

Retailing Industry

Retail weekly/JMA weather outlook: 1 Mar 2024

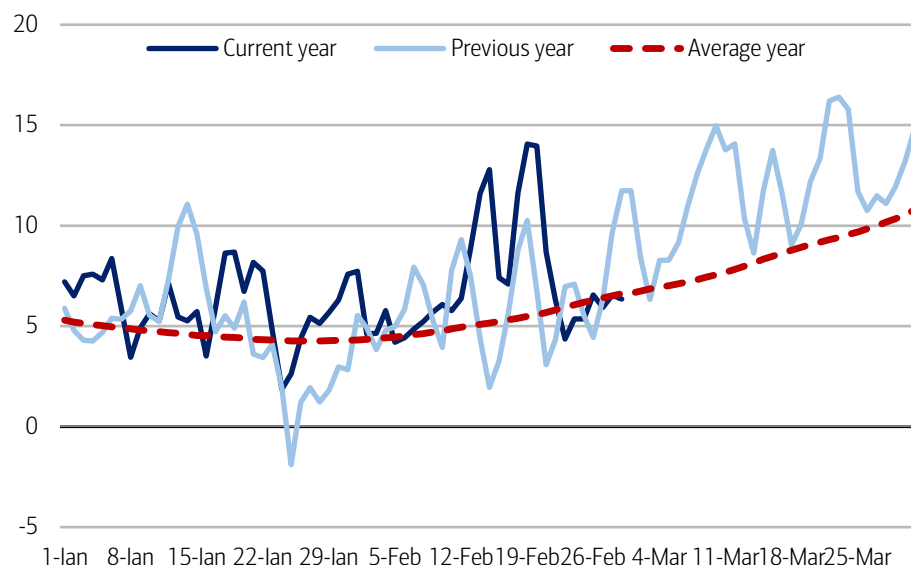
Industry Overview

March temperatures forecast to be average or higher

On 29 February, the Japan Meteorological Agency (JMA) updated its weather forecast for the next month (2 Mar to 1 Apr), forecasting temperatures in north/east/west Japan will be on a par with or higher than the average for this time of year, with little chance of a cold front appearing. JMA forecasts that early March temperatures will be in line with the average temperature, with an increasing likelihood of higher-than-average temperatures from mid-March. However, we must note that last year's weather conditions were good, with record-setting highs in north/east/west Japan in March 2023.

Exhibit 2: Current-/previous-year and average temperatures (average for 10 largest cities)

A cold front caused lower-than-average temperatures in some regions over the past week



Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

01 March 2024

Equity
Japan
Retailing

Arashi Nishizawa >>
Research Analyst
BofAS Japan
+81 3 6225 6402
arashi.nishizawa@bofa.com

Ayane Kanazawa >>
Research Analyst
BofAS Japan
+81 3 6225 8490
ayane.kanazawa@bofa.com

Exhibit 1: Next week's events

Please confirm official times with companies

4 Mar (Mon)
Monthly data (Apparel specialty retailers, Nitori)
5 Mar (Tue)
Monthly data (ABC-Mart, JINS, etc.)

Source: BofA Global Research
BofA GLOBAL RESEARCH

Related reports:

[BofA Consumer Investment View: Vol.1 2024: Revisiting pre-Covid, as many factors fade out 02 February 2024](#)

>> Employed by a non-US affiliate of BofAS and is not registered/qualified as a research analyst under the FINRA rules.

Refer to "Other Important Disclosures" for information on certain BofA Securities entities that take responsibility for the information herein in particular jurisdictions.

BofA Securities does and seeks to do business with issuers covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Refer to important disclosures on page 25 to 27.

12666066

Timestamp: 01 March 2024 03:37AM EST

Retail share-price performance

Exhibit 3: Retail share price performance (1W, 1M, 3M, 6M, 2023)

Retail Index was -1.3 points vs. TOPIX over the last week, -2.8% over the last month, and -5.3%, over the last three months

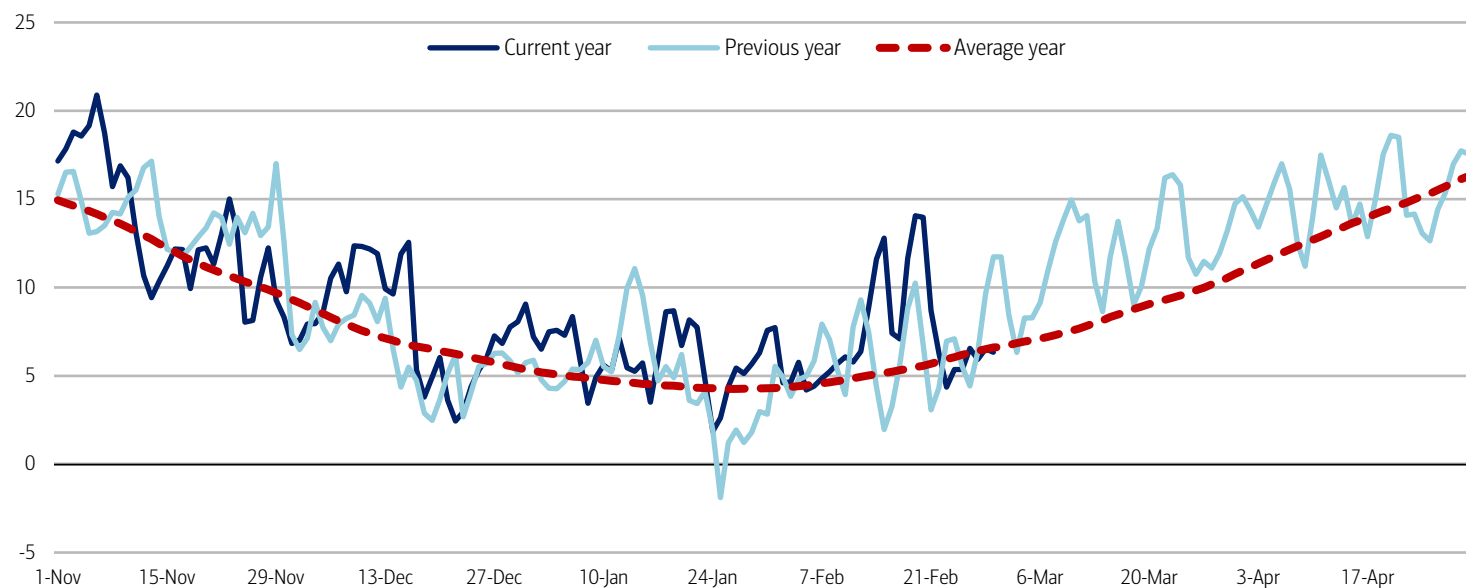
	1 Week	1 Month	3 Month	6 Month	YTD	2023
Daikokuten Bussan	8.3 Asics	42.5 Daikokuten Bussan	51.3 Lawson	45.2 Asics	44.7 Pal	96.4
Welcia	6.8 Snow Peak	41.6 Lawson	38.6 Daikokuten Bussan	43.4 Lawson	40.7 Onward	55.2
Sundrug	6.1 Isetan Mitsukoshi	20.7 Nitori	33.0 Nitori	34.2 Isetan Mitsukoshi	37.8 Asics	51.6
Descente	5.3 Mizuno	19.0 Mizuno	30.2 Fast Retailing	33.1 Snow Peak	34.6 Ryohin Keikaku	50.7
Kobe Bussan	5.3 Lawson	18.7 Seria	26.2 Nishimatsuya	31.1 Mizuno	33.8 Adastria	48.2
K's	5.2 Nitori	14.4 Snow Peak	23.9 Seria	29.7 Fast Retailing	26.8 Lawson	44.8
Ryohin Keikaku	4.9 Fast Retailing	13.7 Isetan Mitsukoshi	23.6 Ryohin Keikaku	26.2 Daikokuten Bussan	25.0 Daikokuten Bussan	40.2
Kusuri no Aoki	4.5 7&i	11.8 Asics	22.0 Isetan Mitsukoshi	24.2 Nitori	18.1 Mizuno	39.7
JINS	4.1 Daikokuten Bussan	10.1 Fast Retailing	19.6 Kura Sushi	23.3 7&i	17.4 PPH	37.1
Kohnan Shoji	3.9 J.Front	9.5 World	15.4 Asics	22.0 J.Front	16.7 Skylark	35.2
7&i	3.5 PPH	9.1 DCM	14.1 PPH	18.5 Takashimaya	16.1 Nishimatsuya	33.6
Komeri	2.9 H2O	8.7 Aeon	13.9 JINS	18.4 Life	15.0 Kojima	32.1
Nishimatsuya	2.7 Welcia	8.6 TOPIX	13.7 Bic Camera	17.9 Kura Sushi	15.0 Fast Retailing	30.3
Fast Retailing	2.5 World	8.4 7&i	13.5 Adastria	16.7 TOPIX	14.5 World	27.6
Edion	2.2 Takashimaya	7.9 Komeri	12.0 DCM	16.2 Seria	14.0 Tsuruha	26.7
Life	2.0 TOPIX	6.9 Life	11.8 Kojima	15.8 H2O	13.8 Arcs	26.7
Asics	1.8 Ryohin Keikaku	6.9 Sugii	11.3 Arcs	15.7 Komeri	13.1 Kusuri no Aoki	25.3
TOPIX	1.8 Seria	6.7 Kohnan Shoji	11.1 World	15.4 World	12.6 TOPIX	25.1
Nitori	1.8 Kobe Bussan	5.2 Arcs	10.8 Aeon	15.4 Aeon	11.1 Life	25.0
Yaoko	1.8 Komeri	4.6 Takashimaya	10.7 TOPIX	15.3 Welcia	10.9 Edion	22.2
DCM	1.5 Sundrug	4.5 Tokyo Base	9.6 ZOZO	14.8 DCM	10.8 Cosmos	22.1
Tokyo Base	1.4 Kohnan Shoji	4.3 ZOZO	9.5 Kohnan Shoji	14.5 Sugii	9.3 Izumi	21.1
Tsuruha	1.3 TOPIX Retail	4.1 J.Front	9.3 Mizuno	12.6 Arcs	9.3 Shimamura	20.3
Pal	1.2 DCM	3.8 TOPIX Retail	8.5 Komeri	10.2 TOPIX Retail	9.2 Yaoko	19.0
Goldwin	1.2 Nishimatsuya	3.7 Welcia	7.3 Yaoko	10.4 Nishimatsuya	7.3 H2O	18.4
Skylark	1.0 ZOZO	2.8 Yaoko	5.7 TOPIX Retail	10.2 ZOZO	6.9 K's	17.1
Yamada	0.6 Arcs	2.4 FOOD & LIFE	5.1 7&i	9.6 Yaoko	6.7 TOPIX Retail	15.8
TOPIX Retail	0.5 Life	1.1 Kura Sushi	5.1 Sugii	9.6 Skylark	5.5 Sundrug	15.8
ABC-Mart	0.3 Adastria	0.6 H2O	5.1 Sundrug	8.8 Onward	4.8 Descente	15.2
ZOZO	0.2 Kura Sushi	0.5 PPH	5.1 Kobe Bussan	8.6 Kohnan Shoji	4.3 Kohnan Shoji	14.8
Workman	0.1 Sugii	0.5 Sundrug	4.8 FOOD & LIFE	7.5 Sundrug	3.9 Kura Sushi	13.7
Lawson	-0.1 FOOD & LIFE	0.4 ABC-Mart	4.2 Skylark	7.4 Marui	3.6 MatsukiyoCocokara	13.5
Snow Peak	-0.2 Marui	0.1 Bic Camera	3.7 Pal	6.8 ABC-Mart	3.6 Aeon	13.2
Arcs	-0.3 Aeon	-0.1 Marui	3.5 Edion	5.1 PPH	3.2 Komeri	13.1
Isetan Mitsukoshi	-0.3 Yaoko	-0.2 Edion	3.4 Tsuruha	4.2 FOOD & LIFE	2.2 Yonex	12.4
Alpen	-0.8 JINS	-0.2 Kobe Bussan	3.0 Shimamura	4.1 Ryohin Keikaku	2.1 FOOD & LIFE	11.5
Bic Camera	-0.9 Izumi	-1.4 Nishimatsuya	2.8 Life	3.5 Alpen	1.4 Nitori	10.7
Seria	-0.9 ABC-Mart	-1.5 Ryohin Keikaku	2.8 Alpen	2.6 Shimamura	0.8 Sugii	10.4
Marui	-1.0 Descente	-1.9 K's	2.5 Welcia	2.3 Adastria	-0.4 Kobe Bussan	9.9
PPH	-1.1 Kusuri no Aoki	-2.2 Alpen	1.5 Kusuri no Aoki	1.0 Yamada	-1.2 Marui	8.4
Adastria	-1.1 K's	-2.3 Yamada	1.0 Takashimaya	-0.7 MatsukiyoCocokara	-1.2 DCM	7.6
Yonex	-1.2 Shimamura	-2.3 Onward	1.0 H2O	-2.8 K's	-1.3 Tokyo Base	7.1
Sugii	-1.5 U.S.M.H.	-2.9 Kojima	0.4 Onward	-3.4 Tokyo Base	-1.7 J.Front	6.8
United Arrows	-1.6 Alpen	-3.2 Skylark	-0.6 K's	-3.7 Edion	-1.8 Isetan Mitsukoshi	6.8
Cosmos	-1.6 Tsuruha	-3.3 Pal	-2.3 ABC-Mart	-4.1 Workman	-3.4 Goldwin	6.1
Takashimaya	-1.6 Yamada	-3.4 MatsukiyoCocokara	-2.6 Marui	-4.5 U.S.M.H.	-3.5 Bic Camera	4.8
J.Front	-1.8 Pal	-3.8 U.S.M.H.	-2.8 Tokyo Base	-4.5 Kusuri no Aoki	-3.6 Takashimaya	4.3
FOOD & LIFE	-2.0 Kojima	-4.1 Izumi	-3.1 J.Front	-4.5 Kobe Bussan	-4.8 JINS	2.0
U.S.M.H.	-2.2 Workman	-4.5 Shimamura	-5.2 Yamada	-6.3 Izumi	-4.9 United Arrows	1.9
Aeon	-2.2 Tokyo Base	-4.8 Cosmos	-8.4 Descente	-7.4 Bic Camera	-5.3 Alpen	-0.6
H2O	-3.0 Yonex	-4.9 Tsuruha	-9.6 Izumi	-10.6 United Arrows	-7.2 ABC-Mart	-1.0
Shimamura	-3.4 Edion	-6.0 Adastria	-9.7 U.S.M.H.	-12.9 Kojima	-7.4 7&i	-1.1
Kojima	-3.5 Onward	-7.2 Kusuri no Aoki	-10.2 MatsukiyoCocokara	-13.8 Pal	-8.1 ZOZO	-2.6
Kura Sushi	-3.8 Bic Camera	-7.6 United Arrows	-10.9 Goldwin	-15.2 Descente	-9.1 Yamada	-6.1
Mizuno	-4.2 MatsukiyoCocokara	-9.2 JINS	-12.6 Cosmos	-15.5 Cosmos	-11.1 Seria	-8.4
World	-4.3 Cosmos	-9.2 Workman	-13.3 United Arrows	-20.4 Goldwin	-12.2 U.S.M.H.	-9.6
Onward	-4.7 Goldwin	-9.3 Yonex	-14.1 Snow Peak	-21.0 JINS	-13.1 Welcia	-19.8
Izumi	-5.3 United Arrows	-9.4 Descente	-21.0 Yonex	-21.2 Tsuruha	-14.1 Workman	-23.0
MatsukiyoCocokara	-8.0 Skylark	-9.6 Goldwin	-22.7 Workman	-23.6 Yonex	-16.5 Snow Peak	-60.7

Note: Includes companies outside of our coverage

Source: Bloomberg, BofA Global Research

Exhibit 4: Current-/previous-year and average temperatures (average for 10 largest cities)

A cold front caused lower-than-average temperatures in some regions over the past week



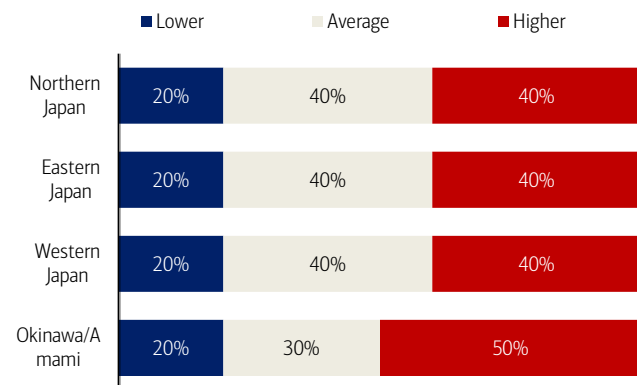
Note: Simple average for 10 cities (Tokyo, Yokohama, Osaka, Nagoya, Sapporo, Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama). Average data based on 1991-2020.

