

## Retailing Industry

## Retail weekly/JMA weather outlook: 12 Jan 2024

Industry Overview

## Weather outlook: Warm winter to continue, headwind for apparel in Jan

The Japan Meteorological Agency (JMA) updated its one-month forecast on 12 Jan. Over the next month (13 Jan-12 Feb), the JMA expects limited impact from cold fronts and temperatures to be higher than the historical average, maintaining its forecast for the warm winter to continue (above-average temperatures in eastern and western Japan, at or above average temperatures in northern Japan, Okinawa, and Amami). While this time of the year tends to be the coldest, the JMA expects temperatures to remain higher than usual especially in the latter half of Jan (and return to average levels from around end-Jan). Also, it forecasts low precipitation since high atmospheric pressure tends to cover the country during this time of the year. See page 2 onward for details about weather forecasts, overseas temperatures, and the performance of retail stocks.

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

Last week, temperatures were slightly down YoY



Source: Japan Meteorological Agency, BofA Global Research

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12 January 2024

Equity  
Japan  
Retailing

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**Exhibit 1: Next week's events**

Please confirm official times with companies

**15 Jan (Mon)**  
Earnings(Baroque, Kushikatsu Tanaka, etc.)  
Monthly data(MatsukiyoCocokara, 7&i HD, etc.)  
**17 Jan (Wed)**  
JNTO(Dec 2023 data)  
**18 Jan (Thu)**  
Monthly data(Snow Peak)

Source: BofA Global Research

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Timestamp: 12 January 2024 08:18AM EST

# Retail share-price performance

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

TOPIX Retail Index was -0.7 points vs. TOPIX over the last week, -3.0% over the last month, and +0.8%, over the last three months

