name	Sector	Country	Flow as % of mcap	Group
CTEC LN	Convatec	Health Care	UK	-0.09	Active
JMAT LN	Johnson Matthey	Chemicals	UK	-0.09	Active
BILL SS	Billerud	Basic Resources	Sweden	-0.08	Active
DWL LN	Dowlais	Automobiles & Parts	UK	-0.08	Active
LAND LN	Land Securities	Real Estate	UK	-0.08	Active
ECV GR	Encavis	Utilities	Germany	-0.05	Passive
VTY LN	Vistry	Consumer Pds & Svs	UK	-0.03	Passive
BCP PL	Bco Comercial Portugues	Banks	Portugal	-0.03	Passive
MAERSKB DC	A.P.Moller-Maersk	Industrial Gds & Svs	Denmark	-0.02	Passive
AIXA GR	Aixtron	Technology	Germany	-0.02	Passive

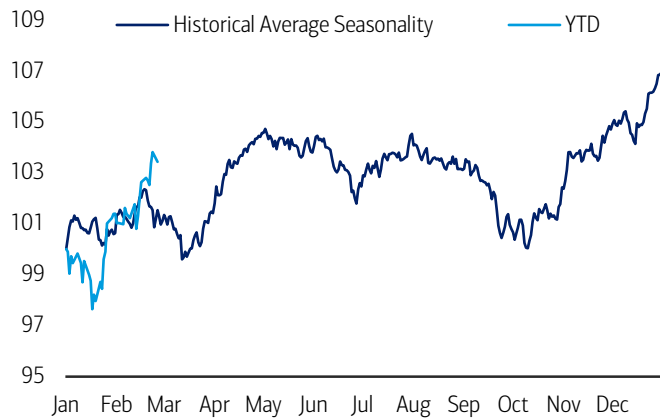
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# Performances

**Exhibit 23: The SXXP index typically registers a 1.4% gain in Q1, while the current quarter-to-date return stands at a 3.66% gain**  
Historical average performance of Europe Stoxx 600 index (EUR, price return)



Source: BofA European Equity Quant Strategy, Refinitiv. Note: historical average performance calculated over 1992-2023

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**Exhibit 24: Q1 '24 so far notes stronger gains in Netherlands, IT and Growth compared to historical trends**

Current QTD and YTD performance in comparison with historical average relative performance of MSCI sectors/countries indices (vs MSCI Europe, local currency, price return) and styles (long/short, EUR, price return)

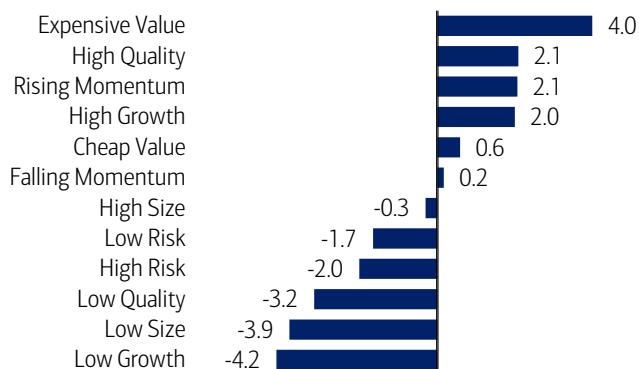
	QTD (%)	Diff vs historical	YTD (%)	Diff vs historical
Germany	0.1	0.4	0.1	0.4
France	1.1	0.4	1.1	0.4
Italy	4.0	2.9	4.0	2.9
Netherlands	9.6	9.4	9.6	9.4
Spain	-3.1	-3.6	-3.1	-3.6
Sweden	-0.9	-5.1	-0.9	-5.1
Switzerland	-1.2	-0.6	-1.2	-0.6
UK	-4.0	-3.0	-4.0	-3.0
Materials	-7.0	-7.7	-7.0	-7.7
Communication Svs	-1.5	-1.0	-1.5	-1.0
Discretionary	5.9	4.8	5.9	4.8
Staples	-3.1	-1.8	-3.1	-1.8
Energy	-7.3	-6.4	-7.3	-6.4
Financials	-1.0	-0.4	-1.0	-0.4
Healthcare	2.3	2.9	2.3	2.9
Industrials	2.0	0.6	2.0	0.6
IT	12.2	10.0	12.2	10.0
Utilities	-13.2	-12.3	-13.2	-12.3
Real Estate	-10.9	-9.0	-10.9	-9.0
Value	-4.2	-3.8	-4.2	-3.8
Growth	12.9	8.3	12.9	8.3
Momentum	5.6	2.3	5.6	2.3
Quality	4.9	6.3	4.9	6.3
Risk	-5.4	-8.0	-5.4	-8.0
Size	-6.6	-9.5	-6.6	-9.5

Source: BofA European Equity Quant Strategy, Refinitiv, MSCI. Note: historical average performance calculated over 1993-2023

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**Exhibit 25: February sees largest gains in Expensive Value so far, while Low Growth experiences the largest losses**

% MTD returns for styles in the largest 250 European stocks (relative price return equally weighted in EUR)

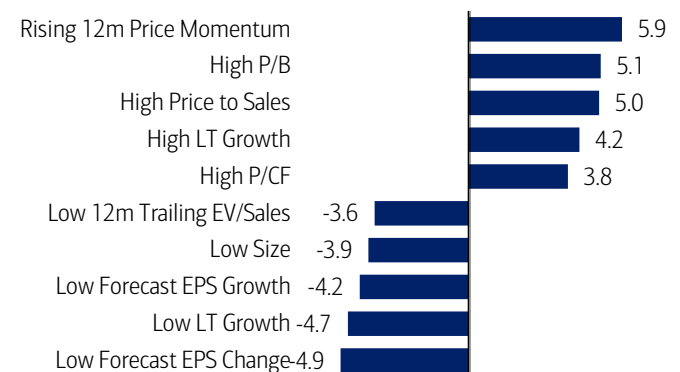


Source: BofA European Equity Quant Strategy, Factset

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**Exhibit 26: Rising 12m Price Momentum have seen the strongest gains MTD, while Low Forecast EPS Change records the largest losses**