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 5: Temperature forecasts by region (2 Mar - 1 Apr)

Forecast for higher than average in Okinawa/Amami, and at or higher than average temperatures in other regions

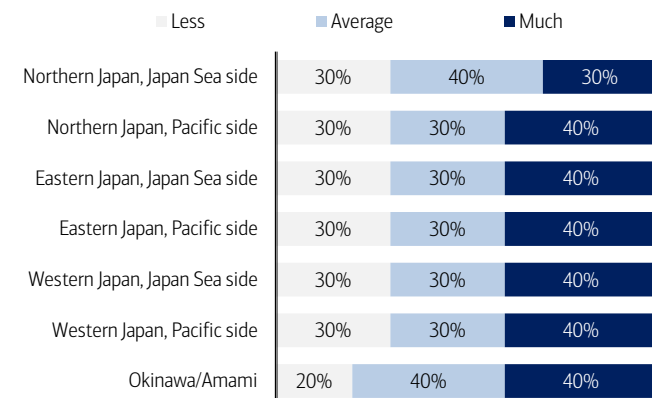


Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 6: Precipitation forecasts by region (2 Mar - 1 Apr)

Forecast for at average precipitation in Northern Japan, Japan Sea side, at or above average in Okinawa/Amami, and above average in other regions



Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 7: Monthly temperature trends

Tokyo, Yokohama, Osaka, Nagoya, Sapporo

	Tokyo				Yokohama				Osaka				Nagoya				Sapporo			
	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs
2021/1	5.4	-1.7	0.0	-0.5	6.2	-1.6	0.1	-0.5	6.2	-2.4	0.0	-0.4	5.0	-2.6	0.2	-0.4	-4.4	-2.1	-1.2	-1.3
2021/2	8.5	0.2	2.4	1.5	9.1	0.2	2.4	1.5	8.7	0.7	2.1	1.7	7.5	0.4	2.0	1.4	-2.2	-0.1	0.5	0.4
2021/3	12.8	2.1	3.4	2.5	13.2	2.0	3.5	2.5	12.2	0.8	2.3	1.5	12.0	1.3	2.8	1.8	3.8	0.5	2.7	1.5
2021/4	15.1	2.3	0.8	0.4	15.2	1.8	0.7	0.2	15.5	1.8	0.3	0.0	15.2	1.8	0.6	0.3	7.9	1.1	0.6	0.2
2021/5	19.6	0.1	0.8	-0.3	19.6	-0.1	0.8	-0.3	20.0	-0.8	-0.1	-0.8	19.5	-1.1	0.1	-0.9	13.1	-0.6	0.1	-1.3
2021/6	22.7	-0.5	0.8	0.3	22.7	-0.7	0.9	0.3	23.9	-1.0	0.3	0.3	23.4	-1.2	0.4	0.1	18.9	0.6	1.9	2.0
2021/7	25.9	1.6	0.2	0.0	26.0	1.6	0.4	0.2	27.9	1.9	0.2	0.1	27.4	2.0	0.5	0.3	23.9	2.7	2.8	2.3
2021/8	27.4	-1.7	0.5	-0.4	27.5	-1.6	0.5	-0.4	28.1	-2.6	-0.9	-1.5	27.8	-2.5	-0.4	-1.3	22.9	-0.4	0.6	0.4
2021/9	22.3	-1.9	-1.0	-1.6	22.6	-2.0	-1.1	-1.6	24.8	-1.0	-0.4	-0.5	24.1	-1.3	-0.4	-0.8	18.8	-1.3	0.2	-0.3
2021/10	18.2	0.7	0.2	-0.1	18.7	0.8	0.2	-0.1	20.3	1.6	0.8	0.7	19.9	1.9	1.3	0.9	12.5	-0.6	0.4	0.2
2021/11	13.7	-0.3	1.2	0.8	14.3	-0.4	0.9	0.6	14.1	-0.6	0.3	0.2	13.0	-1.0	0.4	-0.1	7.3	1.0	2.1	2.7
2021/12	7.9	0.2	0.2	-0.1	8.8	0.0	0.1	-0.2	8.8	0.1	0.1	0.0	7.3	-0.1	0.1	-0.3	-0.5	1.1	0.4	0.8
2022/1	4.9	-0.5	-0.5	-0.8	5.5	-0.7	-0.6	-1.1	5.6	-0.6	-0.6	-0.9	4.1	-0.9	-0.7	-1.2	-3.2	1.2	0.0	0.0
2022/2	5.2	-3.3	-0.9	-2.1	5.8	-3.3	-0.9	-2.1	5.5	-3.2	-1.1	-1.7	4.5	-3.0	-1.0	-1.8	-2.2	0.0	0.5	0.4
2022/3	10.9	-1.9	1.5	0.1	11.3	-1.9	1.6	0.1	11.4	-0.8	1.5	0.4	11.0	-1.0	1.8	0.5	2.6	-1.2	1.5	-0.1
2022/4	15.3	0.2	1.0	0.7	15.4	0.2	0.9	0.5	16.8	1.3	1.6	1.5	16.8	1.6	2.2	2.0	9.1	1.2	1.8	1.4
2022/5	18.8	-0.8	0.0	-1.0	19.0	-0.6	0.2	-0.8	20.0	0.0	-0.1	-0.6	19.5	0.0	0.1	-0.7	14.9	1.8	1.9	0.8
2022/6	23.0	0.3	1.1	0.6	22.9	0.2	1.1	0.4	24.4	0.5	0.8	0.7	24.3	0.9	1.3	0.9	16.8	-2.1	-0.2	-0.6
2022/7	27.4	1.5	1.7	1.4	27.1	1.1	1.5	1.1	28.4	0.5	0.7	0.7	27.5	0.1	0.6	0.3	23.1	-0.8	2.0	0.9
2022/8	27.5	0.1	0.6	-0.4	27.6	0.1	0.6	-0.3	29.5	1.4	0.5	0.1	28.5	0.7	0.3	-0.5	22.7	-0.2	0.4	0.4
2022/9	24.4	2.1	1.1	0.9	24.7	2.1	1.0	0.9	26.2	1.4	1.0	1.1	26.1	2.0	1.6	1.4	19.8	1.0	1.2	0.8
2022/10	17.2	-1.0	-0.8	-1.0	17.9	-0.8	-0.6	-0.8	19.0	-1.3	-0.5	-0.6	18.7	-1.2	0.1	-0.3	12.6	0.1	0.5	0.0
2022/11	14.5	0.8	2.0	1.2	15.2	0.9	1.8	1.1	15.2	1.1	1.4	1.2	14.6	1.6	2.0	1.5	7.1	-0.2	1.9	1.5
2022/12	7.5	-0.4	-0.2	-0.3	8.4	-0.4	-0.3	-0.4	7.9	-0.9	-0.8	-0.8	6.6	-0.7	-0.6	-0.9	-1.4	-0.9	-0.5	-0.2
2023/1	5.7	0.8	0.3	0.2	6.4	0.9	0.3	0.1	6.5	0.9	0.3	0.1	5.2	1.1	0.4	0.1	-4.4	-1.2	-1.2	-1.3
2023/2	7.3	2.1	1.2	0.4	7.9	2.1	1.2	0.4	7.0	1.5	0.4	-0.1	6.5	2.0	1.0	0.3	-2.7	-0.5	0.0	0.0
2023/3	12.9	2.0	3.5	1.6	13.2	1.9	3.5	1.5	13.0	1.6	3.1	1.6	12.7	1.7	3.5	1.7	4.9	2.3	3.8	2.0
2023/4	16.3	1.0	2.0	1.5	16.6	1.2	2.1	1.6	15.9	-0.9	0.7	0.4	15.9	-0.9	1.3	0.7	9.2	0.1	1.9	1.2
2023/5	19.0	0.2	0.2	-0.5	19.0	0.0	0.2	-0.6	20.0	0.0	-0.1	-0.4	20.2	0.7	0.8	0.2	13.8	-1.1	0.8	-0.4
2023/6	23.2	0.2	1.3	0.6	23.2	0.3	1.4	0.6	23.8	-0.6	0.2	-0.3	23.8	-0.5	0.8	0.0	19.3	2.5	2.3	1.7
2023/7	28.7	1.3	3.0	2.7	28.2	1.1	2.6	2.2	28.9	0.5	1.2	1.2	28.9	1.4	2.0	1.8	23.8	0.7	2.7	1.5
2023/8	29.2	1.7	2.3	1.1	29.1	1.5	2.1	1.0	29.9	0.4	0.9	0.5	29.4	0.9	1.2	0.4	26.7	4.0	4.4	4.2
2023/9	26.7	2.3	3.4	2.9	26.9	2.2	3.2	2.8	27.9	1.7	2.7	2.4	27.3	1.2	2.8	2.1	21.5	1.7	2.9	2.1
2023/10	18.9	1.7	0.9	0.6	19.5	1.6	1.0	0.7	19.3	0.3	-0.2	-0.4	18.3	-0.4	-0.3	-0.9	13.3	0.7	1.2	0.4
2023/11	14.4	-0.1	1.9	0.5	15.2	0.0	1.8	0.6	14.4	-0.8	0.6	-0.2	13.6	-1.0	1.0	-0.2	6.7	-0.4	1.5	0.5
2023/12	9.4	1.9	1.7	1.4	10.2	1.8	1.5	1.3	9.3	1.4	0.6	0.4	8.4	1.8	1.2	0.8	-0.7	0.7	0.2	0.4
2024/1	7.1	1.4	1.7	1.4	8.0	1.6	1.9	1.5	7.1	0.6	0.9	0.4	6.0	0.8	1.2	0.6	-1.8	2.6	1.4	1.7
2024/2	8.0	0.7	1.9	0.7	8.5	0.6	1.8	0.6	8.4	1.4	1.8	1.0	8.1	1.6	2.6	1.5	-1.9	0.8	0.8	0.5

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH



Exhibit 8: Monthly temperature trends

Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama

	Fukuoka				Kobe				Hiroshima				Sendai				Matsuyama			
	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs	Average	vs. last year	vs. average	vs. 5 yrs
2021/1	7.0	-2.5	0.1	-0.5	6.1	-2.7	-0.1	-0.7	5.2	-2.9	-0.2	-0.8	1.2	-2.8	-0.8	-1.3	6.2	-2.5	0.0	-0.6
2021/2	10.2	0.5	2.4	1.9	8.8	0.6	2.3	1.7	8.2	0.4	2.0	1.7	3.7	-0.7	1.3	0.5	8.9	0.5	2.1	1.6
2021/3	13.5	1.1	2.7	1.9	12.3	0.9	2.5	1.6	12.1	1.1	2.6	1.8	8.6	1.1	3.1	1.7	12.7	1.3	2.8	2.0
2021/4	16.7	2.6	1.3	0.7	15.3	1.7	0.3	-0.1	15.4	2.2	0.6	0.2	11.6	1.5	0.9	0.4	15.5	2.2	0.7	0.2
2021/5	20.4	0.0	0.5	-0.4	19.7	-0.9	-0.1	-0.8	19.5	-0.8	-0.1	-0.8	17.0	0.2	1.4	0.0	19.5	-0.6	0.1	-0.6
2021/6	24.2	-0.7	0.9	0.5	23.7	-0.6	0.3	0.4	23.8	-0.4	0.6	0.5	20.6	-0.6	1.4	0.8	23.4	-0.8	0.5	0.2
2021/7	28.9	3.4	1.5	1.2	27.5	1.8	0.4	0.2	27.6	2.4	0.4	0.2	24.1	2.8	1.2	0.6	27.2	1.6	0.1	-0.1
2021/8	27.5	-2.7	-0.9	-1.9	27.8	-2.2	-0.8	-1.5	27.4	-2.5	-1.1	-1.9	24.9	-1.7	0.5	-0.4	27.5	-2.2	-0.6	-1.5
2021/9	25.9	1.4	1.2	1.0	25.1	-0.8	-0.3	-0.4	25.0	0.0	0.3	0.3	20.8	-1.7	-0.4	-1.0	25.0	-0.2	0.4	0.1
2021/10	21.0	1.6	1.4	1.0	20.6	1.5	0.8	0.6	19.9	1.2	1.1	0.7	15.8	0.2	0.1	-0.1	20.1	1.3	1.0	0.4
2021/11	13.9	-1.4	-0.3	-0.6	14.5	-0.6	0.3	0.2	13.1	-1.1	0.2	-0.1	11.1	0.3	1.3	1.3	13.7	-1.0	0.1	-0.1
2021/12	9.1	0.6	0.0	-0.3	8.9	0.1	0.1	-0.2	7.8	0.6	0.3	0.0	4.7	0.8	0.2	0.1	8.8	0.9	0.3	0.1
2022/1	6.9	-0.1	0.0	-0.6	5.7	-0.4	-0.5	-0.9	5.3	0.1	-0.1	-0.6	1.7	0.5	-0.3	-0.6	5.9	-0.3	-0.3	-0.8
2022/2	6.3	-3.9	-1.5	-2.5	5.6	-3.2	-0.9	-1.7	4.8	-3.4	-1.4	-2.1	1.9	-1.8	-0.5	-1.4	5.2	-3.7	-1.6	-2.4
2022/3	12.7	-0.8	1.9	0.7	11.5	-0.8	1.7	0.5	11.5	-0.6	2.0	0.8	6.4	-2.2	0.9	-0.8	11.9	-0.8	2.0	0.8
2022/4	16.4	-0.3	1.0	0.4	16.6	1.3	1.6	1.5	16.4	1.0	1.6	1.4	11.8	0.2	1.1	0.6	15.9	0.4	1.1	0.7
2022/5	20.6	0.2	0.7	-0.1	19.8	0.1	0.0	-0.5	20.0	0.5	0.4	-0.1	16.5	-0.5	0.9	-0.5	19.3	-0.2	-0.1	-0.7
2022/6	24.8	0.6	1.5	0.9	23.9	0.2	0.5	0.5	24.2	0.4	1.0	0.8	20.2	-0.4	1.0	0.3	24.1	0.7	1.2	0.9
2022/7	28.9	0.0	1.5	1.1	28.0	0.5	0.9	0.7	28.1	0.5	0.9	0.8	24.9	0.8	2.0	1.2	27.8	0.6	0.7	0.7
2022/8	29.8	2.3	1.4	0.8	29.2	1.4	0.6	0.2	29.2	1.8	0.7	0.3	25.1	0.2	0.7	0.0	29.1	1.6	1.0	0.5
2022/9	25.7	-0.2	1.0	0.6	26.7	1.6	1.3	1.4	26.0	1.0	1.3	1.3	22.2	1.4	1.0	0.7	26.2	1.2	1.6	1.3
2022/10	19.6	-1.4	0.0	-0.4	19.5	-1.1	-0.3	-0.4	18.9	-1.0	0.1	-0.3	15.5	-0.3	-0.2	-0.4	19.2	-0.9	0.1	-0.3
2022/11	16.2	2.3	2.0	1.8	15.8	1.3	1.6	1.4	14.9	1.8	2.0	1.7	11.9	0.8	2.1	1.6	15.5	1.8	1.9	1.7
2022/12	7.7	-1.4	-1.4	-1.4	7.9	-1.0	-0.9	-1.0	6.4	-1.4	-1.1	-1.2	4.2	-0.5	-0.3	-0.2	7.4	-1.4	-1.1	-1.1
2023/1	7.2	0.3	0.3	-0.2	6.6	0.9	0.4	0.1	5.7	0.4	0.3	-0.2	2.1	0.4	0.1	0.0	6.5	0.6	0.3	-0.1
2023/2	9.0	2.7	1.2	0.6	7.2	1.6	0.7	0.0	6.9	2.1	0.7	0.3	3.0	1.1	0.6	0.0	7.6	2.4	0.8	0.4
2023/3	13.6	0.9	2.8	1.1	13.0	1.5	3.2	1.5	12.6	1.1	3.1	1.4	9.3	2.9	3.8	1.9	12.7	0.8	2.8	1.0
2023/4	16.7	0.3	1.3	0.8	15.9	-0.7	0.9	0.6	15.7	-0.7	0.9	0.5	13.3	1.5	2.6	2.1	15.9	0.0	1.1	0.7
2023/5	20.2	-0.4	0.3	-0.5	19.8	0.0	0.0	-0.3	19.9	-0.1	0.3	-0.1	16.6	0.1	1.0	-0.3	19.8	0.5	0.4	0.0
2023/6	24.4	-0.4	1.1	0.2	23.4	-0.5	0.0	-0.3	23.3	-0.9	0.1	-0.4	21.6	1.4	2.4	1.3	23.1	-1.0	0.2	-0.4
2023/7	28.9	0.0	1.5	1.2	28.0	0.0	0.9	0.7	27.9	-0.2	0.7	0.6	26.6	1.7	3.7	3.0	28.0	0.2	0.9	1.0
2023/8	29.7	-0.1	1.3	0.6	29.7	0.5	1.1	0.7	30.0	0.8	1.5	1.0	28.6	3.5	4.2	3.1	28.9	-0.2	0.8	0.2
2023/9	26.9	1.2	2.2	1.5	27.9	1.2	2.5	2.1	27.2	1.2	2.5	2.0	25.1	2.9	3.9	3.4	27.3	1.1	2.7	1.9
2023/10	19.8	0.2	0.2	-0.1	19.6	0.1	-0.2	-0.5	18.9	0.0	0.1	-0.4	16.7	1.2	1.0	0.6	19.4	0.2	0.3	-0.2
2023/11	15.1	-1.1	0.9	0.2	14.7	-1.1	0.5	-0.3	14.0	-0.9	1.1	0.2	11.4	-0.5	1.6	0.5	14.8	-0.7	1.2	0.5
2023/12	9.9	2.2	0.8	0.7	9.7	1.8	0.9	0.7	8.2	1.8	0.7	0.5	5.7	1.5	1.2	1.2	9.3	1.9	0.8	0.7
2024/1	8.3	1.1	1.4	0.6	7.3	0.7	1.1	0.5	6.5	0.8	1.1	0.4	4.2	2.1	2.2	1.9	7.4	0.9	1.2	0.5
2024/2	9.9	0.9	2.1	1.0	8.7	1.5	2.2	1.1	8.4	1.5	2.2	1.3	4.7	1.7	2.3	1.4	9.0	1.4	2.2	1.3