|                   | 1 Week |                   | 1 Month |                   | 3 Month |                   | 6 Month |                   | 2023  |                   | 2022  |
|-------------------|--------|-------------------|---------|-------------------|---------|-------------------|---------|-------------------|-------|-------------------|-------|
| Fast Retailing    | 12.9   | Tokyo Base        | 36.1    | Ryohin Keikaku    | 40.4    | Ryohin Keikaku    | 41.5    | Pal               | 96.4  | Takashimaya       | 72.2  |
| Tokyo Base        | 11.9   | Snow Peak         | 13.2    | Nishimatsuya      | 28.8    | Skylark           | 30.4    | Onward            | 55.2  | Isetan Mitsukoshi | 69.1  |
| Life              | 11.4   | Daikokuten Bussan | 11.7    | Seria             | 28.7    | JINS              | 30.3    | Asics             | 51.6  | H2O               | 59.3  |
| Ryohin Keikaku    | 11.2   | Onward            | 9.2     | JINS              | 25.1    | Daikokuten Bussan | 29.3    | Ryohin Keikaku    | 50.7  | MatsukiyoCocokara | 54.9  |
| Onward            | 11.0   | Fast Retailing    | 9.1     | Tsuruha           | 21.0    | Nishimatsuya      | 26.4    | Adastria          | 48.2  | PPIH              | 54.6  |
| Kura Sushi        | 8.9    | Life              | 9.1     | Nitori            | 18.3    | PPIH              | 25.2    | Lawson            | 44.8  | ABC-Mart          | 51.5  |
| Seria             | 8.9    | Aeon              | 8.0     | Bic Camera        | 18.0    | Kusuri no Aoki    | 23.7    | Daikokuten Bussan | 40.2  | Pal               | 46.2  |
| Goldwin           | 8.8    | Edion             | 7.9     | Kojima            | 17.6    | Bic Camera        | 22.8    | Mizuno            | 39.7  | Adastria          | 45.1  |
| Nitori            | 8.0    | Mizuno            | 7.2     | Daikokuten Bussan | 15.9    | Shimamura         | 22.7    | PPIH              | 37.1  | Goldwin           | 43.4  |
| Daikokuten Bussan | 7.8    | Ryohin Keikaku    | 6.8     | Onward            | 15.7    | Kojima            | 22.5    | Skylark           | 35.2  | Shimamura         | 35.6  |
| Shimamura         | 7.1    | Marui             | 6.3     | Fast Retailing    | 15.4    | Tsuruha           | 18.6    | Nishimatsuya      | 33.6  | Yonex             | 35.4  |
| ABC-Mart          | 7.0    | Skylark           | 6.2     | Pal               | 14.7    | Kura Sushi        | 18.5    | Kojima            | 32.1  | Bic Camera        | 33.1  |
| Skylark           | 6.8    | TOPIX             | 6.0     | Tokyo Base        | 13.4    | Arcs              | 16.9    | Fast Retailing    | 30.3  | Sundrug           | 30.3  |
| Descente          | 6.4    | FOOD & LIFE       | 5.9     | FOOD & LIFE       | 13.1    | Adastria          | 15.6    | World             | 27.6  | Mizuno            | 25.4  |
| Asics             | 5.8    | Nitori            | 5.9     | ZOZO              | 12.7    | ZOZO              | 15.4    | Tsuruha           | 26.7  | Fast Retailing    | 23.3  |
| Yaoko             | 4.8    | Bic Camera        | 5.4     | PPIH              | 12.4    | Yaoko             | 14.2    | Arcs              | 26.7  | Edion             | 19.9  |
| TOPIX             | 4.2    | ZOZO              | 5.4     | Cosmos            | 11.4    | Isetan Mitsukoshi | 14.0    | Kusuri no Aoki    | 25.3  | Yamada            | 18.8  |
| FOOD & LIFE       | 4.2    | Seria             | 5.1     | Yaoko             | 10.9    | Aeon              | 13.3    | TOPIX             | 25.1  | J.Front           | 14.7  |
| MatsukiyoCocokara | 3.8    | Yamada            | 3.9     | Sugi              | 10.8    | Seria             | 12.8    | Life              | 25.0  | Asics             | 14.3  |
| Arcs              | 3.8    | Tsuruha           | 3.3     | Lawson            | 10.5    | Pal               | 12.4    | Edion             | 22.2  | DCM               | 12.9  |
| Workman           | 3.7    | Shimamura         | 3.3     | Kura Sushi        | 9.6     | TOPIX             | 12.3    | Cosmos            | 22.1  | Nishimatsuya      | 12.2  |
| Isetan Mitsukoshi | 3.6    | TOPIX Retail      | 3.0     | Shimamura         | 9.0     | Komeri            | 12.1    | Izumi             | 21.1  | 7&i               | 11.9  |
| TOPIX Retail      | 3.5    | Arcs              | 2.9     | Sundrug           | 8.4     | Fast Retailing    | 11.7    | Shimamura         | 20.3  | World             | 10.9  |
| J.Front           | 3.3    | Sugi              | 2.6     | Aeon              | 8.2     | FOOD & LIFE       | 11.1    | Yaoko             | 19.0  | Kojima            | 9.2   |
| Adastria          | 3.3    | Kohnan Shoji      | 2.5     | Skylark           | 7.7     | Mizuno            | 10.8    | H2O               | 18.4  | TOPIX Retail      | 8.8   |
| Takashimaya       | 3.2    | Kura Sushi        | 2.5     | Edion             | 7.6     | DCM               | 10.5    | K's               | 17.1  | Komeri            | 6.9   |
| United Arrows     | 3.1    | DCM               | 2.5     | TOPIX Retail      | 7.3     | Nitori            | 10.1    | TOPIX Retail      | 15.8  | U.S.M.H.          | 6.4   |
| Mizuno            | 3.0    | MatsukiyoCocokara | 2.4     | Arcs              | 7.1     | Life              | 9.4     | Sundrug           | 15.8  | Kusuri no Aoki    | 5.3   |
| Snow Peak         | 2.9    | JINS              | 2.4     | TOPIX             | 6.5     | Asics             | 8.6     | Descente          | 15.2  | Daikokuten Bussan | 4.3   |