% MTD best and worst factor in styles in the largest 250 European stocks (relative price return equally weighted in EUR)



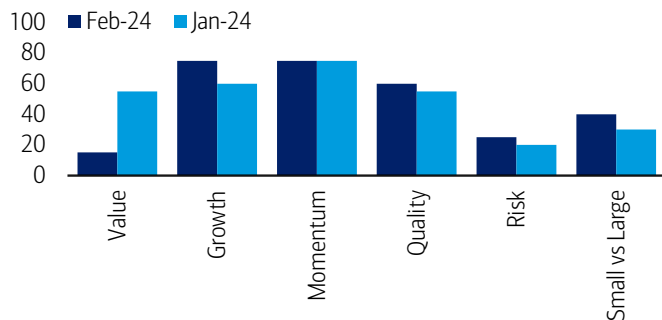
Source: BofA European Equity Quant Strategy, Factset

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### Exhibit 27: Growth and Momentum have outperformed in 15 out of 20 sectors so far in February

% of SXXP index super-sectors in which styles (L/S) are outperforming in Feb

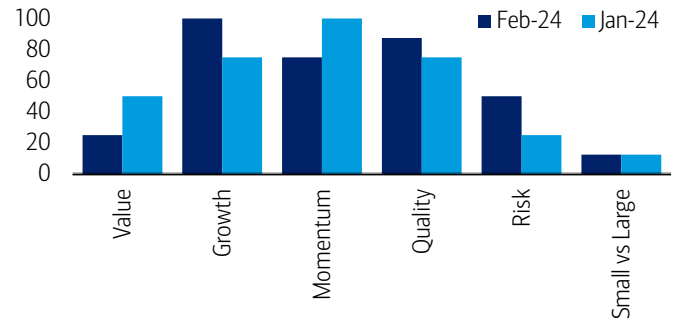


Source: BofA European Equity Quant Strategy, FactSet

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### Exhibit 28: Growth has outperformed in 8 out of 8 countries so far in February

% of SXXP index countries\* in which styles (L/S) are outperforming in Feb

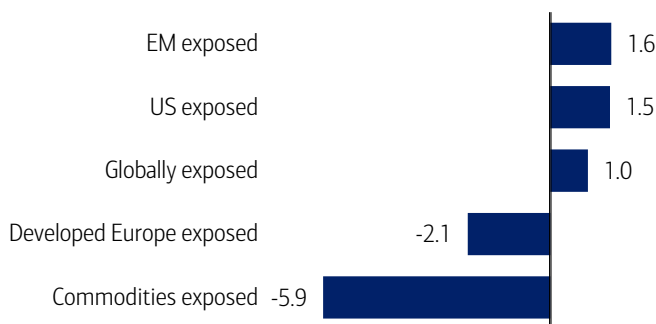


Source: BofA European Equity Quant Strategy, FactSet. Note: \* countries included: France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, UK

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### Exhibit 29: EM exposed stocks have gained the most MTD, while Commodities exposed stocks have noted the largest losses

% MTD returns for revenue exposure baskets (relative price return equally weighted in EUR)

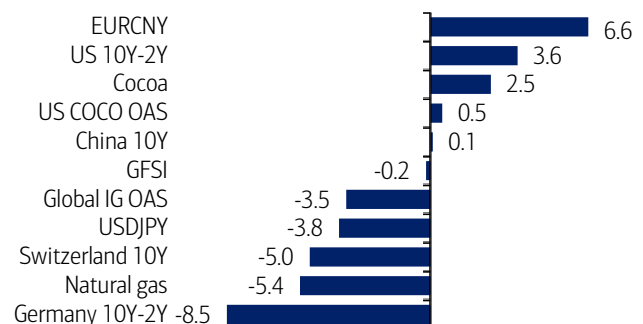


Source: BofA European Equity Quant Strategy, Factset

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### Exhibit 30: Stocks sensitive to rising EURCNY have gained the most MTD, while these sensitive to rising Germany 10Y-2Y lost the most

% MTD returns for stocks with specific cross-asset sensitivities (relative price return equally weighted in EUR)



Source: BofA European Equity Quant Strategy, Factset

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### Exhibit 31: Q1 has been historically the strongest for Sweden, IT and Low vs High Size

Historical average returns for countries, sectors, styles (L/S) in each quarter

	Germany	France	Italy	Netherlands	Spain	Sweden	Switzerland	UK			
Q1	-0.1%	1.8%	1.5%	1.5%	0.6%	3.2%	-0.3%	-2.0%			
Q2	0.2%	-0.1%	-2.3%	1.2%	0.2%	0.9%	1.1%	-0.3%			
Q3	-2.3%	-1.2%	-0.1%	-0.6%	0.1%	1.0%	0.5%	0.9%			
Q4	2.5%	0.2%	-1.0%	0.8%	0.7%	0.7%	-0.3%	-1.0%			
Quarter	Materials	Communication Svs	Discretionary	Staples	Energy	Financials	Healthcare	Industrials	IT	Utilities	Real Estate
Q1	0.9%	-1.0%	1.5%	0.8%	0.8%	-2.4%	-0.7%	1.7%	2.3%	-0.7%	-7.4%
Q2	0.6%	-4.0%	-0.4%	1.8%	2.2%	-1.4%	2.8%	0.2%	-0.4%	0.6%	-6.5%
Q3	-2.2%	-0.4%	-1.8%	2.2%	-0.3%	0.2%	2.9%	-1.0%	-1.2%	0.8%	-1.8%
Q4	1.6%	2.1%	1.2%	-2.1%	-2.4%	0.2%	-2.4%	0.8%	2.0%	-0.7%	3.2%
Size (Low vs High)											
Quarter	Value	Growth	Momentum	Quality	Risk	High					
Q1	-1.1%	3.4%	3.1%	-0.2%	0.0%	4.5%					
Q2	-1.3%	0.7%	5.9%	2.1%	-2.5%	0.0%					
Q3	0.7%	0.5%	5.1%	2.4%	-3.6%	0.8%					
Q4	0.2%	0.4%	1.6%	0.9%	3.3%	0.1%					