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 9: Monthly precipitation trends

Tokyo, Yokohama, Osaka, Nagoya, Sapporo

	Tokyo			Yokohama			Osaka			Nagoya			Sapporo		
	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave
2021/1	-68%	-27%	-30%	-63%	-28%	-27%	6%	37%	37%	2%	11%	48%	76%	-17%	18%
2021/2	490%	57%	196%	200%	51%	125%	-30%	-26%	-14%	-13%	-28%	-3%	-50%	-15%	-2%
2021/3	32%	49%	32%	32%	57%	38%	44%	41%	61%	36%	75%	65%	-26%	2%	0%
2021/4	-47%	17%	6%	-36%	9%	6%	92%	120%	98%	73%	51%	20%	113%	105%	130%
2021/5	-16%	-29%	-16%	16%	-26%	-10%	251%	149%	162%	88%	69%	71%	68%	38%	60%
2021/6	-21%	0%	-4%	-53%	-40%	-44%	-8%	-7%	-13%	-40%	-27%	-28%	-2%	-16%	-54%
2021/7	15%	98%	111%	-3%	102%	79%	-35%	54%	27%	-23%	48%	22%	-87%	-92%	-91%
2021/8	522%	147%	135%	471%	97%	136%	175%	178%	140%	2569%	149%	153%	-13%	-14%	-37%
2021/9	89%	-1%	-5%	85%	-18%	-29%	96%	26%	11%	-3%	-3%	8%	36%	-49%	-28%
2021/10	-3%	-15%	-30%	-5%	-13%	-23%	-67%	-50%	-63%	-76%	-61%	-75%	128%	37%	39%
2021/11	541%	-3%	11%	1317%	18%	63%	110%	36%	138%	96%	-10%	60%	36%	35%	50%
2021/12	792%	100%	149%	669%	103%	104%	341%	47%	46%	305%	57%	64%	309%	-5%	18%
2022/1	-48%	-62%	-58%	-55%	-68%	-64%	-69%	-57%	-57%	-54%	-49%	-32%	88%	57%	113%
2022/2	-20%	26%	96%	-39%	-8%	40%	-63%	-73%	-63%	-27%	-47%	-23%	43%	22%	52%
2022/3	-36%	-5%	-24%	-53%	-26%	-36%	-28%	1%	3%	-58%	-27%	-40%	-31%	-30%	-35%
2022/4	44%	68%	45%	64%	79%	74%	-48%	14%	-12%	-30%	5%	-15%	-87%	-73%	-75%
2022/5	99%	42%	79%	56%	16%	44%	-76%	-41%	-53%	-35%	9%	-4%	-13%	20%	21%
2022/6	-62%	-62%	-63%	-23%	-54%	-54%	-41%	-45%	-39%	-14%	-37%	-32%	41%	18%	-27%
2022/7	-25%	49%	21%	-43%	15%	-5%	-35%	0%	-31%	17%	73%	29%	740%	-31%	-4%
2022/8	-73%	-32%	-33%	-47%	5%	15%	-77%	-35%	-55%	-44%	41%	7%	115%	84%	70%
2022/9	39%	38%	39%	55%	27%	19%	-6%	18%	4%	16%	12%	35%	20%	-38%	-7%
2022/10	-41%	-50%	-61%	-41%	-49%	-59%	35%	-32%	-51%	-14%	-66%	-77%	-47%	-27%	-35%
2022/11	10%	6%	37%	-18%	-3%	41%	-17%	12%	73%	59%	44%	162%	-46%	-28%	-25%
2022/12	-51%	-2%	7%	-52%	-4%	-14%	-78%	-68%	-65%	-72%	-56%	-53%	10%	4%	65%
2023/1	-31%	-74%	-71%	-21%	-74%	-71%	130%	-2%	5%	-4%	-51%	-35%	-58%	-34%	-28%
2023/2	-43%	-28%	-14%	-31%	-37%	-20%	103%	-45%	-15%	29%	-32%	6%	-7%	13%	23%
2023/3	31%	25%	-4%	35%	0%	-15%	-27%	-26%	-33%	12%	-18%	-34%	-35%	-54%	-55%
2023/4	-60%	-33%	-49%	-63%	-34%	-45%	69%	93%	44%	7%	13%	-6%	307%	12%	24%
2023/5	-20%	14%	13%	25%	44%	51%	190%	70%	39%	5%	15%	-9%	-68%	-61%	-62%
2023/6	442%	107%	110%	281%	76%	84%	159%	42%	71%	221%	102%	122%	88%	121%	73%
2023/7	-87%	-81%	-87%	-78%	-74%	-81%	-42%	-42%	-64%	-61%	-32%	-53%	-2%	-32%	-2%
2023/8	26%	-14%	-11%	-25%	-21%	-13%	122%	45%	5%	-20%	12%	-12%	-70%	-45%	-59%
2023/9	-26%	2%	-6%	-51%	-39%	-41%	-76%	-71%	-76%	-62%	-57%	-56%	67%	3%	96%
2023/10	25%	-37%	-34%	9%	-44%	-38%	-16%	-43%	-36%	108%	-29%	-24%	11%	-19%	-24%
2023/11	-60%	-57%	-52%	-45%	-47%	-30%	13%	28%	78%	-38%	-11%	24%	53%	11%	25%
2023/12	-65%	-66%	-68%	-48%	-50%	-60%	8%	-65%	-61%	140%	6%	13%	-61%	-59%	-42%
2024/1	132%	-40%	-23%	97%	-50%	-27%	-49%	-50%	-45%	18%	-42%	-17%	115%	42%	63%
2024/2	94%	39%	53%	104%	29%	50%	176%	53%	130%	215%	114%	195%	13%	27%	21%

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 10: Monthly precipitation trends

Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama

	Fukuoka			Kobe			Hiroshima			Sendai			Matsuyama		
	vs..	vs.	vs.	vs..	vs.	vs.	vs..	vs.	vs.	vs..	vs.	vs.	vs..	vs.	vs.
	last year	average	5 yrs ave	last year	average	5 yrs ave	last year	average	5 yrs ave	last year	average	5 yrs ave	last year	average	5 yrs ave
2021/1	-70%	-39%	-50%	-13%	42%	36%	-42%	9%	-12%	-92%	-78%	-82%	-61%	-28%	-37%
2021/2	23%	14%	28%	-38%	-39%	-39%	-7%	-12%	-14%	282%	120%	312%	25%	5%	7%
2021/3	-26%	12%	10%	-3%	3%	14%	-16%	20%	20%	136%	44%	58%	-8%	-12%	-13%
2021/4	-20%	-44%	-48%	70%	67%	52%	-8%	0%	-17%	-40%	3%	-18%	-36%	-4%	-21%
2021/5	-9%	0%	12%	172%	83%	89%	92%	48%	96%	-29%	-32%	-27%	153%	111%	166%
2021/6	-67%	-51%	-53%	-58%	-42%	-53%	-48%	-18%	-37%	43%	-57%	-44%	-50%	-48%	-49%
2021/7	-94%	-85%	-88%	-69%	-2%	-39%	-51%	36%	0%	-52%	6%	17%	-73%	-34%	-50%
2021/8	1699%	320%	437%	1947%	256%	256%	34700%	430%	527%	152%	16%	4%	3414%	273%	423%
2021/9	-21%	41%	-9%	32%	19%	-8%	52%	36%	-4%	-34%	-35%	-30%	1%	-9%	-44%
2021/10	-32%	-53%	-70%	-72%	-64%	-71%	-87%	-89%	-93%	127%	-5%	-37%	-75%	-74%	-78%
2021/11	510%	67%	206%	120%	71%	197%	316%	50%	204%	829%	11%	309%	150%	98%	232%
2021/12	6%	-33%	-37%	237%	-7%	3%	-26%	-47%	-55%	167%	30%	148%	-22%	-51%	-54%
2022/1	5%	-35%	-42%	-70%	-57%	-60%	-76%	-74%	-78%	68%	-62%	-62%	4%	-25%	-29%
2022/2	-72%	-68%	-61%	-47%	-68%	-56%	-70%	-73%	-70%	-65%	-23%	-12%	-62%	-60%	-57%
2022/3	-6%	5%	-4%	-9%	-7%	1%	-13%	5%	-8%	-33%	-4%	-19%	2%	-11%	-13%
2022/4	114%	20%	40%	-38%	3%	-16%	6%	6%	4%	2%	4%	-1%	42%	37%	23%
2022/5	-66%	-66%	-58%	-62%	-31%	-37%	-88%	-82%	-78%	23%	-17%	-9%	-79%	-55%	-57%
2022/6	13%	-45%	-33%	-14%	-50%	-50%	-46%	-56%	-57%	183%	22%	93%	-15%	-56%	-43%
2022/7	132%	-65%	-69%	33%	30%	-23%	-16%	14%	-23%	88%	100%	90%	74%	14%	-15%
2022/8	-70%	27%	-15%	-56%	58%	0%	-79%	13%	-36%	-21%	-9%	-14%	-86%	-49%	-64%
2022/9	-12%	24%	9%	-30%	-17%	-36%	1%	37%	4%	-9%	-41%	-20%	-15%	-23%	-45%
2022/10	57%	-27%	-42%	108%	-24%	-40%	91%	-80%	-83%	-72%	-73%	-84%	59%	-59%	-63%
2022/11	-78%	-63%	-37%	1%	73%	152%	-60%	-39%	9%	5%	17%	216%	-50%	-1%	19%
2022/12	-20%	-47%	-30%	-62%	-64%	-55%	-9%	-52%	-48%	-54%	-40%	-7%	-5%	-53%	-45%
2023/1	102%	30%	24%	230%	42%	42%	279%	-2%	-2%	-38%	-76%	-76%	64%	23%	23%
2023/2	167%	-14%	13%	53%	-51%	-23%	262%	-4%	30%	21%	-7%	-1%	88%	-25%	-5%
2023/3	-18%	-14%	-29%	-3%	-9%	-13%	-48%	-45%	-56%	-15%	-18%	-30%	-19%	-28%	-34%
2023/4	29%	54%	100%	55%	61%	35%	64%	75%	81%	-49%	-47%	-49%	55%	112%	82%
2023/5	447%	84%	145%	169%	85%	63%	723%	50%	86%	36%	13%	37%	349%	101%	106%
2023/6	22%	-32%	-15%	154%	26%	38%	121%	-3%	12%	-1%	20%	57%	172%	20%	70%
2023/7	409%	79%	62%	-62%	-50%	-74%	-4%	10%	-31%	-56%	-13%	-30%	7%	22%	-17%
2023/8	-38%	-22%	-53%	23%	93%	10%	-67%	-63%	-80%	-79%	-81%	-80%	53%	-23%	-41%
2023/9	-52%	-40%	-52%	-75%	-80%	-83%	-48%	-29%	-45%	138%	41%	96%	-93%	-95%	-96%
2023/10	-67%	-76%	-69%	-45%	-58%	-50%	-61%	-92%	-84%	15%	-69%	-76%	-84%	-93%	-87%
2023/11	53%	-43%	-7%	-22%	35%	51%	-21%	-52%	-23%	-34%	-23%	33%	-33%	-34%	-25%
2023/12	24%	-34%	-18%	9%	-61%	-49%	115%	4%	5%	89%	13%	55%	28%	-40%	-29%
2024/1	-17%	8%	1%	-71%	-58%	-61%	-7%	-8%	-4%	725%	95%	148%	-46%	-33%	-33%
2024/2	180%	141%	213%	240%	68%	174%	130%	121%	169%	24%	15%	19%	139%	78%	109%