| PPIH              | 2.7    | Komeri            | 2.4     | Kobe Bussan       | 6.4     | Kobe Bussan       | 8.6     | Kohnan Shoji      | 14.8  | Onward            | 3.7   |
| Aeon              | 2.5    | Kojima            | 1.6     | Adastria          | 5.9     | Edion             | 8.2     | Kura Sushi        | 13.7  | Arcs              | 3.0   |
| Nishimatsuya      | 2.4    | J.Front           | 1.2     | World             | 5.0     | TOPIX Retail      | 8.1     | MatsukiyoCocokara | 13.5  | Aeon              | 2.7   |
| Lawson            | 2.2    | Lawson            | 1.0     | Komeri            | 4.3     | Kohnan Shoji      | 7.9     | Aeon              | 13.2  | United Arrows     | 1.1   |
| Kobe Bussan       | 1.9    | K's               | 0.9     | DCM               | 4.0     | Sundrug           | 6.4     | Komeri            | 13.1  | Skylark           | 1.1   |
| Marui             | 1.9    | World             | 0.9     | ABC-Mart          | 3.5     | K's               | 4.9     | Yonex             | 12.4  | Kohnan Shoji      | 1.0   |
| Edion             | 1.8    | Isetan Mitsukoshi | 0.8     | Kusuri no Aoki    | 3.0     | H2O               | 4.8     | FOOD & LIFE       | 11.5  | K's               | 0.9   |
| H2O               | 1.7    | Yonex             | 0.8     | Alpen             | 2.3     | Sugi              | 4.2     | Nitori            | 10.7  | Marui             | 0.7   |
| ZOZO              | 1.5    | Yaoko             | 0.6     | Marui             | 1.5     | Yamada            | 4.0     | Sugi              | 10.4  | Nitori            | -1.0  |
| DCM               | 1.4    | Alpen             | 0.6     | Life              | 1.4     | Izumi             | 3.2     | Kobe Bussan       | 9.9   | Workman           | -1.8  |
| Komeri            | 1.4    | PPIH              | 0.3     | Goldwin           | 1.3     | MatsukiyoCocokara | 1.9     | Marui             | 8.4   | Yaoko             | -3.0  |
| Sugi              | 1.4    | Descente          | 0.3     | MatsukiyoCocokara | -0.3    | Lawson            | 1.8     | DCM               | 7.6   | TOPIX             | -5.1  |
| Alpen             | 1.3    | U.S.M.H.          | -0.2    | 7&i               | -1.0    | Takashimaya       | 1.6     | Tokyo Base        | 7.1   | Izumi             | -7.3  |
| Pal               | 1.3    | ABC-Mart          | -0.3    | United Arrows     | -1.6    | Marui             | 1.1     | J.Front           | 6.8   | Tsuruha           | -7.6  |
| 7&i               | 1.0    | Izumi             | -0.4    | U.S.M.H.          | -2.5    | Alpen             | 0.0     | Isetan Mitsukoshi | 6.8   | Lawson            | -7.7  |
| Yamada            | 0.4    | Takashimaya       | -0.5    | Kohnan Shoji      | -2.6    | Cosmos            | -0.1    | Goldwin           | 6.1   | Alpen             | -8.6  |
| World             | 0.1    | H2O               | -1.8    | Yamada            | -2.8    | J.Front           | -0.9    | Bic Camera        | 4.8   | ZOZO              | -9.2  |
| K's               | -0.1   | Sundrug           | -1.8    | Takashimaya       | -2.8    | Tokyo Base        | -1.7    | Takashimaya       | 4.3   | Ryohin Keikaku    | -10.7 |
| U.S.M.H.          | -0.7   | 7&i               | -2.2    | Isetan Mitsukoshi | -3.4    | Onward            | -2.2    | JINS              | 2.0   | Seria             | -14.0 |
| Sundrug           | -0.8   | Workman           | -2.2    | K's               | -4.3    | ABC-Mart          | -2.7    | United Arrows     | 1.9   | Welcia            | -14.3 |
| Cosmos            | -0.9   | United Arrows     | -2.9    | Workman           | -4.5    | Descente          | -3.7    | Alpen             | -0.6  | Kobe Bussan       | -14.9 |
| Kohnan Shoji      | -1.1   | Kobe Bussan       | -3.6    | Welcia            | -4.5    | Yonex             | -4.5    | ABC-Mart          | -1.0  | Sugi              | -15.8 |
| Tsuruha           | -1.2   | Nishimatsuya      | -4.8    | H2O               | -7.0    | World             | -5.5    | 7&i               | -1.1  | Kura Sushi        | -17.4 |
| Yonex             | -1.4   | Cosmos            | -6.9    | Izumi             | -7.8    | 7&i               | -7.6    | ZOZO              | -2.6  | Cosmos            | -21.2 |
| Kojima            | -1.9   | Welcia            | -7.3    | Asics             | -8.5    | U.S.M.H.          | -9.6    | Yamada            | -6.1  | Life              | -22.3 |
| Izumi             | -2.2   | Goldwin           | -8.3    | J.Front           | -9.2    | Goldwin           | -11.7   | Seria             | -8.4  | Descente          | -23.7 |
| JINS              | -2.3   | Asics             | -8.3    | Descente          | -10.4   | Welcia            | -12.3   | U.S.M.H.          | -9.6  | Snow Peak         | -26.1 |
| Bic Camera        | -2.8   | Pal               | -9.1    | Mizuno            | -11.9   | Workman           | -14.7   | Welcia            | -19.8 | JINS              | -34.2 |
| Kusuri no Aoki    | -3.8   | Kusuri no Aoki    | -10.3   | Yonex             | -19.6   | United Arrows     | -23.7   | Workman           | -23.0 | FOOD & LIFE       | -40.3 |
| Welcia            | -4.7   | Adastria          | -11.7   | Snow Peak         | -21.0   | Snow Peak         | -48.1   | Snow Peak         | -60.7 | Tokyo Base        | -53.3 |