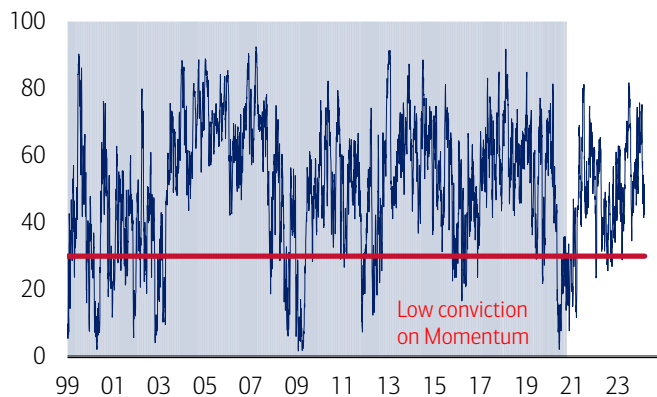
Source: BofA European Equity Quant Strategy, Refinitiv, MSCI. Note: historical average performance calculated over 1993-2023

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# European Momentum Conviction Indicator

## Exhibit 32: BofA European Momentum Conviction Indicator (MCI) stands at 42, above the threshold of 30 which signals a potential crash in the Momentum style

BofA European Momentum Conviction Indicator (100=High, 0 = Low)

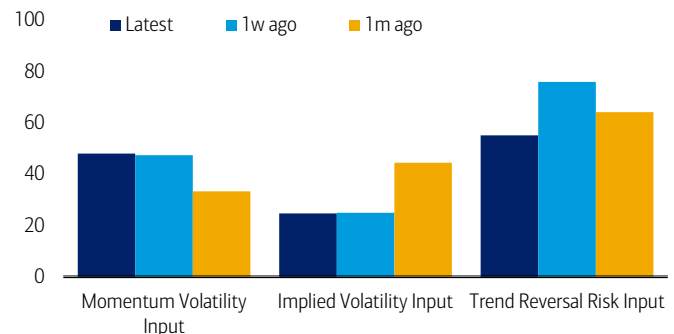


**Source:** BofA European Equity Quant Strategy, FactSet. Disclaimer: Performance through 06 October 2020 (shaded on the chart above) is backtested and does not represent the actual performance of any account or fund. Backtested performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. The indicator identified as the BofA European Conviction Momentum Indicator above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA European Equity Quant Strategy. This indicator was not created to act as a benchmark

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## Exhibit 33: Decline in Trend Reversal Risk input pushed the indicator down by 7 points over the week

BofA European Momentum Conviction Indicator's inputs latest readings (100=High, 0=Low)



**Source:** BofA European Equity Quant Strategy, FactSet. For definitions of the inputs please see European Momentum Conviction Indicator

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## Valuations

### Exhibit 34: The most attractive multiple on z-score is 12m fwd Buyback yield at 1.6%, while the least attractive is 12m fwd DY at 3.8%

MSCI Europe valuation multiples

Market	Latest Value	Historical Z-Score	2-Year Z-Score	5-Year Z-Score	10-Year Z-Score	Historical Average	2-Year Average	5-Year Average	10-Year Average
12m trailing P/B	2.0	0.3	1.3	0.8	1.2	1.8	1.9	1.9	1.8
Shiller P/E	24.7	0.1	1.1	1.2	1.8	23.6	23.6	21.7	20.1
12m trailing P/E	14.7	-0.1	0.2	-0.6	-1.0	15.3	14.5	16.8	17.7
12m fwd P/E	12.5	0.0	2.4	-0.1	0.0	12.4	11.6	12.6	12.5
12m trailing EV/EBITDA	8.1	0.1	-0.2	-0.8	-0.7	8.0	8.2	8.9	8.7
12m fwd EV/EBITDA	7.9	0.3	0.1	-0.7	-0.5	7.5	7.8	8.3	8.1
12m trailing Net Debt/EBITDA	1.3	-0.7	1.2	-0.8	-1.0	1.4	1.3	1.5	1.5
12m fwd Net Debt/EBITDA	1.2	-0.4	1.8	-0.6	-0.7	1.3	1.1	1.3	1.3
12m trailing Interest Coverage	8.9	-0.8	1.7	0.0	-0.5	7.5	10.8	9.0	7.9
12m fwd Interest Coverage	9.1	-0.4	1.6	0.4	-0.2	8.4	10.9	9.7	8.8
12m trailing DY	3.6	0.2	-1.9	-0.9	-0.7	3.7	3.2	3.1	3.2
12m fwd DY	3.8	1.0	0.7	0.5	0.9	4.7	3.9	3.9	4.2
12m trailing ROE	14.1	-0.9	-2.1	-1.5	-2.1	12.0	13.1	11.5	10.6
12m fwd ROE	14.0	-0.4	0.3	-0.9	-1.5	13.2	14.0	12.5	12.2
12m trailing Buyback yield	1.8	-1.4	0.1	-1.1	-	1.1	1.9	1.3	-
12m fwd Buyback yield	1.6	-1.6	-1.2	0.4	-	1.1	1.6	1.2	-
12m trailing Cash Yield	5.3	-1.1	0.1	-0.8	-	4.5	5.3	4.7	-
12m fwd Cash Yield	5.2	-0.9	0.3	-0.7	-	4.7	5.3	4.8	-
12m trailing FCF Yield	7.3	-0.1	1.5	-0.1	-0.5	7.3	8.1	7.3	6.9
12m fwd FCF Yield	8.0	0.4	1.5	0.3	-0.2	8.4	8.9	8.2	7.8