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 11: Monthly sunshine hours

Tokyo, Yokohama, Osaka, Nagoya, Sapporo

	Tokyo			Yokohama			Osaka			Nagoya			Sapporo		
	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave	vs. last year	vs. average	vs. 5 yrs ave
2021/1	23%	-10%	-13%	17%	-4%	-8%	40%	20%	14%	10%	-7%	-11%	17%	21%	22%
2021/2	10%	26%	26%	12%	36%	32%	37%	35%	24%	-11%	-6%	-9%	15%	10%	11%
2021/3	6%	10%	6%	11%	13%	7%	2%	13%	0%	-4%	-3%	-11%	-7%	12%	-4%
2021/4	2%	22%	14%	0%	21%	14%	-3%	15%	8%	-14%	10%	3%	11%	18%	8%
2021/5	-14%	-16%	-27%	-12%	-13%	-24%	-23%	-17%	-27%	-29%	-26%	-33%	-28%	-26%	-34%
2021/6	-3%	6%	-9%	7%	9%	-5%	-1%	13%	-4%	-6%	1%	-16%	83%	45%	59%
2021/7	236%	6%	16%	210%	11%	17%	101%	4%	10%	124%	6%	13%	43%	70%	46%
2021/8	-31%	1%	-2%	-36%	-7%	-10%	-44%	-26%	-34%	-37%	-17%	-26%	-1%	11%	6%
2021/9	-5%	-21%	-7%	-7%	-18%	-9%	-7%	-23%	-9%	-15%	-21%	-11%	44%	26%	15%
2021/10	43%	26%	41%	41%	25%	40%	11%	22%	32%	11%	17%	30%	3%	8%	3%
2021/11	32%	38%	34%	34%	38%	34%	10%	25%	10%	-1%	20%	7%	25%	6%	6%
2021/12	21%	16%	20%	22%	16%	21%	-4%	19%	14%	-6%	-1%	0%	16%	33%	30%
2022/1	20%	7%	7%	4%	0%	-4%	-8%	11%	3%	22%	13%	12%	-22%	-6%	-10%
2022/2	-11%	12%	5%	-13%	18%	7%	-10%	22%	10%	4%	-3%	-3%	6%	17%	14%
2022/3	1%	12%	4%	2%	15%	5%	-1%	12%	0%	6%	3%	-1%	-18%	-9%	-21%
2022/4	-22%	-5%	-17%	-21%	-4%	-16%	-2%	13%	1%	-9%	0%	-10%	17%	38%	22%
2022/5	20%	1%	-7%	11%	-4%	-11%	26%	5%	-3%	39%	2%	-2%	51%	12%	7%
2022/6	27%	35%	16%	16%	27%	10%	23%	38%	15%	33%	34%	12%	-34%	-4%	-6%
2022/7	10%	17%	25%	-1%	10%	13%	-1%	3%	12%	10%	16%	25%	-37%	7%	-14%
2022/8	-14%	-14%	-18%	-10%	-16%	-19%	30%	-3%	-6%	-7%	-23%	-27%	-19%	-9%	-10%
2022/9	34%	6%	19%	37%	12%	24%	43%	10%	26%	30%	3%	12%	-3%	23%	7%
2022/10	-27%	-8%	-4%	-22%	-3%	0%	-1%	21%	22%	-4%	12%	17%	4%	12%	5%
2022/11	-22%	7%	-5%	-21%	9%	-4%	-3%	21%	3%	-4%	15%	-1%	-8%	-2%	-5%
2022/12	-13%	1%	3%	-11%	3%	6%	0%	18%	10%	4%	3%	7%	-26%	-2%	-11%
2023/1	-6%	1%	3%	0%	-1%	0%	0%	10%	3%	-5%	7%	5%	46%	37%	29%
2023/2	-6%	5%	-2%	-13%	3%	-7%	-22%	-4%	-17%	12%	9%	11%	-15%	-1%	-9%
2023/3	-16%	-6%	-13%	-13%	0%	-10%	17%	31%	17%	4%	7%	4%	36%	24%	15%
2023/4	16%	10%	-1%	18%	13%	1%	-11%	0%	-12%	1%	1%	-9%	-33%	-8%	-23%
2023/5	8%	9%	5%	15%	11%	8%	6%	11%	5%	7%	10%	7%	0%	12%	6%
2023/6	-18%	11%	-6%	-14%	10%	-6%	-39%	-15%	-29%	-37%	-15%	-28%	24%	20%	16%
2023/7	42%	65%	81%	48%	63%	75%	28%	32%	44%	25%	45%	53%	-4%	2%	-16%
2023/8	48%	28%	13%	52%	27%	17%	2%	-1%	-5%	39%	7%	3%	15%	4%	7%
2023/9	7%	13%	25%	17%	31%	40%	5%	16%	29%	11%	14%	26%	-27%	-10%	-23%
2023/10	68%	55%	55%	58%	53%	52%	6%	29%	16%	15%	29%	22%	8%	22%	12%
2023/11	9%	17%	3%	6%	15%	2%	4%	25%	6%	-5%	9%	-7%	9%	7%	3%
2023/12	13%	14%	21%	11%	15%	23%	10%	30%	21%	9%	12%	18%	33%	31%	20%
2024/1	2%	3%	6%	11%	10%	13%	-6%	4%	-2%	-6%	1%	0%	-35%	-10%	-21%
2024/2	-15%	-11%	-17%	-15%	-12%	-21%	-14%	-18%	-24%	-16%	-9%	-8%	24%	23%	16%

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 12: Monthly sunshine hours

Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama

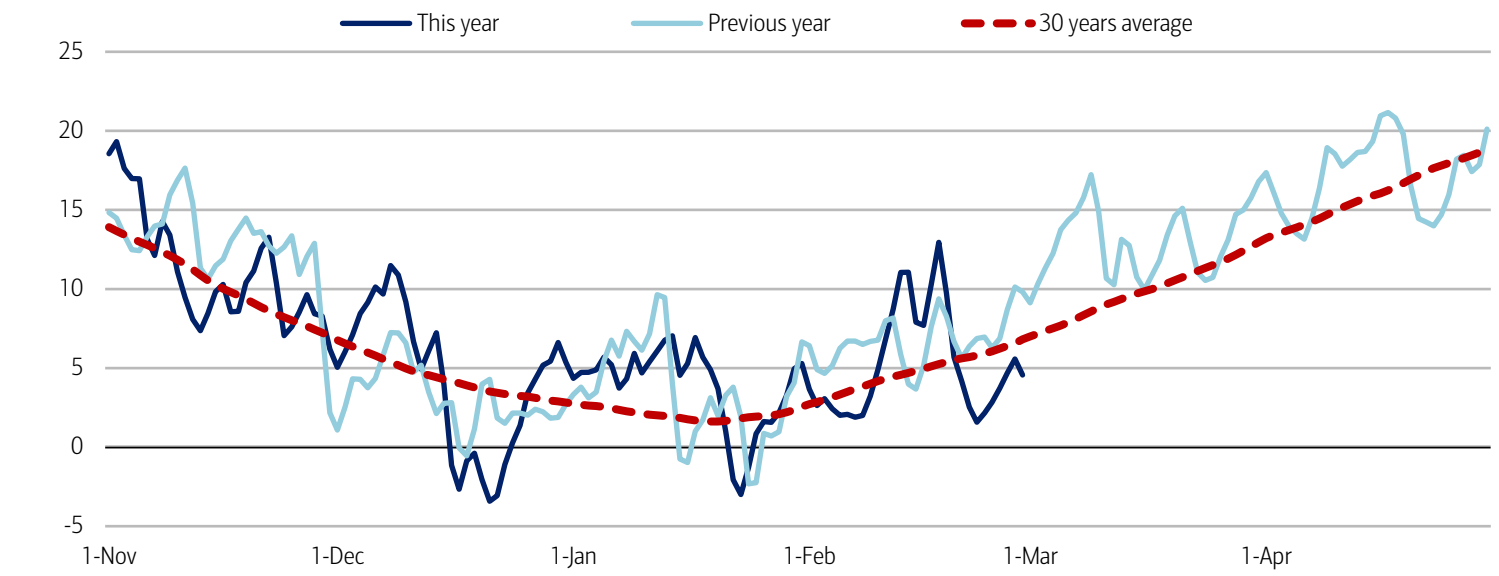
	Fukuoka			Kobe			Hiroshima			Sendai			Matsuyama		
	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.	vs.
	last year	average	5 yrs ave	last year	average	5 yrs ave	last year	average	5 yrs ave	last year	average	5 yrs ave	last year	average	5 yrs ave
2021/1	27%	14%	12%	31%	15%	11%	21%	21%	15%	7%	-4%	-4%	25%	21%	23%
2021/2	28%	41%	34%	30%	36%	28%	26%	41%	33%	25%	14%	8%	14%	26%	25%
2021/3	5%	16%	4%	-3%	12%	2%	6%	13%	3%	6%	9%	0%	14%	11%	4%
2021/4	-7%	14%	7%	-2%	16%	10%	-7%	13%	4%	10%	18%	15%	-7%	16%	7%
2021/5	-17%	-12%	-22%	-23%	-17%	-27%	-25%	-25%	-31%	2%	1%	-10%	-30%	-23%	-31%
2021/6	1%	29%	5%	6%	10%	-1%	-8%	6%	-5%	-8%	14%	-2%	-7%	9%	-2%
2021/7	132%	17%	11%	112%	4%	10%	105%	-100%	-100%	177%	9%	9%	85%	6%	9%
2021/8	-43%	-28%	-41%	-46%	-28%	-36%	-44%	-29%	-38%	-33%	-4%	-8%	-46%	-29%	-37%
2021/9	-11%	-9%	9%	-6%	-22%	-9%	-27%	-31%	-17%	52%	9%	12%	-22%	-29%	-13%
2021/10	4%	25%	40%	14%	22%	37%	9%	29%	44%	9%	-6%	-1%	17%	28%	43%
2021/11	-1%	8%	-2%	6%	22%	7%	-8%	14%	2%	11%	29%	19%	-8%	17%	3%
2021/12	-9%	6%	12%	-16%	6%	3%	-7%	4%	14%	11%	-1%	-7%	0%	16%	19%
2022/1	28%	46%	30%	-4%	10%	4%	-3%	17%	5%	25%	21%	17%	-2%	18%	7%
2022/2	-18%	16%	0%	-9%	25%	13%	-12%	24%	8%	-13%	-2%	-8%	-11%	12%	5%
2022/3	-8%	6%	-7%	-5%	6%	-3%	-15%	-4%	-13%	3%	11%	3%	-10%	1%	-6%
2022/4	5%	20%	7%	-5%	10%	-1%	2%	15%	3%	-3%	15%	8%	-6%	9%	-5%
2022/5	25%	10%	2%	31%	8%	-1%	55%	16%	12%	13%	14%	2%	35%	4%	-1%
2022/6	1%	30%	0%	11%	23%	6%	14%	20%	3%	-1%	13%	-5%	23%	34%	15%
2022/7	-6%	9%	7%	5%	9%	19%	-11%	-11%	-2%	4%	12%	12%	-11%	-6%	2%
2022/8	40%	1%	-7%	27%	-9%	-12%	30%	-8%	-11%	-18%	-22%	-20%	35%	-3%	-6%
2022/9	5%	-4%	7%	39%	9%	24%	15%	-21%	-8%	-11%	-3%	-8%	3%	-27%	-14%
2022/10	-3%	21%	20%	-9%	11%	13%	-8%	18%	15%	10%	3%	16%	-7%	19%	18%
2022/11	26%	36%	20%	1%	23%	5%	8%	23%	7%	-12%	14%	-1%	13%	32%	11%
2022/12	-11%	-6%	1%	9%	16%	12%	3%	7%	13%	-8%	-9%	-14%	-11%	3%	3%
2023/1	-20%	16%	1%	-1%	9%	5%	1%	18%	7%	-28%	-13%	-18%	-4%	13%	3%
2023/2	-9%	6%	-8%	-25%	-7%	-19%	-20%	0%	-15%	5%	3%	-3%	-8%	3%	-5%
2023/3	16%	23%	7%	21%	28%	17%	26%	21%	11%	0%	11%	0%	20%	20%	12%
2023/4	-9%	9%	-5%	-8%	1%	-10%	-9%	5%	-8%	-2%	13%	4%	-4%	5%	-10%
2023/5	-11%	-2%	-7%	2%	11%	4%	-14%	0%	-3%	-4%	10%	-2%	-2%	2%	0%
2023/6	-23%	0%	-23%	-35%	-20%	-29%	-29%	-15%	-26%	0%	13%	-3%	-42%	-22%	-34%
2023/7	-9%	-1%	-1%	13%	23%	32%	28%	14%	26%	45%	63%	73%	15%	8%	21%
2023/8	10%	12%	8%	15%	5%	3%	11%	2%	1%	114%	67%	58%	-7%	-10%	-11%
2023/9	10%	5%	14%	7%	17%	30%	19%	-6%	11%	7%	4%	9%	45%	6%	27%
2023/10	-1%	20%	7%	15%	28%	18%	5%	24%	10%	34%	38%	44%	4%	24%	11%
2023/11	-21%	8%	-10%	-4%	19%	0%	-3%	19%	0%	4%	19%	2%	-8%	21%	-2%
2023/12	0%	-6%	-2%	4%	21%	15%	-1%	6%	10%	19%	8%	7%	7%	10%	9%
2024/1	-5%	10%	-8%	-5%	3%	-1%	-14%	2%	-12%	35%	17%	15%	-1%	12%	-1%
2024/2	-21%	-17%	-27%	-15%	-20%	-27%	-1%	-1%	-13%	-11%	-7%	-9%	-13%	-10%	-16%

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH

China temperature trends

Exhibit 13: China temperature trends (current-year, previous-year, and 30-year averages)
Temperatures recently down YoY and below historical average over the past week



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 14: China monthly temperatures (simple average)
Above historical average but down YoY for Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
vs. last year	0.3	0.9	-1.2	0.5	0.7	1.5	-0.9	-0.2	2.0	-2.6	-0.3	2.9	0.2	-0.3	1.0	0.2	-0.1	-0.6	0.6	1.5	-1.6	1.1	0.3	-1.5												
vs. average year	2.8	1.5	0.1	1.5	1.7	2.1	1.6	0.2	2.5	-1.2	1.4	1.9	3.0	1.2	1.0	1.6	1.6	1.5	2.2	1.8	0.9	-0.1	1.7	0.5												

Note: Feb 2024 temperature is the average as of 29 Feb

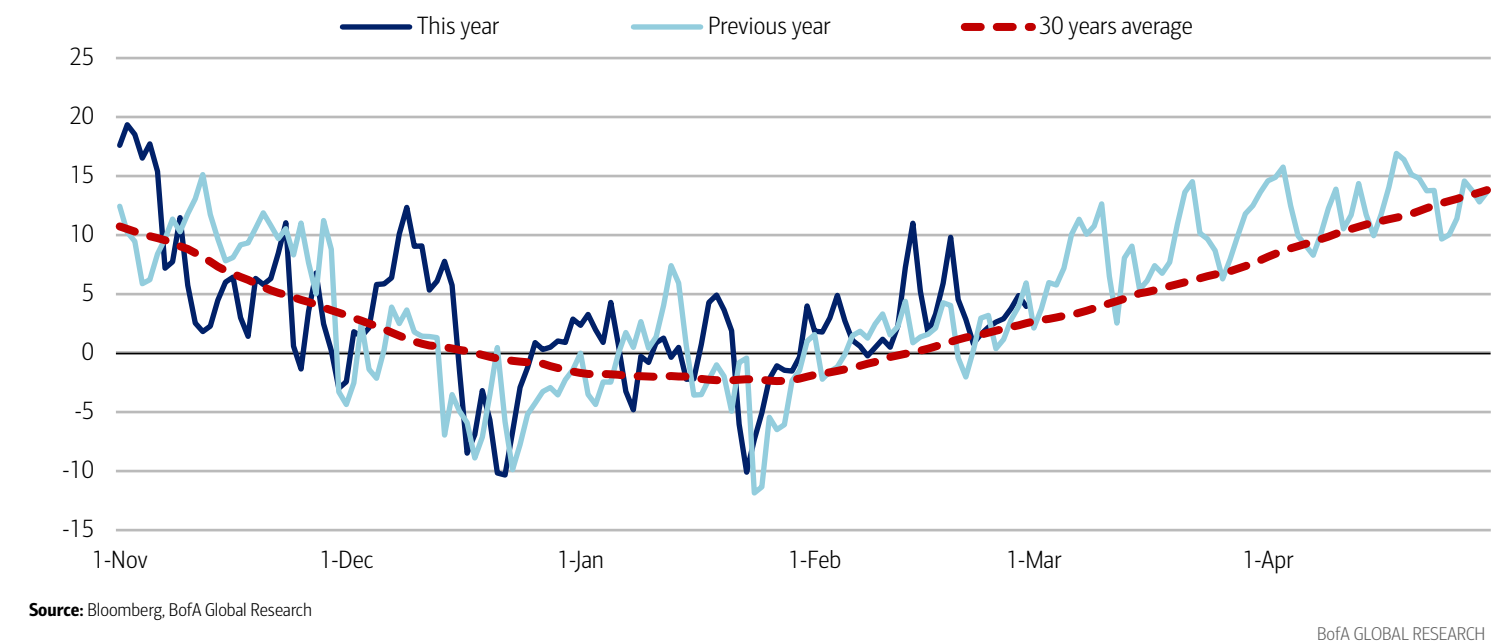
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Korea temperature trends

Exhibit 15: Korea temperature trends (current-year, previous-year, and 30-year averages)
Temperatures on par with last year



BofA GLOBAL RESEARCH

Exhibit 16: Korea monthly temperatures (simple average)
Monthly average remains above historical average and up YoY for Feb

	2022												2023												2024	
	3	4	5	6	7	8	9	10	11	12			1	2	3	4	5	6	7	8	9	10	11	12	1	2
vs. last year	-0.9	0.5	1.4	0.6	-0.3	0.2	-0.6	-1.3	1.6	-3.3			0.4	2.8	1.5	-0.6	0.1	0.1	-0.2	1.3	1.6	1.2	-2.3	3.7	1.2	1.6
vs. average year	1.9	2.5	1.9	2.0	2.6	1.0	1.2	-0.3	2.4	-3.0			0.4	1.3	3.5	1.9	2.0	2.0	2.4	2.2	2.8	0.9	0.0	0.7	1.6	3.0