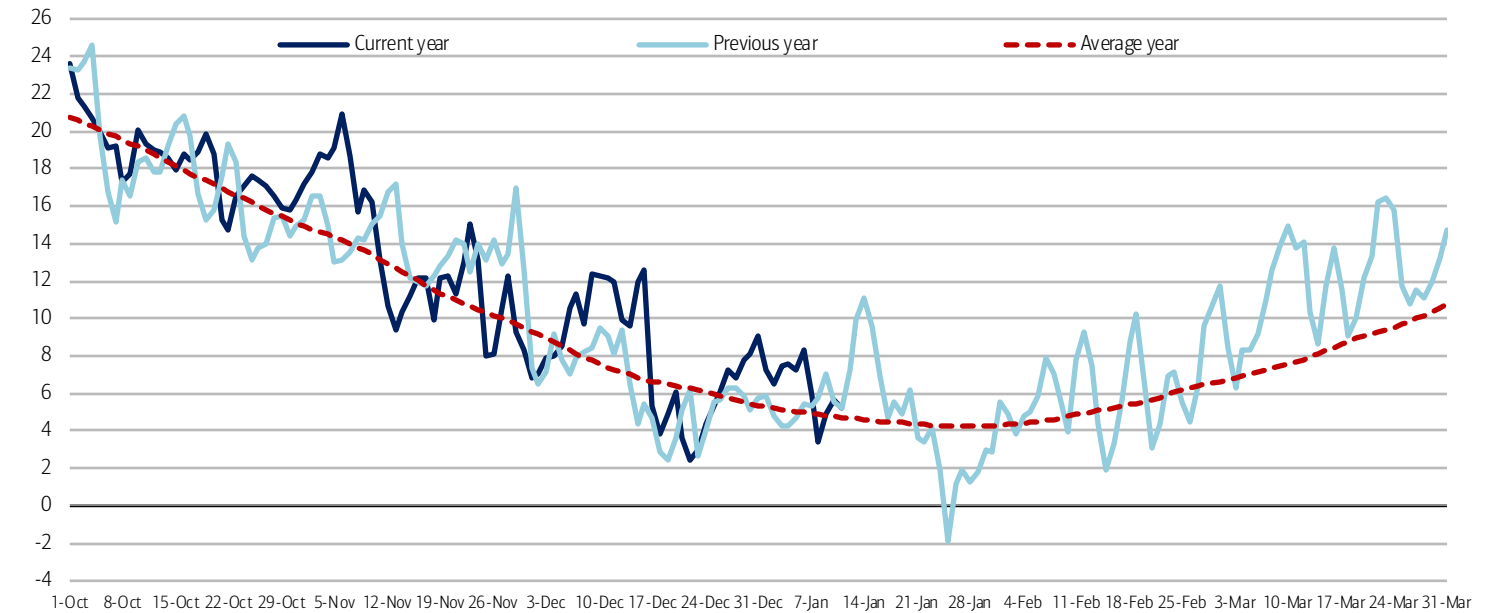
Note: Includes companies outside of our coverage