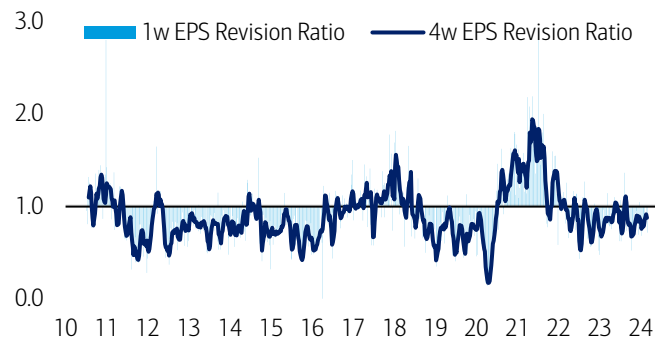
**Source:** BofA European Equity Quant Strategy, Refinitiv Datastream, IBES. Note: Z-scores have been inversed for 12m Trailing and Forward Return on Equity, Dividend Yield, Interest Coverage, FCF Yield, Buyback Yield, and Cash Yield. Consequently, for Dividend Yield a Z-score of -0.8 implies that the current level is 0.8 standard deviations higher than the historical average, while for the P/E ratio a Z-score of -0.8 implies that the current level is 0.8 standard deviations below the historical average.

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# Revisions

## Exhibit 35: Global 4-week EPS Revision Ratio stands at 0.87, down from last week

Ratio of BofA analysts' EPS upgrades to downgrades

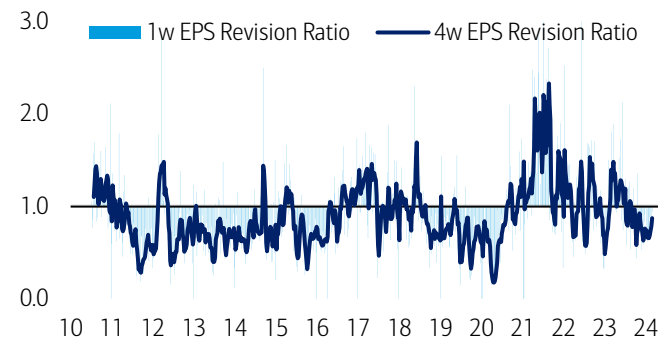


Source: BofA European Equity Quant Strategy, IQDatabase

BofA GLOBAL RESEARCH

## Exhibit 36: European 4-week EPS Revision Ratio stands at 0.87, up from last week

Ratio of BofA analysts' EPS upgrades to downgrades

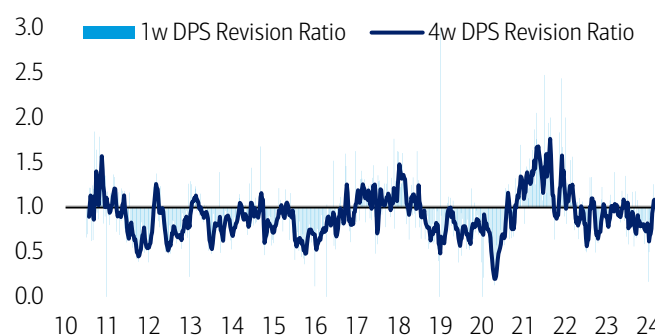


Source: BofA European Equity Quant Strategy, IQDatabase

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## Exhibit 37: Global 4-week DPS Revision Ratio stands at 1.08, up from last week

Ratio of BofA analysts' DPS upgrades to downgrades

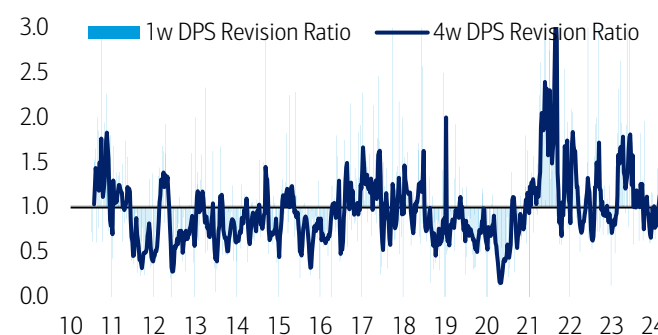


Source: BofA European Equity Quant Strategy, IQDatabase

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## Exhibit 38: European 4-week DPS Revision Ratio stands at 1.13, up from last week

Ratio of BofA analysts' DPS upgrades to downgrades

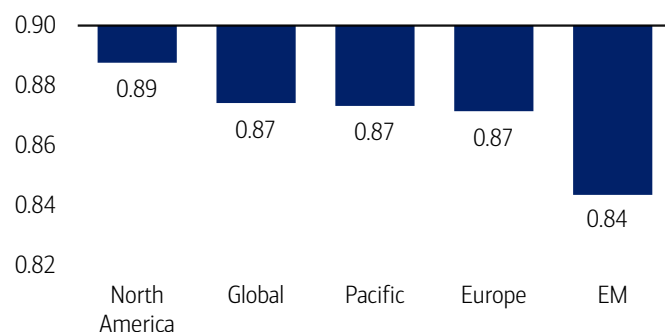


Source: BofA European Equity Quant Strategy, IQDatabase

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## Exhibit 39: Currently, the 4-week EPS Revision Ratio is the strongest in North America, while it is the weakest in EM