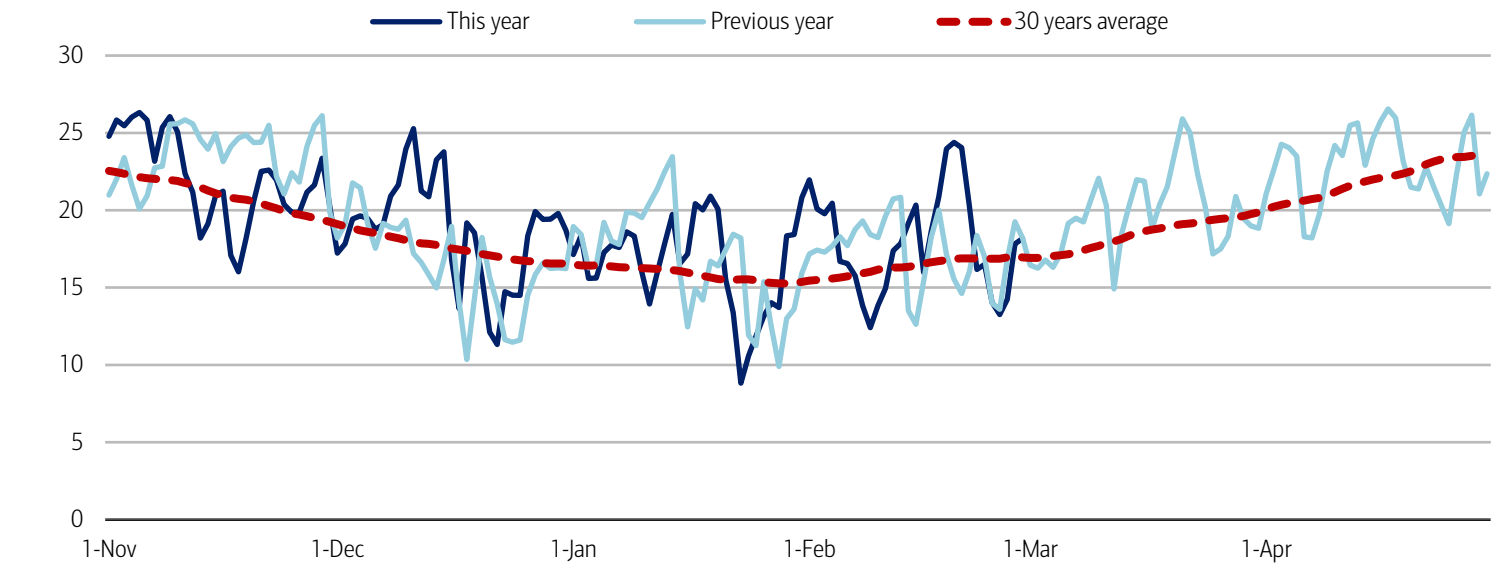
Note: Feb 2024 temperature is the average as of 29 Feb
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Taiwan temperature trends

Exhibit 17: Taiwan temperature trends (current-year, previous-year, and 30-year averages)
Temperatures on par with last year



Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH

Exhibit 18: Taiwan monthly temperatures (simple average)
Above historical average and up YoY for Feb

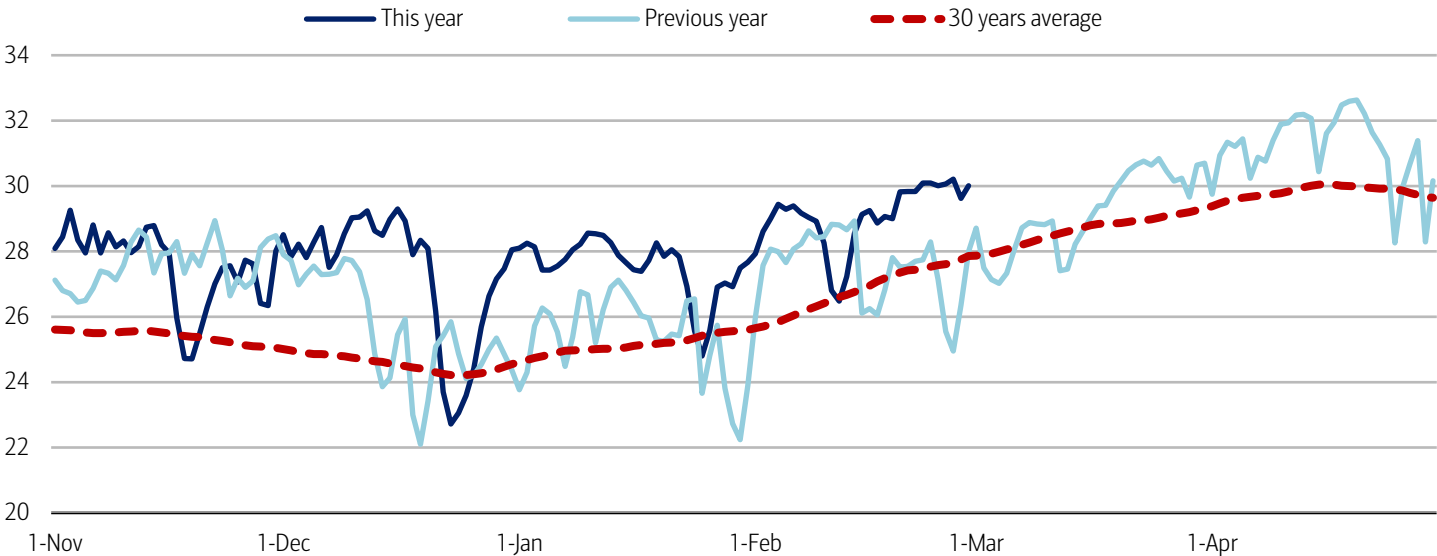
	2022												2023												2024					
	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		1	2				
vs. last year	0.4	-0.2	-4.8	-1.3	0.1	1.3	-2.1	-1.2	2.3	-1.7	-0.4	1.1	-1.2	0.4	2.4	0.7	-0.3	-1.0	1.6	1.0	-1.4	2.2	-0.2	0.6						
vs. average year	2.5	0.4	-1.6	0.4	1.2	1.6	0.2	0.3	2.5	-1.1	0.9	0.9	1.4	0.9	0.8	1.1	0.9	0.7	1.8	1.3	1.1	1.1	0.7	1.5						

Note: Feb 2024 temperature is the average as of 29 Feb
Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH



Thailand temperature trends

Exhibit 19: Thailand temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past two weeks or so



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 20: Thailand monthly temperatures (simple average)
Monthly average remains up YoY and above historical average in Feb

	2022												2023												2024				
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	1	2	3	4	5
vs. last year	-0.3	0.5	-1.2	-0.6	-0.1	-0.5	0.0	-0.3	0.1	0.0	-1.5	0.5	-0.2	1.9	2.5	0.8	0.7	1.1	0.9	1.0	-0.1	1.7	2.2	1.5					
vs. average year	0.7	-0.5	-0.4	1.2	1.3	1.2	0.9	1.2	2.2	1.1	0.3	0.7	0.5	1.4	2.2	2.0	2.0	2.2	1.8	2.2	2.1	2.8	2.4	2.3					

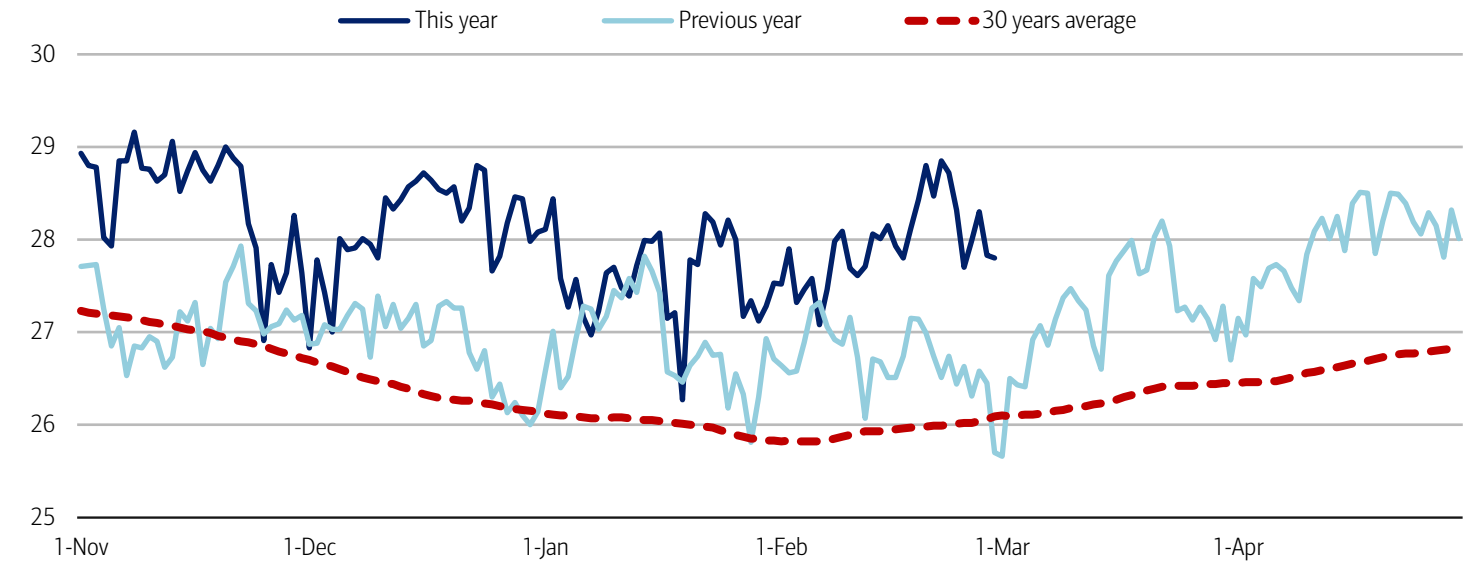
Note: Feb 2024 temperature is the average as of 29 Feb

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Indonesia temperature trends

Exhibit 21: Indonesia temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past month



Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH

Exhibit 22: Indonesia monthly temperatures (simple average)
Monthly average remains up YoY and above historical average in Feb

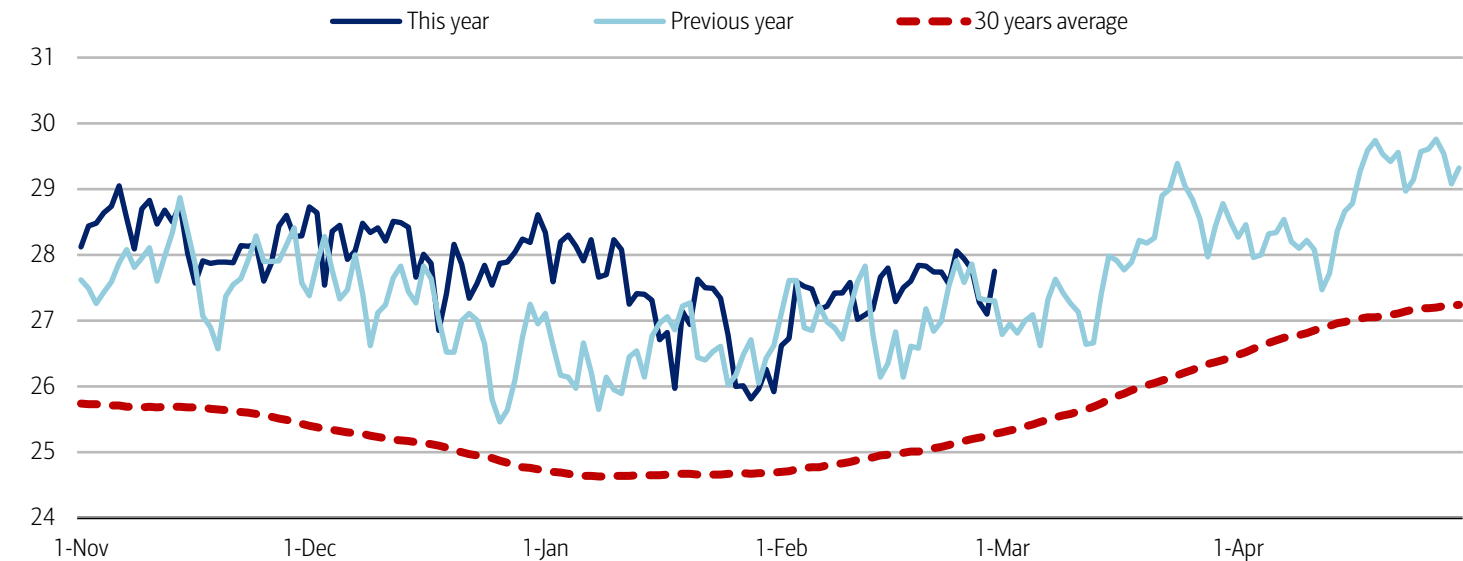
	2022												2023												2024	
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2		
vs. last year	0.2	0.1	-0.2	-0.5	-0.1	0.0	-0.3	-0.9	-0.2	-0.4	-0.3	-0.2	-0.4	0.2	0.5	0.9	0.2	0.3	0.8	1.8	1.3	1.3	0.7	1.2		
vs. average year	1.3	1.1	1.0	0.5	1.2	1.0	0.5	-0.1	0.1	0.5	0.9	0.8	0.9	1.3	1.5	1.4	1.3	1.3	1.3	1.7	1.5	1.8	1.6	2.0		

Note: Feb 2024 temperature is the average as of 29 Feb
Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH



Philippines temperature trends

Exhibit 23: Philippines temperature trends (current-year, previous-year, and 30-year averages)
Temperatures recently up YoY and above historical average



Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH

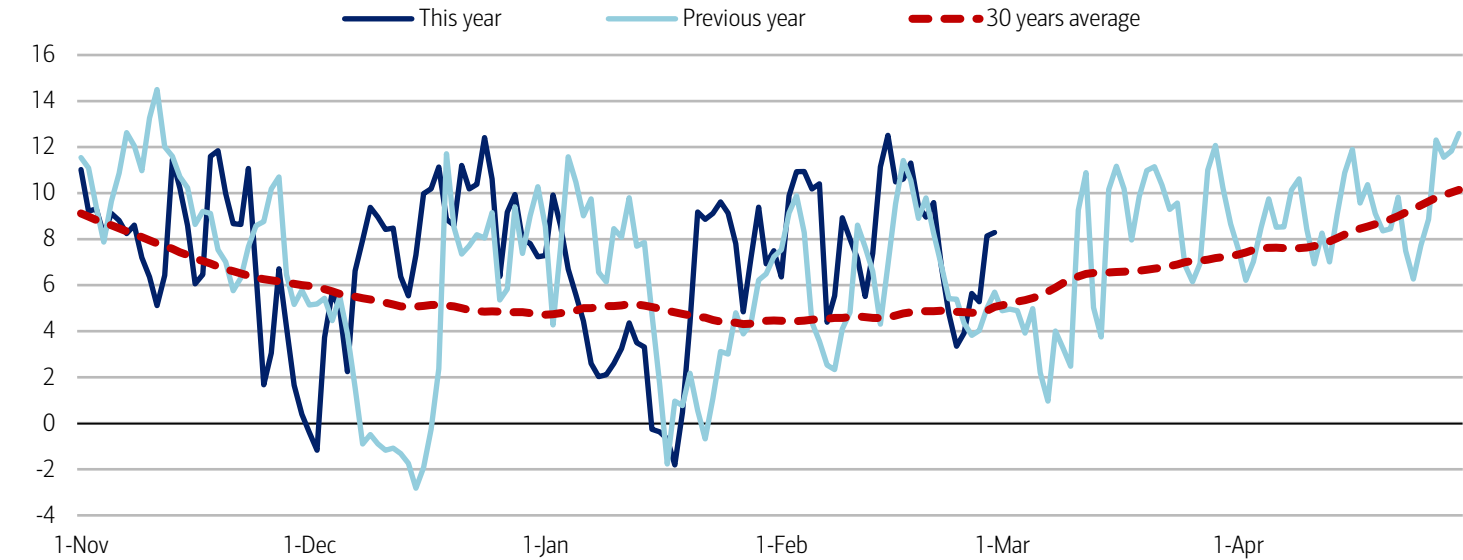
Exhibit 24: Philippines monthly temperatures (simple average)
Monthly average remains up YoY and above historical average in Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		1	2										
vs. last year	0.0	-0.4	-0.6	0.2	0.0	-0.4	0.2	0.1	-0.1	0.1		-0.4	0.0	-0.3	0.7	0.6	-0.1	0.1	0.7	0.1	0.1	0.5	1.0		0.8	0.4										
vs. average year	2.2	1.1	1.5	1.9	2.0	1.6	1.9	2.0	2.1	2.0		1.8	2.1	2.0	1.8	2.0	1.8	2.1	2.3	2.0	2.1	2.6	3.0		2.6	2.5										