Source: Bloomberg, BofA Global Research

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

Last week, temperatures were slightly down YoY



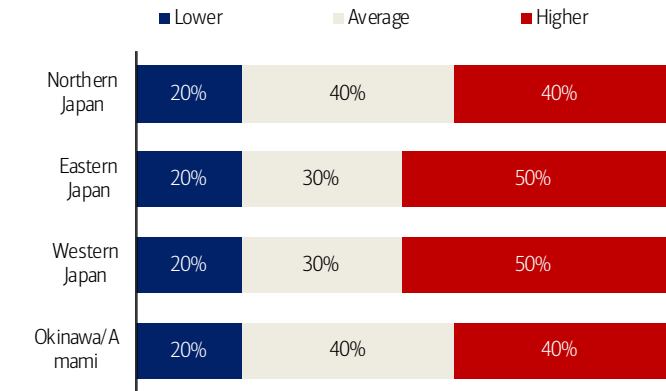
Note: Simple average for 10 cities (Tokyo, Yokohama, Osaka, Nagoya, Sapporo, Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama). Average data based on 1991-2020.

Source: Japan Meteorological Agency, BofA Global Research

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Exhibit 5: Temperature forecasts by region (13 Jan - 12 Feb)

Forecast for at or above average temperatures in all regions

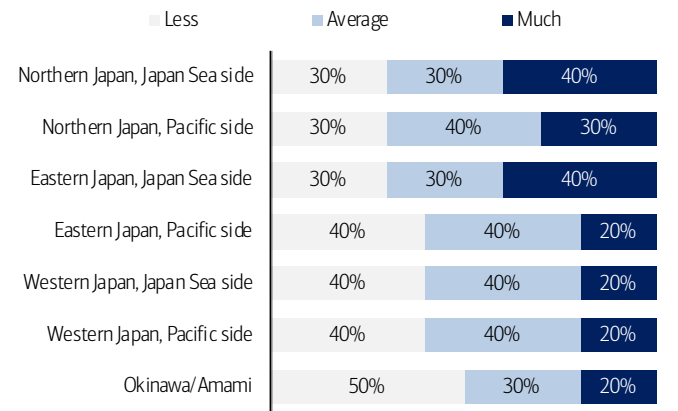


Source: Japan Meteorological Agency, BofA Global Research

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Exhibit 6: Precipitation forecasts by region (13 Jan - 12 Feb)

Forecast for at or below average precipitation on the Pacific side of eastern Japan and in western Japan, Okinawa, and Amami



Source: Japan Meteorological Agency, BofA Global Research

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**Exhibit 7: Monthly temperature trends**