BofA 4w EPS Revision Ratio by region

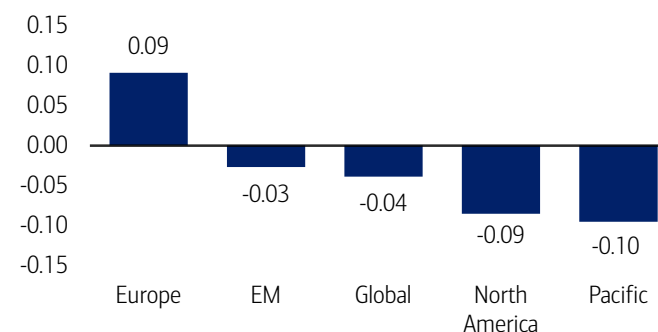


Source: BofA European Equity Quant Strategy, IQDatabase

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## Exhibit 40: Over the past week, the 4-week EPS Revision Ratio improved only in Europe, while it deteriorated the most in Pacific

1w change in 4w BofA EPS Revision Ratio by region

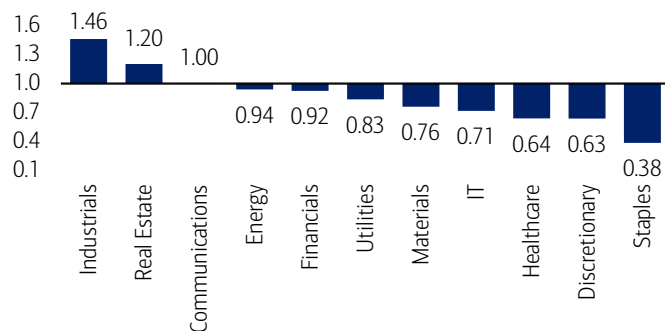


Source: BofA European Equity Quant Strategy, IQDatabase

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**Exhibit 41: Currently, the 4-week EPS Revision Ratio is the strongest in Industrials, while it is the weakest in Staples**

BofA 4w European EPS Revision Ratio by sector

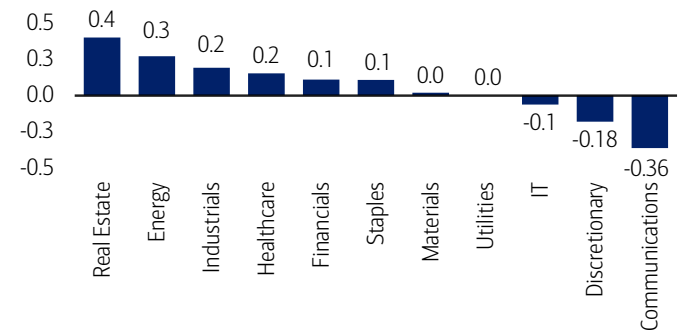


Source: BofA European Equity Quant Strategy, IQDatabase

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**Exhibit 42: Over the past week, 4-week EPS Revision Ratio improved the most in Real Estate, while it deteriorated the most in Communications**

1w change in 4w BofA European EPS Revision Ratio by sector

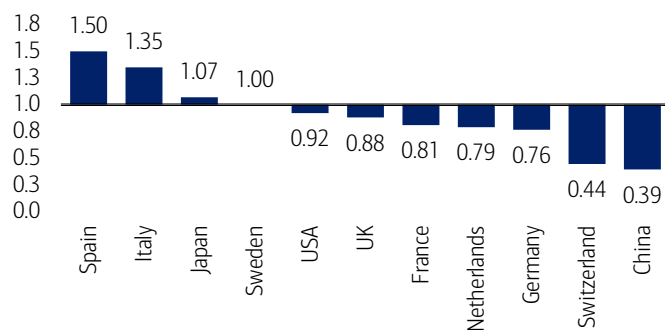


Source: BofA European Equity Quant Strategy, IQDatabase

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**Exhibit 43: Currently, the 4-week EPS Revision Ratio is the strongest in Spain, while it is the weakest in China**

BofA 4w EPS Revision Ratio by country

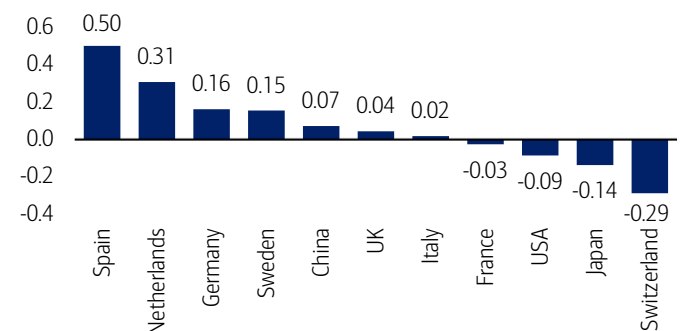


Source: BofA European Equity Quant Strategy, IQDatabase

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**Exhibit 44: Over the past week, the 4-week EPS Revision Ratio improved the most in Spain, while it deteriorated the most in Switzerland**

1w change in 4w BofA EPS Revision Ratio by country

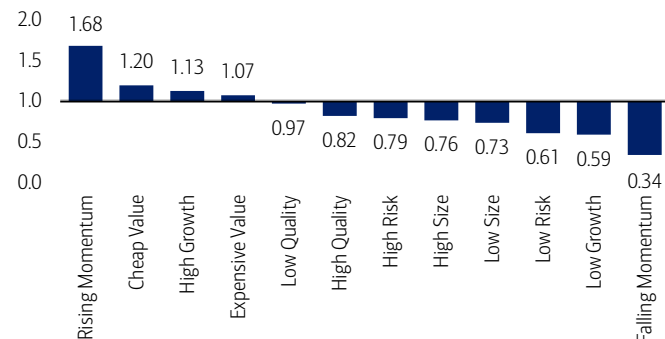


Source: BofA European Equity Quant Strategy, IQDatabase

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**Exhibit 45: Currently, the 4-week EPS Revision Ratio is the strongest in Rising Momentum, while it is the weakest in Falling Momentum**