Note: Feb 2024 temperature is the average as of 29 Feb
Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH

UK temperature trends

Exhibit 25: UK temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past few days



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 26: UK monthly temperatures (simple average)
Above historical average and up YoY for Feb

	2022												2023												2024	
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2		
vs. last year	0.6	2.5	2.8	-0.6	1.0	3.1	-1.5	0.7	1.7	-2.9	0.1	-0.8	-0.9	-0.7	-0.5	1.7	-2.6	-2.6	2.6	-0.6	-2.0	3.5	-0.2	1.6		
vs. average year	1.8	1.4	1.9	1.5	2.7	2.9	0.9	2.2	2.2	-1.0	0.5	1.9	0.9	0.6	1.3	3.3	0.1	0.3	3.5	1.6	0.2	2.4	0.3	3.4		

Note: Feb 2024 temperature is the average as of 29 Feb

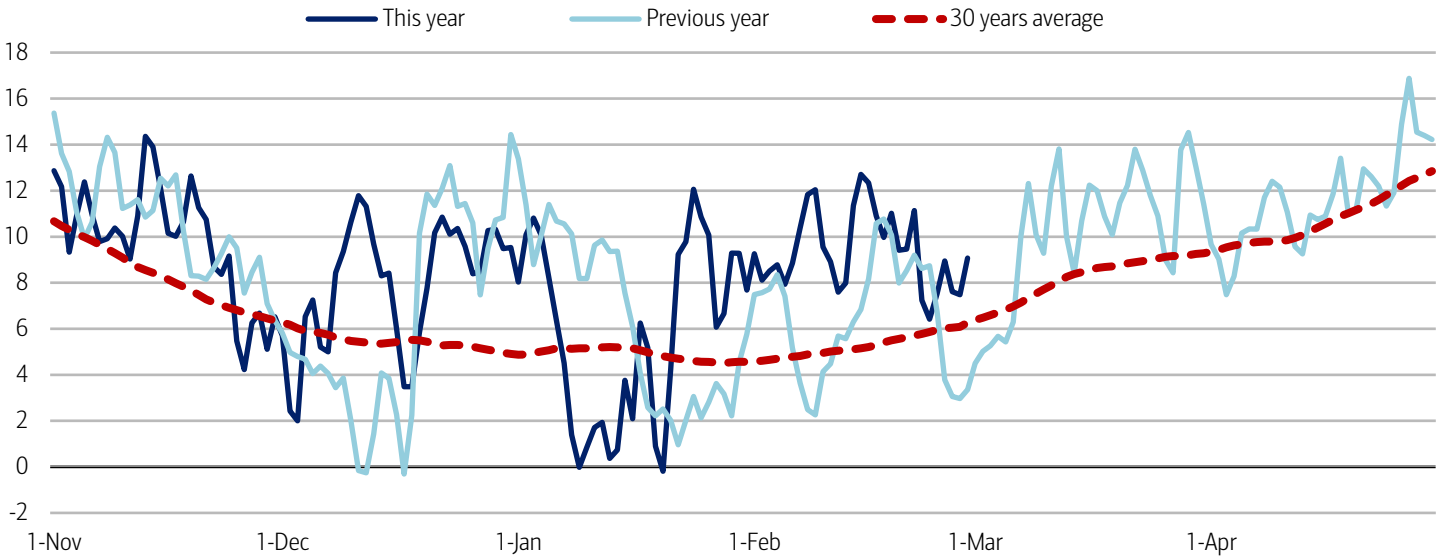
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



France temperature trends

Exhibit 27: France temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past few days



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 28: France monthly temperatures (simple average)
Above historical average and up YoY for Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
vs. last year	1.1	1.6	3.9	0.7	2.8	3.7	-1.1	3.5	2.9	-0.5	1.5	-1.6	0.0	-0.4	-1.8	0.5	-1.6	-2.1	2.8	-0.7	-0.8	1.5	-0.6	2.9												
vs. average year	1.8	1.3	3.0	2.9	2.9	3.1	1.5	3.8	2.3	1.0	1.5	1.3	1.9	0.9	1.2	3.5	1.3	1.1	4.3	3.1	1.5	2.5	0.8	4.1												

Note: Feb 2024 temperature is the average as of 29 Feb
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Germany temperature trends

Exhibit 29: Germany temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past few days

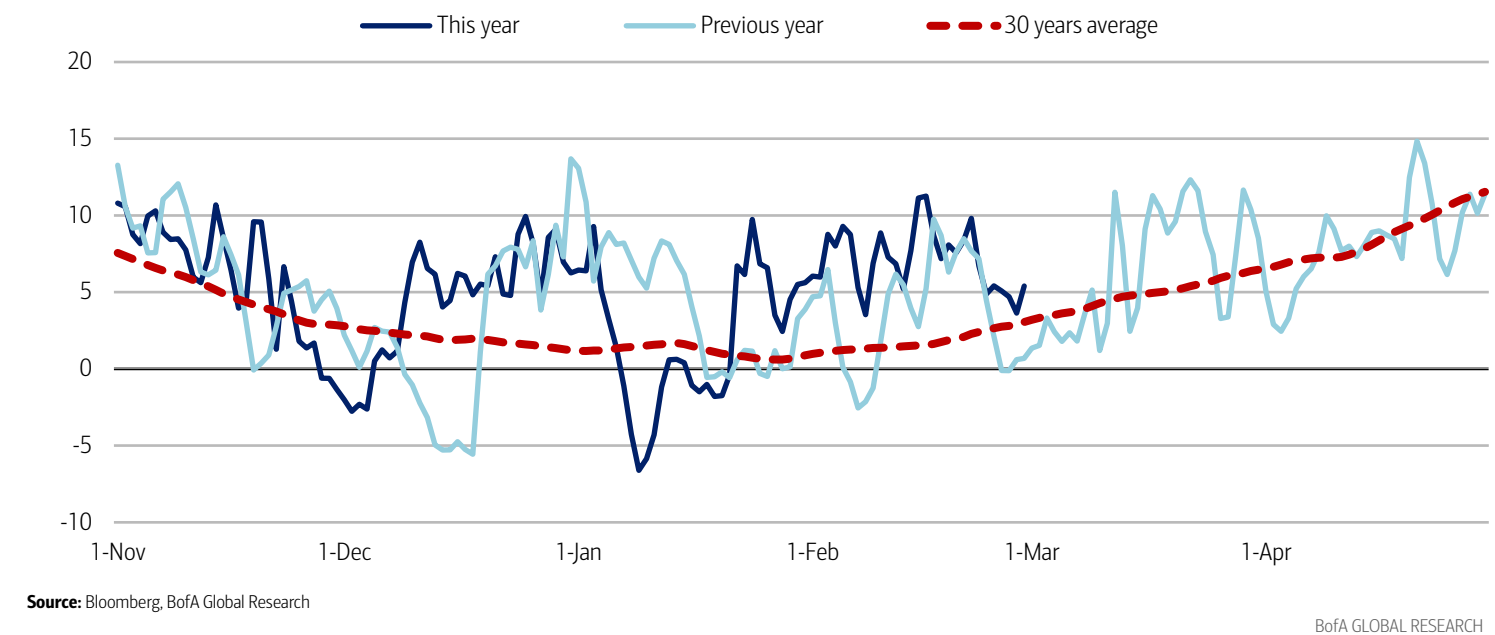


Exhibit 30: Germany monthly temperatures (simple average)
Above historical average and up YoY for Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2												
vs. last year	0.2	1.7	3.6	-0.9	0.4	3.8	-1.8	2.5	1.1	-0.8	0.8	-1.4	0.6	-0.2	-1.4	0.4	-0.4	-2.1	4.0	-0.5	-0.4	2.4	-2.3	3.5												
vs. average year	0.9	-0.1	1.8	2.7	1.2	2.8	0.0	3.2	1.7	0.2	3.1	2.0	1.4	-0.3	0.4	3.0	0.8	0.7	4.0	2.7	1.2	2.6	0.8	5.3												

Note: Feb 2024 temperature is the average as of 29 Feb

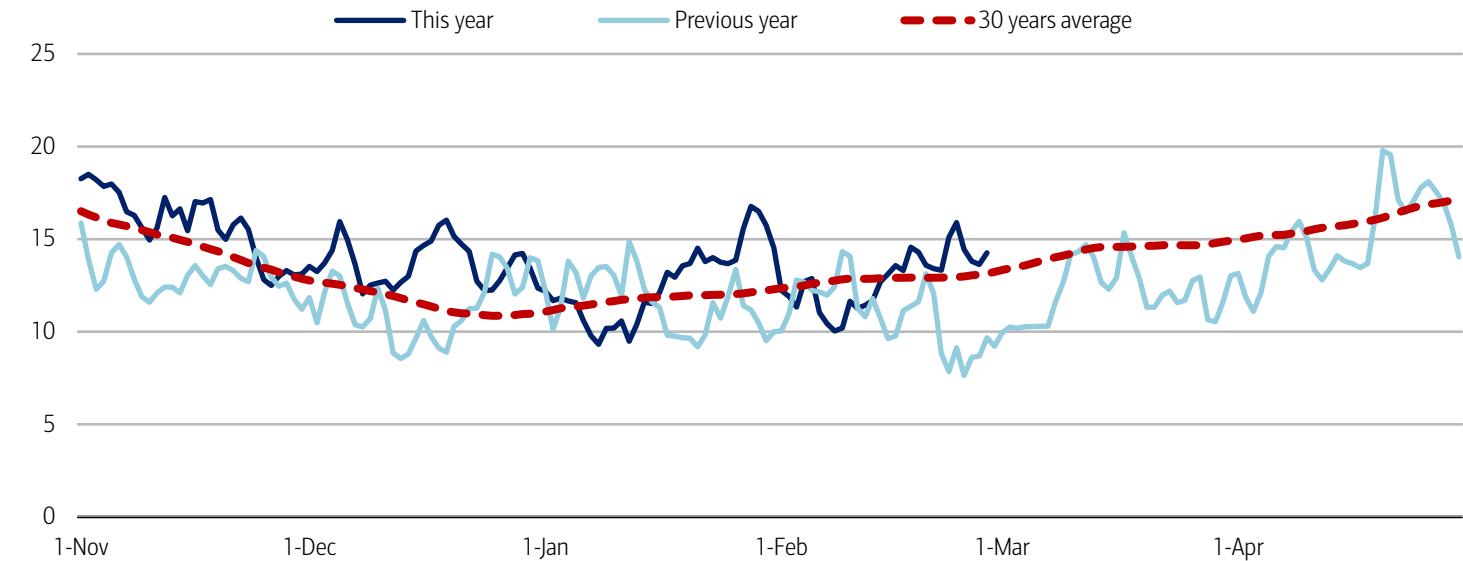
Source: Bloomberg, BofA Global Research



US temperature trends

Average temperature trends for the US’s five states (California, Texas, Florida, New York, Washington) are shown below.

Exhibit 31: California temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past week



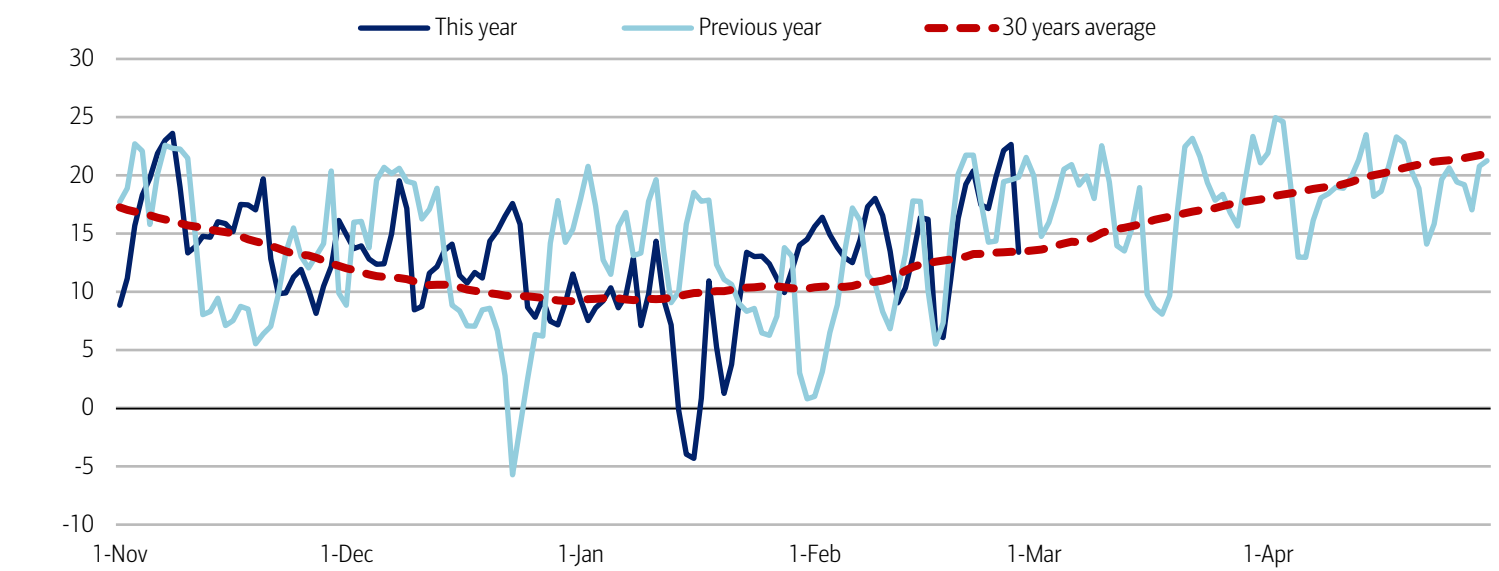
Source: Bloomberg, BofA Global Research. BofA GLOBAL RESEARCH

Exhibit 32: California monthly temperatures (simple average)
On par with historical average and YoY for Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		1	2										
vs. last year	1.7	0.3	-0.1	0.4	-0.7	1.0	2.5	1.2	-2.4	0.4		-0.7	-2.3	-2.9	-1.3	-1.1	-2.7	0.7	-0.4	-2.8	0.4	2.8	2.4		1.0	1.8										
vs. average year	0.6	0.5	0.0	1.3	-0.1	1.2	2.4	0.2	-1.7	-0.3		-0.2	-1.8	-2.3	-0.8	-1.1	-1.3	0.6	0.9	-0.4	0.6	1.1	2.1		0.8	0.0										

Note: Feb 2024 temperature is the average as of 28 Feb
Source: Bloomberg, BofA Global Research BofA GLOBAL RESEARCH

Exhibit 33: Texas temperature trends (current-year, previous-year, and 30-year averages)
Temperatures down YoY to on par with historical average



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 34: Texas monthly temperatures (simple average)
Above historical average and up YoY for Feb

	2022												2023												2024	
	3	4	5	6	7	8	9	10	11	12			1	2	3	4	5	6	7	8	9	10	11	12	1	2
vs. last year	-1.3	2.4	3.3	2.1	3.4	0.3	0.2	-1.5	-1.2	-5.1			3.3	4.0	2.0	-2.4	-2.2	-0.9	-0.2	3.2	2.2	0.6	1.0	0.6	-4.2	1.9
vs. average year	-0.1	1.9	2.4	2.1	2.4	0.1	0.9	0.2	-0.9	1.5			2.8	1.2	1.8	-0.5	0.1	1.2	2.1	3.3	3.1	0.8	0.1	2.1	-1.5	3.2

Note: Feb 2024 temperature is the average as of 28 Feb

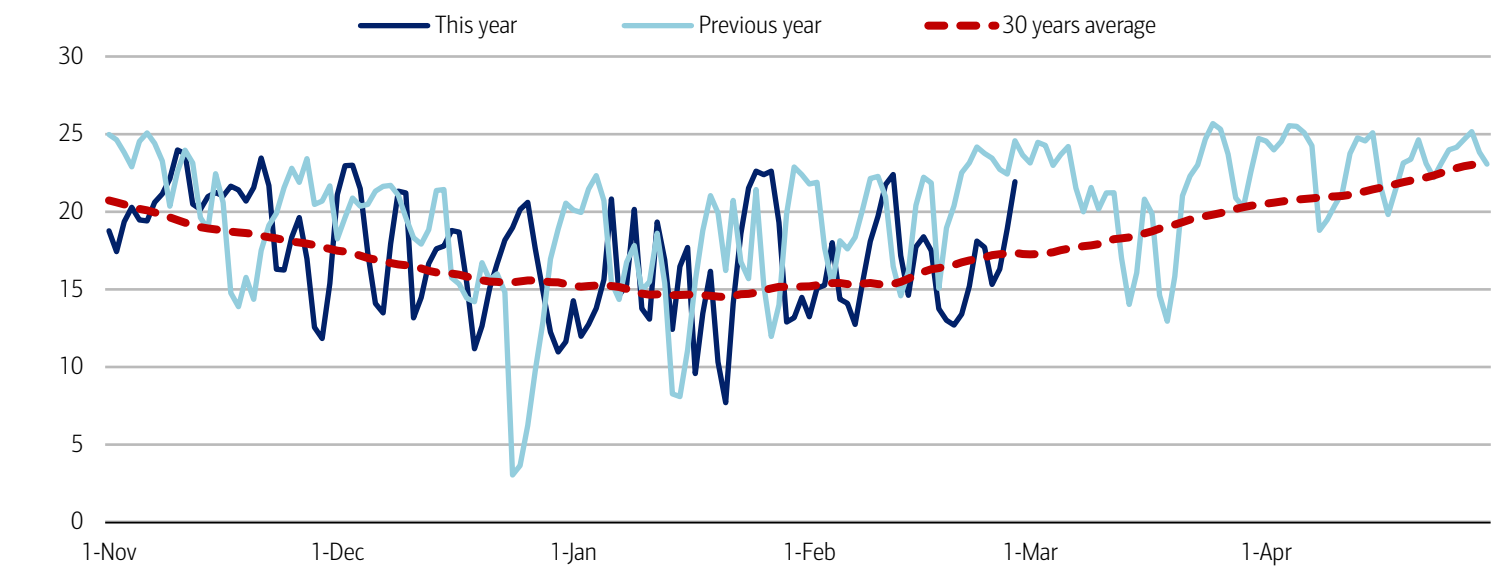
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Exhibit 35: Florida temperature trends (current-year, previous-year, and 30-year averages)

Temperatures recently above historical average but still down YoY



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 36: Florida monthly temperatures (simple average)

Above historical average but down YoY for Feb

	2022												2023												2024			
	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		1	2		
vs. last year	0.8	1.1	0.9	1.4	1.0	0.3	0.3	-1.5	3.5	-2.6		2.6	2.7	0.6	1.0	-0.9	-0.8	0.5	1.2	0.5	0.9	-1.5	0.3		-1.5	-3.8		
vs. average year	1.9	0.8	0.8	0.9	0.6	0.4	0.1	-0.4	2.1	0.6		2.3	4.3	2.4	1.8	0.0	0.1	1.1	1.7	0.6	0.5	0.6	0.9		0.9	0.4		

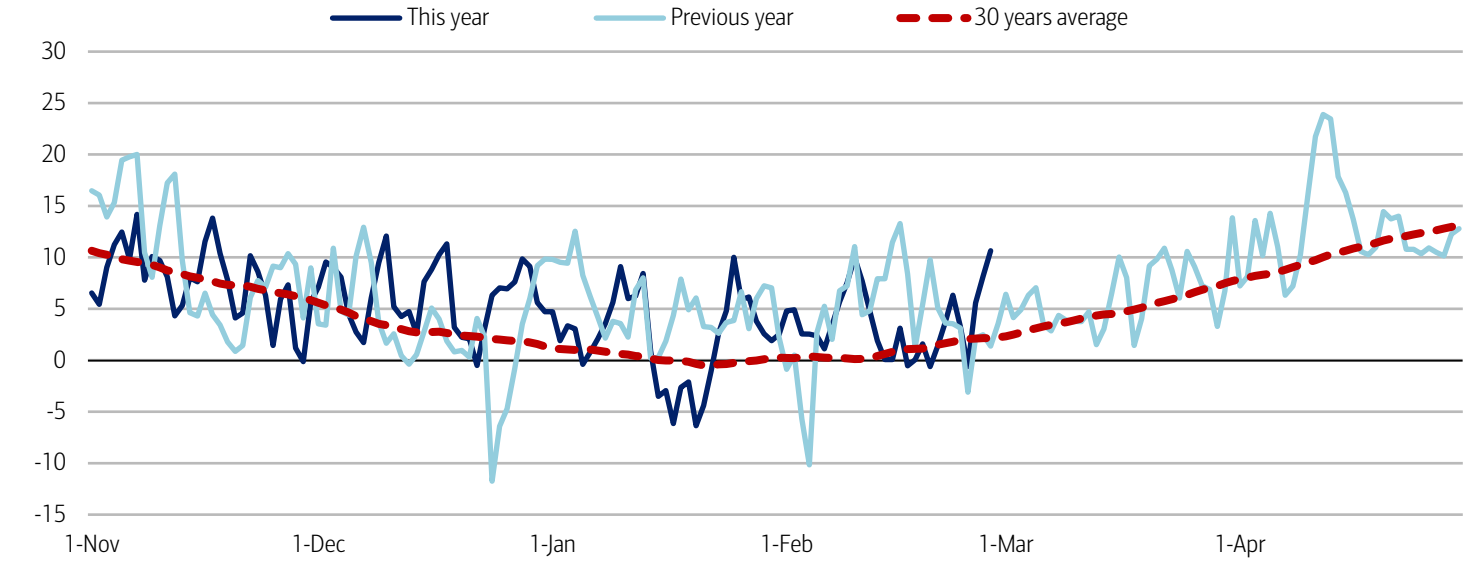
Note: Feb 2024 temperature is the average as of 28 Feb

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Exhibit 37: New York temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past few days



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

Exhibit 38: New York monthly temperatures (simple average)
Above historical average but down YoY for Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
vs. last year	-0.3	-1.0	0.6	-1.5	1.8	0.5	-0.9	-3.0	2.0	-3.1	6.5	1.9	-0.6	2.3	-0.7	-1.1	-0.5	-2.1	0.0	1.7	-2.3	3.1	-3.0	-0.4												
vs. average year	1.8	0.1	1.2	0.1	1.6	2.0	0.6	0.0	1.8	0.1	4.9	3.1	1.2	2.4	0.5	-1.0	1.1	-0.1	0.6	1.7	-0.5	3.2	1.9	2.7												

Note: Feb 2024 temperature is the average as of 28 Feb

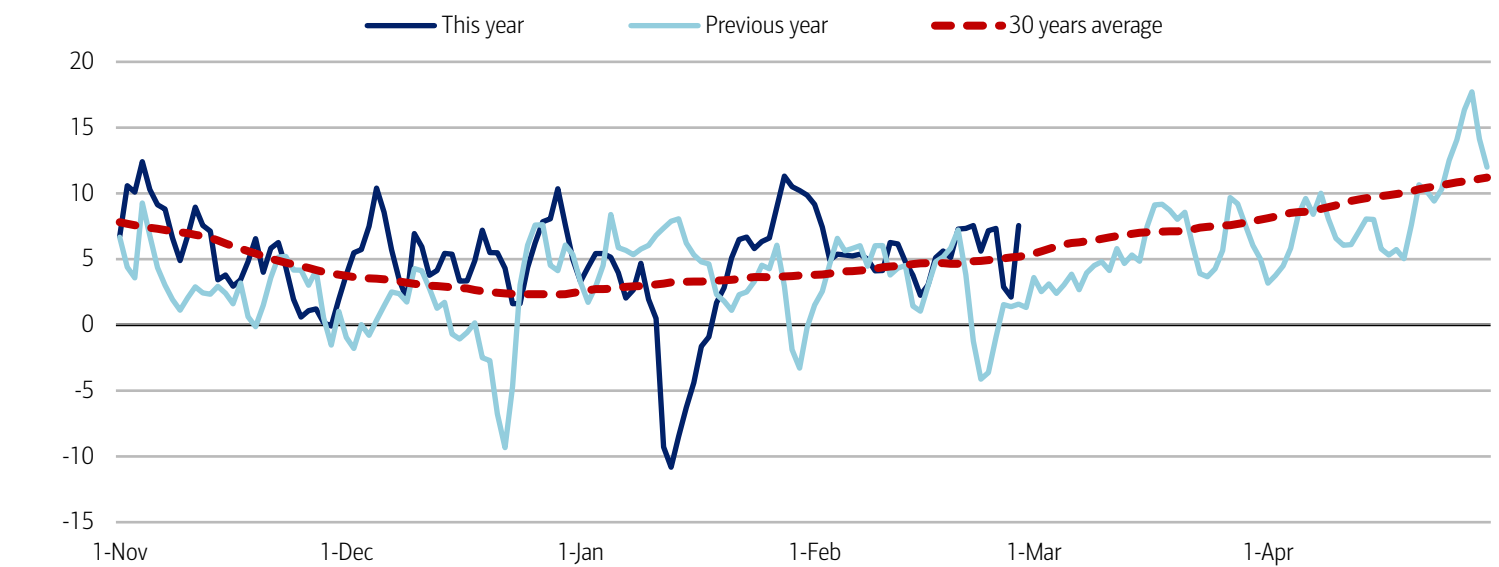
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Exhibit 39: Washington temperature trends (current-year, previous-year, and 30-year averages)

Temperatures up YoY and above historical average



BofA GLOBAL RESEARCH

Exhibit 40: Washington monthly temperatures (simple average)

Above historical average and up YoY for Feb

	2022												2023												2024	
	3	4	5	6	7	8	9	10	11	12		1	2	3	4	5	6	7	8	9	10	11	12		1	2
vs. last year	1.1	-3.4	-2.3	-3.5	-0.2	1.7	1.5	2.9	-4.2	-0.5		1.4	-0.5	-1.9	1.2	5.0	1.0	0.0	-0.5	-1.5	-1.8	2.3	4.4		-1.2	2.3
vs. average year	0.5	-2.4	-2.1	0.1	1.5	2.2	1.5	2.3	-2.9	-1.7		0.8	-1.4	-1.4	-1.1	2.9	1.1	1.4	1.7	0.0	0.5	-0.5	2.7		-0.3	0.9

Note: Feb 2024 temperature is the average as of 28 Feb

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Canada temperature trends

Exhibit 41: Canada temperature trends (current-year, previous-year, and 30-year averages)
Temperatures up YoY and above historical average over the past few days

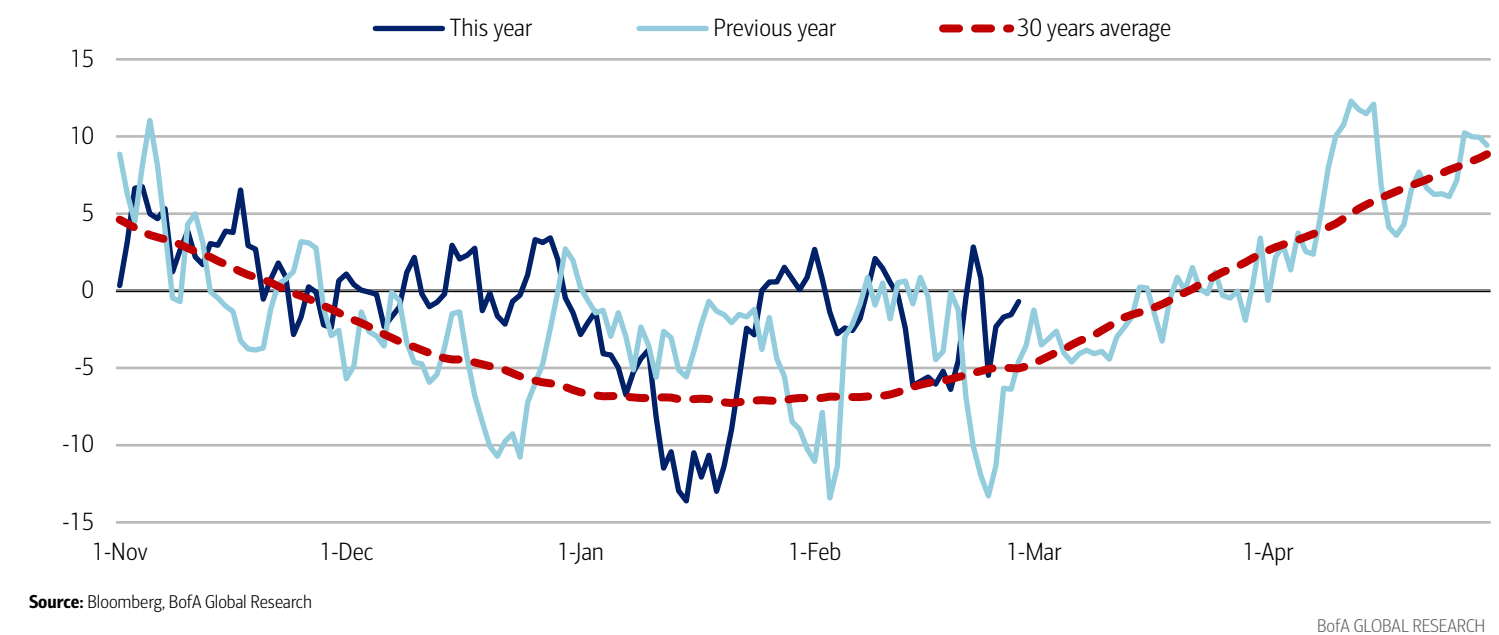


Exhibit 42: Canada monthly temperatures (simple average)
Above historical average and up YoY for Feb

	2022												2023												2024											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2
vs. last year	-1.9	-2.0	1.0	-2.3	0.5	-0.2	-0.1	-1.0	-0.8	-0.2	5.7	1.4	-1.4	1.6	0.4	0.6	-0.3	-1.8	0.6	0.5	0.5	4.9	-2.2	2.7												
vs. average year	1.1	-0.6	1.7	0.7	1.2	1.8	1.1	1.4	0.0	-0.1	3.7	1.4	-0.3	1.0	2.1	1.3	0.9	0.0	1.7	1.9	0.5	4.7	1.5	4.2												

Note: Feb 2024 temperature is the average as of 28 Feb

Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



Disclosures

Important Disclosures

FUNDAMENTAL EQUITY OPINION KEY: Opinions include a Volatility Risk Rating, an Investment Rating and an Income Rating. **VOLATILITY RISK RATINGS**, indicators of potential price fluctuation, are: A - Low, B - Medium and C - High. **INVESTMENT RATINGS** reflect the analyst's assessment of both a stock's absolute total return potential as well as its attractiveness for investment relative to other stocks within its Coverage Cluster (defined below). Our investment ratings are: 1 - Buy stocks are expected to have a total return of at least 10% and are the most attractive stocks in the coverage cluster; 2 - Neutral stocks are expected to remain flat or increase in value and are less attractive than Buy rated stocks and 3 - Underperform stocks are the least attractive stocks in a coverage cluster. An investment rating of 6 (No Rating) indicates that a stock is no longer trading on the basis of fundamentals. Analysts assign investment ratings considering, among other things, the 0-12 month total return expectation for a stock and the firm's guidelines for ratings dispersions (shown in the table below). The current price objective for a stock should be referenced to better understand the total return expectation at any given time. The price objective reflects the analyst's view of the potential price appreciation (depreciation).

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

^{R1} 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.

INCOME RATINGS, indicators of potential cash dividends, are: 7 - same/higher (dividend considered to be secure), 8 - same/lower (dividend not considered to be secure) and 9 - pays no cash dividend. *Coverage Cluster* is comprised of stocks covered by a single analyst or two or more analysts sharing a common industry, sector, region or other classification(s). A stock's coverage cluster is included in the most recent BofA Global Research report referencing the stock.