BofA 4w European EPS Revision Ratio by style

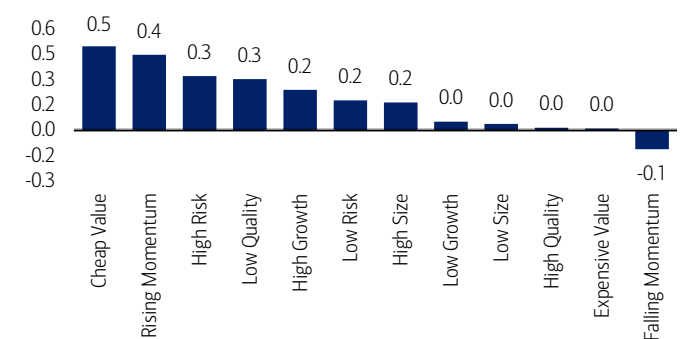


Source: BofA European Equity Quant Strategy, IQDatabase

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**Exhibit 46: Over the past week, 4-week EPS Revision Ratio improved the most in Cheap Value, while it deteriorated only in Falling Momentum**

1w change in 4w BofA European EPS Revision Ratio by style



Source: BofA European Equity Quant Strategy, IQDatabase

BofA GLOBAL RESEARCH

**Exhibit 47: Top 5 and bottom 5 stocks with the largest upgrades in BofA FY1 EPS over last week**

BofA European covered stocks with Buy/Underperform rating that saw the largest increase/decrease in BofA FY1 EPS forecast over the past week

**Top 5 stocks with the highest upgrade in FY1 EPS**

BBG				MCap	FY1	FY2	FY3	
Ticker	Name	Country	Sector	(EUR bn)	EPS Chg	EPS Chg	EPS Chg	ChgDate
RR/ LN	Rolls Royce	UK	Industrials	35.0	41%	40%	35%	23/02/2024
SALM NO	SalMar	Norway	Staples	7.5	22%	-7%	0%	23/02/2024
BAKKA NO	Bakkafrost	Norway	Staples	3.4	8%	3%	0%	23/02/2024
BAMI IM	Banco BPM	Italy	Financials	8.3	4%	13%	9%	23/02/2024
ELIS FP	Elis	France	Industrials	4.9	2%	1%	2%	21/02/2024

Source: IQDatabase

**Bottom 5 stocks with the highest downgrade in FY1 EPS**

BBG				MCap	FY1	FY2	FY3	
Ticker	Name	Country	Sector	(EUR bn)	EPS Chg	EPS Chg	EPS Chg	ChgDate
EMBACB SE	Embracer Fresenius Medical	Sweden	Comm. Services	2.0	-18%	-22%	-13%	21/02/2024
FME GR	Medical	Germany	Healthcare	10.7	-7%	-5%	-5%	21/02/2024
NIBEB SS	Nibe Industrier	Sweden	Industrials	10.4	-3%	1%	1%	19/02/2024
BC8 GR	Bechtel Ag	Germany	IT	6.0	-2%	0%	-1%	19/02/2024
UMI BB	Umicore	Belgium	Materials	4.8	-1%	2%	0%	19/02/2024

BofA GLOBAL RESEARCH

## European Momentum Conviction Indicator

We launched our European Momentum Conviction Indicator on 06 October 2020. This indicator aims to identify episodes where volatility of a cross-sectional approach to Momentum investing is too high to support consistent returns or when trends might break. We use three inputs to construct the indicator, these inputs are equally weighted and form an indicator scaled from 0-100 (100 = highest conviction in positive Momentum performance, 0 = lowest conviction):

- Momentum Volatility Risk:** Volatility of Momentum performance for risk-management is crucial as uncertainty on the economic cycle rises. High levels of volatility can compromise Momentum's performance. Since the strategy's volatility tends to be clustered, we use a GARCH (1, 1) model to forecast 1-step-ahead volatility levels and adjust the exposure to Momentum accordingly (high volatility levels = low confidence in Momentum).
- Implied Volatility for Equities:** Large Momentum drawdowns tend to occur following turning points in market cycles. We use a combination of fast- and slow- moving averages of implied volatility in European markets to detect volatility shocks and retracement. A warning signal against Momentum is given when implied volatility retraces following a volatility shock. This often corresponds to the start of a recovery phase following a recessionary episode.
- Trend Reversal Risk:** This is a contrarian signal monitoring the 2nd derivative of Momentum's short-term performance. This input identifies episodes where Momentum's performance has accelerated near term – signalling the formation of a potential "Momentum bubble" or an episode of potential profit booking. We estimate the risk of trend reversal using the month-on-month difference in trends of the Momentum strategy.

We define a Momentum crash as a drawdown of the 12m price momentum long-short strategy exceeding 10% over 20 trading days. Since the performance of the strategy is computed on a daily basis, we define unique drawdown events as the maximum drawdown of the strategy over a 2-month window (1 month look-back, 1 month look forward). Following this methodology, we identify 30 Momentum crashes from January 1999 to September 2020. A Momentum crash is said to be correctly predicted if any of the input of the European Momentum Conviction Indicator is less than 50 (bearish signal on Momentum) 20 days prior to the drawdown event.

Using the definitions above, our backtested results suggest that the inputs of the European Momentum Conviction Indicator would have correctly identified 28 of these 30 drawdowns (i.e., sending a bearish signal 20 trading days prior to the event).