BofA Global Research personnel (including the analyst(s) responsible for this report) receive compensation based upon, among other factors, the overall profitability of Bank of America Corporation, including profits derived from investment banking. The analyst(s) responsible for this report may also receive compensation based upon, among other factors, the overall profitability of the Bank's sales and trading businesses relating to the class of securities or financial instruments for which such analyst is responsible.

Other Important Disclosures

From time to time research analysts conduct site visits of covered issuers. BofA Global Research policies prohibit research analysts from accepting payment or reimbursement for travel expenses from the issuer for such visits.

Prices are indicative and for information purposes only. Except as otherwise stated in the report, for any recommendation in relation to an equity security, the price referenced is the publicly traded price of the security as of close of business on the day prior to the date of the report or, if the report is published during intraday trading, the price referenced is indicative of the traded price as of the date and time of the report and in relation to a debt security (including equity preferred and CDS), prices are indicative as of the date and time of the report and are from various sources including BofA Securities trading desks.

The date and time of completion of the production of any recommendation in this report shall be the date and time of dissemination of this report as recorded in the report timestamp.

Recipients who are not institutional investors or market professionals should seek the advice of their independent financial advisor before considering information in this report in connection with any investment decision, or for a necessary explanation of its contents.

Officers of BofAS or one or more of its affiliates (other than research analysts) may have a financial interest in securities of the issuer(s) or in related investments.

Refer to [BofA Global Research policies relating to conflicts of interest](#).

"BofA Securities" includes BofA Securities, Inc. ("BofAS") and its affiliates. Investors should contact their BofA Securities representative or Merrill Global Wealth Management financial advisor if they have questions concerning this report or concerning the appropriateness of any investment idea described herein for such investor. "BofA Securities" is a global brand for BofA Global Research.

Information relating to Non-US affiliates of BofA Securities and Distribution of Affiliate Research Reports:

BofAS and/or Merrill Lynch, Pierce, Fenner & Smith Incorporated ("MLPF&S") may in the future distribute, information of the following non-US affiliates in the US (short name: legal name, regulator): Merrill Lynch (South Africa): Merrill Lynch South Africa (Pty) Ltd., regulated by The Financial Service Board; MLI (UK): Merrill Lynch International, regulated by the Financial Conduct Authority (FCA) and the Prudential Regulation Authority (PRA); BofASE (France): BofA Securities Europe SA is authorized by the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers (AMF). BofA Securities Europe SA ("BofASE") with registered address at 51, rue La Boétie, 75008 Paris is registered under no 842 602 690 RCS Paris. In accordance with the provisions of French Code Monétaire et Financier (Monetary and Financial Code), BofASE is an établissement de crédit et d'investissement (credit and investment institution) that is authorised and supervised by the European Central Bank and the Autorité de Contrôle Prudentiel et de Résolution (ACPR) and regulated by the ACPR and the Autorité des Marchés Financiers. BofASE's share capital can be found at www.bofamli.com/BofASEdisclaimer; BofA Europe (Milan): Bank of America Europe Designated Activity Company, Milan Branch, regulated by the Bank of Italy, the European Central Bank (ECB) and the Central Bank of Ireland (CBI); BofA Europe (Frankfurt): Bank of America Europe Designated Activity Company, Frankfurt Branch regulated by BaFin, the ECB and the CBI; BofA Europe (Madrid): Bank of America Europe Designated Activity Company, Sucursal en España, regulated by the Bank of Spain, the ECB and the CBI; Merrill Lynch (Australia): Merrill Lynch Equities (Australia) Limited, regulated by the Australian Securities and Investments Commission; Merrill Lynch (Hong Kong): Merrill Lynch (Asia Pacific) Limited, regulated by the Hong Kong Securities and Futures Commission (HKSF); Merrill Lynch (Singapore): Merrill Lynch (Singapore) Pte Ltd, regulated by the Monetary Authority of Singapore (MAS); Merrill Lynch (Canada): Merrill Lynch Canada Inc, regulated by the Canadian Investment Regulatory Organization; Merrill Lynch (Mexico): Merrill Lynch Mexico, SA de CV, Casa de Bolsa, regulated by the Comisión Nacional Bancaria y de Valores; Merrill Lynch (Argentina): Merrill Lynch Argentina SA, regulated by Comisión Nacional de Valores; BofAS Japan: BofA Securities Japan Co., Ltd., regulated by the Financial Services Agency; Merrill Lynch (Seoul): Merrill Lynch International, LLC Seoul Branch, regulated by the Financial Supervisory Service; Merrill Lynch (Taiwan): Merrill Lynch Securities (Taiwan) Ltd., regulated by the Securities and Futures Bureau; BofAS India: BofA Securities India Limited, regulated by the Securities and Exchange Board of India (SEBI); Merrill Lynch (Israel): Merrill Lynch Israel Limited, regulated by Israel Securities Authority; Merrill Lynch (DIFC): Merrill Lynch International (DIFC Branch), regulated by the Dubai Financial Services Authority (DFSA); Merrill Lynch (Brazil): Merrill Lynch S.A. Corretora de Títulos e Valores Mobiliários, regulated by Comissão de Valores Mobiliários; Merrill Lynch KSA Company: Merrill Lynch Kingdom of Saudi Arabia Company, regulated by the Capital Market Authority.

This information: has been approved for publication and is distributed in the United Kingdom (UK) to professional clients and eligible counterparties (as each is defined in the rules of the FCA and the PRA) by MLI (UK), which is authorized by the PRA and regulated by the FCA and the PRA - details about the extent of our regulation by the FCA and PRA are available from us on request; has been approved for publication and is distributed in the European Economic Area (EEA) by BofASE (France), which is authorized by the ACPR and regulated by the ACPR and the AMF; has been considered and distributed in Japan by BofAS Japan, a registered securities dealer under the Financial Instruments and Exchange Act in Japan, or its permitted affiliates; is issued and distributed in Hong Kong by Merrill Lynch (Hong Kong) which is regulated by HKSF; is issued and distributed in Taiwan by Merrill Lynch (Taiwan); is issued and distributed in India by BofAS India; and is issued and distributed in Singapore to institutional investors and/or accredited investors (each as defined under the Financial Advisers Regulations) by Merrill Lynch (Singapore) (Company Registration No 198602883D). Merrill Lynch (Singapore) is regulated by MAS. Merrill Lynch Equities (Australia) Limited (ABN 65 006 276 795), AFS License 235132 (MLEA) distributes



this information in Australia only to 'Wholesale' clients as defined by s.761G of the Corporations Act 2001. With the exception of Bank of America N.A., Australia Branch, neither MLEA nor any of its affiliates involved in preparing this information is an Authorised Deposit-Taking Institution under the Banking Act 1959 nor regulated by the Australian Prudential Regulation Authority. No approval is required for publication or distribution of this information in Brazil and its local distribution is by Merrill Lynch (Brazil) in accordance with applicable regulations. Merrill Lynch (DIFC) is authorized and regulated by the DFSA. Information prepared and issued by Merrill Lynch (DIFC) is done so in accordance with the requirements of the DFSA conduct of business rules. BofA Europe (Frankfurt) distributes this information in Germany and is regulated by BaFin, the ECB and the CBI. BofA Securities entities, including BofA Europe and BofASE (France), may outsource/delegate the marketing and/or provision of certain research services or aspects of research services to other branches or members of the BofA Securities group. You may be contacted by a different BofA Securities entity acting for and on behalf of your service provider where permitted by applicable law. This does not change your service provider. Please refer to the [Electronic Communications Disclaimers](#) for further information.

This information has been prepared and issued by BofAS and/or one or more of its non-US affiliates. The author(s) of this information may not be licensed to carry on regulated activities in your jurisdiction and, if not licensed, do not hold themselves out as being able to do so. BofAS and/or MLPF&S is the distributor of this information in the US and accepts full responsibility for information distributed to BofAS and/or MLPF&S clients in the US by its non-US affiliates. Any US person receiving this information and wishing to effect any transaction in any security discussed herein should do so through BofAS and/or MLPF&S and not such foreign affiliates. Hong Kong recipients of this information should contact Merrill Lynch (Asia Pacific) Limited in respect of any matters relating to dealing in securities or provision of specific advice on securities or any other matters arising from, or in connection with, this information. Singapore recipients of this information should contact Merrill Lynch (Singapore) Pte Ltd in respect of any matters arising from, or in connection with, this information. For clients that are not accredited investors, expert investors or institutional investors Merrill Lynch (Singapore) Pte Ltd accepts full responsibility for the contents of this information distributed to such clients in Singapore.

General Investment Related Disclosures:

Taiwan Readers: Neither the information nor any opinion expressed herein constitutes an offer or a solicitation of an offer to transact in any securities or other financial instrument. No part of this report may be used or reproduced or quoted in any manner whatsoever in Taiwan by the press or any other person without the express written consent of BofA Securities. This document provides general information only, and has been prepared for, and is intended for general distribution to, BofA Securities clients. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any securities or other financial instrument or any derivative related to such securities or instruments (e.g., options, futures, warrants, and contracts for differences). This document is not intended to provide personal investment advice and it does not take into account the specific investment objectives, financial situation and the particular needs of, and is not directed to, any specific person(s). This document and its content do not constitute, and should not be considered to constitute, investment advice for purposes of ERISA, the US tax code, the Investment Advisers Act or otherwise. Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this document and should understand that statements regarding future prospects may not be realized. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this document.

Securities and other financial instruments referred to herein, or recommended, offered or sold by BofA Securities, are not insured by the Federal Deposit Insurance Corporation and are not deposits or other obligations of any insured depository institution (including, Bank of America, N.A.). Investments in general and, derivatives, in particular, involve numerous risks, including, among others, market risk, counterparty default risk and liquidity risk. No security, financial instrument or derivative is suitable for all investors. Digital assets are extremely speculative, volatile and are largely unregulated. In some cases, securities and other financial instruments may be difficult to value or sell and reliable information about the value or risks related to the security or financial instrument may be difficult to obtain. Investors should note that income from such securities and other financial instruments, if any, may fluctuate and that price or value of such securities and instruments may rise or fall and, in some cases, investors may lose their entire principal investment. Past performance is not necessarily a guide to future performance. Levels and basis for taxation may change.

This report may contain a short-term trading idea or recommendation, which highlights a specific near-term catalyst or event impacting the issuer or the market that is anticipated to have a short-term price impact on the equity securities of the issuer. Short-term trading ideas and recommendations are different from and do not affect a stock's fundamental equity rating, which reflects both a longer term total return expectation and attractiveness for investment relative to other stocks within its Coverage Cluster. Short-term trading ideas and recommendations may be more or less positive than a stock's fundamental equity rating.

BofA Securities is aware that the implementation of the ideas expressed in this report may depend upon an investor's ability to "short" securities or other financial instruments and that such action may be limited by regulations prohibiting or restricting "shortselling" in many jurisdictions. Investors are urged to seek advice regarding the applicability of such regulations prior to executing any short idea contained in this report.

Foreign currency rates of exchange may adversely affect the value, price or income of any security or financial instrument mentioned herein. Investors in such securities and instruments, including ADRs, effectively assume currency risk.

BofAS or one of its affiliates is a regular issuer of traded financial instruments linked to securities that may have been recommended in this report. BofAS or one of its affiliates may, at any time, hold a trading position (long or short) in the securities and financial instruments discussed in this report.

BofA Securities, through business units other than BofA Global Research, may have issued and may in the future issue trading ideas or recommendations that are inconsistent with, and reach different conclusions from, the information presented herein. Such ideas or recommendations may reflect different time frames, assumptions, views and analytical methods of the persons who prepared them, and BofA Securities is under no obligation to ensure that such other trading ideas or recommendations are brought to the attention of any recipient of this information.

In the event that the recipient received this information pursuant to a contract between the recipient and BofAS for the provision of research services for a separate fee, and in connection therewith BofAS may be deemed to be acting as an investment adviser, such status relates, if at all, solely to the person with whom BofAS has contracted directly and does not extend beyond the delivery of this report (unless otherwise agreed specifically in writing by BofAS). If such recipient uses the services of BofAS in connection with the sale or purchase of a security referred to herein, BofAS may act as principal for its own account or as agent for another person. BofAS is and continues to act solely as a broker-dealer in connection with the execution of any transactions, including transactions in any securities referred to herein.

Copyright and General Information:

Copyright 2024 Bank of America Corporation. All rights reserved. iQdatabase® is a registered service mark of Bank of America Corporation. This information is prepared for the use of BofA Securities clients and may not be redistributed, retransmitted or disclosed, in whole or in part, or in any form or manner, without the express written consent of BofA Securities. BofA Global Research information is distributed simultaneously to internal and client websites and other portals by BofA Securities and is not publicly-available material. Any unauthorized use or disclosure is prohibited. Receipt and review of this information constitutes your agreement not to redistribute, retransmit, or disclose to others the contents, opinions, conclusion, or information contained herein (including any investment recommendations, estimates or price targets) without first obtaining express permission from an authorized officer of BofA Securities.

Materials prepared by BofA Global Research personnel are based on public information. Facts and views presented in this material have not been reviewed by, and may not reflect information known to, professionals in other business areas of BofA Securities, including investment banking personnel. BofA Securities has established information barriers between BofA Global Research and certain business groups. As a result, BofA Securities does not disclose certain client relationships with, or compensation received from, such issuers. To the extent this material discusses any legal proceeding or issues, it has not been prepared as nor is it intended to express any legal conclusion, opinion or advice. Investors should consult their own legal advisers as to issues of law relating to the subject matter of this material. BofA Global Research personnel's knowledge of legal proceedings in which any BofA Securities entity and/or its directors, officers and employees may be plaintiffs, defendants, co-defendants or co-plaintiffs with or involving issuers mentioned in this material is based on public information. Facts and views presented in this material that relate to any such proceedings have not been reviewed by, discussed with, and may not reflect information known to, professionals in other business areas of BofA Securities in connection with the legal proceedings or matters relevant to such proceedings.

This information has been prepared independently of any issuer of securities mentioned herein and not in connection with any proposed offering of securities or as agent of any issuer of any securities. None of BofAS any of its affiliates or their research analysts has any authority whatsoever to make any representation or warranty on behalf of the issuer(s). BofA Global Research policy prohibits research personnel from disclosing a recommendation, investment rating, or investment thesis for review by an issuer prior to the publication of a research report containing such rating, recommendation or investment thesis.

Any information relating to the tax status of financial instruments discussed herein is not intended to provide tax advice or to be used by anyone to provide tax advice. Investors are urged to seek tax advice based on their particular circumstances from an independent tax professional.

The information herein (other than disclosure information relating to BofA Securities and its affiliates) was obtained from various sources and we do not guarantee its accuracy. This information may contain links to third-party websites. BofA Securities is not responsible for the content of any third-party website or any linked content contained in a third-party website. Content contained on such third-party websites is not part of this information and is not incorporated by reference. The inclusion of a link does not imply any endorsement by or any affiliation with BofA Securities. Access to any third-party website is at your own risk, and you should always review the terms and privacy policies at third-party websites before submitting any personal information

to them. BofA Securities is not responsible for such terms and privacy policies and expressly disclaims any liability for them.

All opinions, projections and estimates constitute the judgment of the author as of the date of publication and are subject to change without notice. Prices also are subject to change without notice. BofA Securities is under no obligation to update this information and BofA Securities ability to publish information on the subject issuer(s) in the future is subject to applicable quiet periods. You should therefore assume that BofA Securities will not update any fact, circumstance or opinion contained herein.

Certain outstanding reports or investment opinions relating to securities, financial instruments and/or issuers may no longer be current. Always refer to the most recent research report relating to an issuer prior to making an investment decision.

In some cases, an issuer may be classified as Restricted or may be Under Review or Extended Review. In each case, investors should consider any investment opinion relating to such issuer (or its security and/or financial instruments) to be suspended or withdrawn and should not rely on the analyses and investment opinion(s) pertaining to such issuer (or its securities and/or financial instruments) nor should the analyses or opinion(s) be considered a solicitation of any kind. Sales persons and financial advisors affiliated with BofAS or any of its affiliates may not solicit purchases of securities or financial instruments that are Restricted or Under Review and may only solicit securities under Extended Review in accordance with firm policies.

Neither BofA Securities nor any officer or employee of BofA Securities accepts any liability whatsoever for any direct, indirect or consequential damages or losses arising from any use of this information.