**Exhibit 48: Backtested (shaded) and live results of the European Momentum Conviction Indicator**

Momentum Conviction Indicator and its inputs readings 1, 4, 8 weeks before the momentum crashes

1 Week Before the Crash (defined as local minimum of 4W performance)						4 Weeks Before the Crash						8 Weeks Before the Crash (defined as local minimum of 4W performance)					
1W Forward Momentum						4W Forward Momentum						8W Forward Momentum					
Date	Volatility	Implied Volatility	Trend Reversal	EMCI	Returns	Date	Volatility	Implied Volatility	Trend Reversal	EMCI	Returns	Date	Volatility	Implied Volatility	Trend Reversal	EMCI	Returns
10-Feb-99	37	1	7	15	-3%	20-Jan-99	17	1	6	8	-20%	04-Jan-99		7	38	22	-12%
29-Apr-99	71	12	51	45	-4%	08-Apr-99	96	3	47	49	-12%	11-Mar-99	98	1	5	35	-14%
28-Mar-00	2	12	13	9	-26%	07-Mar-00	8	15	4	9	-49%	08-Feb-00	0	73	1	24	-31%
04-Aug-00	42	89	27	53	1%	14-Jul-00	38	95	61	65	-14%	16-Jun-00	17	86	43	48	-7%
11-Oct-00	37	6	25	23	0%	20-Sep-00	34	51	95	60	-16%	23-Aug-00	52	83	95	77	-9%
06-Dec-00	23	32	13	23	-6%	15-Nov-00	34	15	40	30	-26%	18-Oct-00	36	35	37	36	-29%
25-Apr-01	10	55	53	39	-9%	03-Apr-01	27	94	38	53	-24%	06-Mar-01	39	36	59	44	-7%
12-Nov-01	13	38	46	33	-15%	22-Oct-01	12	98	32	47	-26%	24-Sep-01	30	100	35	55	-36%
29-Oct-02	5	3	11	6	-10%	08-Oct-02	5	96	58	53	-25%	10-Sep-02	17	91	52	53	-4%
23-Apr-03	28	93	36	52	-6%	01-Apr-03	21	16	32	23	-25%	04-Mar-03	19	2	18	13	-22%
11-Jun-03	47	94	29	56	0%	21-May-03	37	95	38	57	-16%	23-Apr-03	28	93	36	52	-25%
25-Jul-03	79	76	78	78	-4%	04-Jul-03	67	92	25	61	-11%	06-Jun-03	51	94	29	58	-9%
01-Jun-06	31	95	83	70	-7%	11-May-06	71	35	85	64	-13%	12-Apr-06	77	41	76	65	-10%
05-Aug-08	5	9	37	17	-8%	15-Jul-08	19	28	56	34	-36%	17-Jun-08	31	8	57	32	-24%
11-Dec-08	3	79	53	45	4%	20-Nov-08	5	99	13	39	-20%	23-Oct-08	6	100	6	37	-2%
30-Mar-09	2	3	12	6	-16%	09-Mar-09	1	1	23	8	-51%	09-Feb-09	2	0	24	9	-28%
30-Jul-09	49	85	51	62	-7%	09-Jul-09	47	59	53	53	-18%	11-Jun-09	41	92	39	57	-8%
01-Feb-11	28	40	41	36	0%	11-Jan-11	57	29	52	46	-16%	14-Dec-10	30	29	77	45	-8%
03-Oct-11	12	97	36	48	-7%	12-Sep-11	38	98	21	52	-25%	15-Aug-11	17	98	58	58	-8%
27-Jan-12	27	87	24	46	-1%	06-Jan-12	44	23	47	38	-18%	08-Dec-11	23	2	57	27	-9%
14-Aug-12	26	35	34	32	-5%	24-Jul-12	35	67	46	49	-19%	26-Jun-12	27	13	44	28	-14%
08-Apr-14	50	47	81	59	-6%	18-Mar-14	65	68	86	73	-10%	18-Feb-14	76	60	89	75	-9%
19-Oct-15	23	22	48	31	2%	28-Sep-15	49	89	33	57	-12%	31-Aug-15	41	91	67	67	1%
24-Feb-16	16	89	73	59	-9%	03-Feb-16	33	77	61	57	-15%	06-Jan-16	46	10	38	31	-10%
15-Apr-16	11	37	27	25	-7%	24-Mar-16	31	58	66	51	-12%	25-Feb-16	14	88	74	59	-21%
07-Nov-16	49	19	64	44	-5%	17-Oct-16	50	22	67	46	-11%	19-Sep-16	38	38	69	48	-11%
19-Dec-16	35	66	23	41	0%	28-Nov-16	50	9	57	39	-13%	31-Oct-16	50	34	58	48	-14%
12-Apr-19	48	34	55	46	-4%	22-Mar-19	58	59	70	62	-11%	22-Feb-19	46	65	74	62	-9%
09-Sep-19	29	62	59	50	-6%	19-Aug-19	44	89	50	61	-14%	22-Jul-19	70	67	66	68	-10%
01-Jun-20	2	0	49	17	-21%	11-May-20	11	2	48	20	-27%	13-Apr-20	8	99	13	40	-12%
17-Nov-20	2	22	4	9	-8%	27-Oct-20	17	5	19	14	-32%	29-Sep-20	17	3	19	13	-33%
01-Mar-21	14	14	17	15	-9%	08-Feb-21	23	10	46	26	-18%	11-Jan-21	13	15	47	25	-16%
18-Jan-22	28	14	29	24	-1%	28-Dec-21	34	62	65	54	-10%	30-Nov-21	28	83	60	57	-13%
22-Jul-22	35	8	34	26	0%	01-Jul-22	43	5	54	34	-8%	03-Jun-22	43	10	53	35	-8%
04-Nov-22	18	45	56	40	-15%	14-Oct-22	24	70	72	55	-17%	16-Sep-22	28	12	70	36	-13%
26-Jan-23	33	83	67	61	-7%	05-Jan-23	24	81	55	53	-11%	08-Dec-22	20	91	30	47	-13%

**Source:** BofA European Equity Quant Strategy. 12m Momentum performance is computed from January 1999 using daily price returns in Euro, assuming daily rebalancing and excluding transaction costs. This performance is backtested (shaded) and does not represent the actual performance of any account or fund. Backtested (shaded) performance depicts the theoretical (not actual) performance of a particular strategy over the time period indicated. No representation is being made that any actual portfolio is likely to have achieved returns similar to those shown herein. The strategy indicated above is intended to be an indicative metric only and may not be used for reference purposes or as a measure of performance for any financial instrument or contract, or otherwise relied upon by third parties for any other purpose, without the prior written consent of BofA Global Research. This strategy was not created to act as a benchmark.

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## Definitions

**Value:** Equal weighted combination of factors - Forecast/Trailing EPS Yield, Dividend Yield, Cash to Price Yield, Book to Price Yield, Price to Sales and Forecast PEG.

**Growth:** Equal weighted combination of factors - Forecast/Trailing EPS Growth, Forecast EPS Change and Forecast Long Term Growth.

**Momentum:** Equal weighted combination of factors - 3m EPS Change, EPS Revision Ratio, Sales Revision Ratio, 1m Price Change and 12m Price Change.

**Quality:** Equal weighted combination of factors - Return on Assets, Return on Capital, Return on Equity, 5yr Return on Equity and Leverage.

**Risk:** Equal weighted combination of factors - EPS Estimate Dispersion and Beta.

**Size:** Month end market capitalisation.

### Value Factors

**Forecast Earnings Yield:** I/B/E/S next twelve month EPS divided by month end Price.

**Trailing Earnings Yield:** Trailing twelve month EPS divided by month end Price.

**Dividend Yield:** Trailing twelve month Dividend per share divided by month end Price.

**Cash to Price:** Trailing 12 month cash earnings per share divided by month end price. Cash Earnings are defined as earnings plus depreciation on fixed assets. (i.e. –not free cash flow).

**Book to Price:** Trailing twelve month Book Value per share divided by month end price.

**Price to Sales:** Month End Price divided by last reported Sales per share figure.

**Forecast PEG:** I/B/E/S FY1 P/E divided by I/B/E/S Long Term Growth Estimate.

Other valuations:

**Free Cash Flow Yield:** Trailing twelve month difference between operating cash flow and capital expenditures net of fixed assets disposals divided by the month end price

**EV/EBITDA:** Latest reported divided EV (market capitalisation plus total debt minus cash and cash equivalents) divided by the trailing twelve month EBITDA

### Growth Factors

**Forecast Earnings Growth:** (I/B/E/S FY2 Mean EPS Est. less latest reported EPS) divided by the latest reported EPS.

**Trailing Earnings Growth:** Difference between Trailing Twelve Month EPS and Trailing Twelve Month EPS a year prior divided by absolute value of Trailing Twelve Month EPS a year prior.

**Forecast EPS Change:** Difference between I/B/E/S Forecast Twelve Month EPS and I/B/E/S Forecast Twelve Month EPS a year prior divided by I/B/E/S Forecast Twelve Month EPS a year prior.

**Long Term Mean EPS Growth:** I/B/E/S Mean Long Term Growth Estimate (+5years).

### Momentum Factors

**3 Month Change in Mean EPS:** Difference between I/B/E/S FY1 mean EPS and I/B/E/S FY1 mean EPS 3 months prior, divided by absolute value of I/B/E/S FY1 mean EPS 3 months prior.

**Earnings Revision Ratio:** ((# of FY1 and FY2 upward EPS revisions over last 3 months)-(# of FY1 and FY2 downward EPS revisions over last 3 months))/ # of FY1 and FY2 estimates over last 3 months.

**Sales Revision Ratio:** ((# of FY1 and FY2 upward Sales revisions over last 3 months)-(# of FY1 and FY2 downward Sales revisions over last 3 months))/ # of FY1 and FY2 estimates over last 3 months.

**1m Price Momentum:** Latest month-end price / 1-month ago price.

**12m Price Momentum:** Latest month-end price / 12-months ago price.

### Risk Factors

**Beta:** Calculated using regression analysis on 60 months of price performance versus the benchmark. High beta stocks have a high correlation to the market, whilst low beta stocks have a low correlation to market movements.



**EPS Estimate Dispersion:** Coefficient of variation of I/B/E/S FY2 EPS estimates. The coefficient of variation is defined as the Standard Deviation of Estimates divided by the absolute value of the Mean Estimate.

### Quality Factors

**Return on Assets:** Annual Earnings divided by Total Assets.

**Return on Capital:** Annual Earnings divided by Total Capital.

**Return on Equity – 1yr:** Trailing Twelve Month EPS divided by Trailing Twelve Month Book value per Share.

**Return on Equity – 5yrs:** Average RoE over the last 5 years.

**Leverage:** Annual Long Term Debt/(Annual Long Term Debt +Annual Book Value).

### Ownership

**Top 50 European Fund Managers Weight:** Relative weight of the Top 50 European fund managers in the stock vs their European market holdings. 100=neutral, >100 is overweight and <100 is underweight

**% Top 50 European Fund Managers Weight:** Based on the above we calculate the percentage of fund managers who are underweight.

### Dividend Factors

**12m Fwd dividend yield:** 12m fwd DPS per share estimate from I/B/E/S divided by month end price

**5 Year Dividend Growth:** CAGR of trailing FY0, FY1 and FY2 and forecast FY1 and FY2 DPS growth.

**Dividend Revision Ratio:** ((# of FY1 and FY2 upward DPS revisions over last 3 months)-(# of FY1 and FY2 downward DPS revisions over last 3 months))/ # of FY1 and FY2 estimates over last 3 months.

**DPS Estimate Dispersion:** Coefficient of variation of I/B/E/S FY2 DPS estimates. The coefficient of variation is defined as the Standard Deviation of Estimates divided by the absolute value of the Mean Estimate.

**Payout Ratio:** prospective FY1 DPS divided by the prospective FY1 EPS.

# Disclosures

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Investment rating	Total return expectation (within 12-month period of date of initial rating)	Ratings dispersion guidelines for coverage cluster <sup>R1</sup>
Buy	≥ 10%	≤ 70%
Neutral	≥ 0%	≤ 30%
Underperform	N/A	≥ 20%

<sup>R1</sup> Ratings dispersions may vary from time to time where BofA Global Research believes it better reflects the investment prospects of stocks in a Coverage Cluster.

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