Tokyo, Yokohama, Osaka, Nagoya, Sapporo

|         | Tokyo   |           |         |           | Yokohama |           |         |           | Osaka   |           |         |           | Nagoya  |           |         |           | Sapporo |           |         |           |
|---------|---------|-----------|---------|-----------|----------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
|         | vs.     |           | vs.     |           | vs.      |           | vs.     |           | vs.     |           | vs.     |           | vs.     |           | vs.     |           | vs.     |           | vs.     |           |
|         | Average | last year | average | 5 yrs ave | Average  | last year | average | 5 yrs ave | Average | last year | average | 5 yrs ave | Average | last year | average | 5 yrs ave | Average | last year | average | 5 yrs ave |
| 2021/1  | 54      | -0.2      | 0.0     | -0.5      | 62       | -0.4      | 0.1     | -0.5      | 62      | -0.3      | 0.0     | -0.4      | 5.0     | -0.1      | 0.2     | -0.4      | -4.4    | -1.4      | -1.2    | -1.3      |
| 2021/2  | 8.5     | 1.3       | 2.4     | 1.5       | 9.1      | 1.2       | 2.4     | 1.5       | 8.7     | 0.9       | 2.1     | 1.7       | 7.5     | 0.3       | 2.0     | 1.4       | -2.2    | 0.4       | 0.5     | 0.4       |
| 2021/3  | 12.8    | 2.2       | 3.4     | 2.5       | 13.2     | 2.2       | 3.5     | 2.5       | 12.2    | 1.6       | 2.3     | 1.5       | 12.0    | 1.9       | 2.8     | 1.8       | 3.8     | 1.3       | 2.7     | 1.5       |
| 2021/4  | 15.1    | 1.5       | 0.8     | 0.4       | 15.2     | 1.3       | 0.7     | 0.2       | 15.5    | 0.9       | 0.3     | 0.0       | 15.2    | 1.1       | 0.6     | 0.3       | 7.9     | -0.1      | 0.6     | 0.2       |
| 2021/5  | 19.6    | -0.4      | 0.8     | -0.3      | 19.6     | -0.2      | 0.8     | -0.3      | 20.0    | -1.0      | -0.1    | -0.8      | 19.5    | -0.9      | 0.1     | -0.9      | 13.1    | -2.6      | 0.1     | -1.3      |
| 2021/6  | 22.7    | 0.9       | 0.8     | 0.3       | 22.7     | 0.8       | 0.9     | 0.3       | 23.9    | 0.2       | 0.3     | 0.3       | 23.4    | 0.3       | 0.4     | 0.1       | 18.9    | 1.5       | 1.9     | 2.0       |
| 2021/7  | 25.9    | 1.8       | 0.2     | 0.0       | 26.0     | 1.7       | 0.4     | 0.2       | 27.9    | 1.4       | 0.2     | 0.1       | 27.4    | 1.5       | 0.5     | 0.3       | 23.9    | 2.2       | 2.8     | 2.3       |
| 2021/8  | 27.4    | -1.0      | 0.5     | -0.4      | 27.5     | -0.9      | 0.5     | -0.4      | 28.1    | -1.0      | -0.9    | -1.5      | 27.8    | -1.1      | -0.4    | -1.3      | 22.9    | 0.4       | 0.6     | 0.4       |
| 2021/9  | 22.3    | -2.8      | -1.0    | -1.6      | 22.6     | -2.7      | -1.1    | -1.6      | 24.8    | -1.8      | -0.4    | -0.5      | 24.1    | -2.6      | -0.4    | -0.8      | 18.8    | -0.5      | 0.2     | -0.3      |
| 2021/10 | 18.2    | -1.2      | 0.2     | -0.1      | 18.7     | -1.2      | 0.2     | -0.1      | 20.3    | -0.4      | 0.8     | 0.7       | 19.9    | -0.4      | 1.3     | 0.9       | 12.5    | -0.8      | 0.4     | 0.2       |
| 2021/11 | 13.7    | 0.6       | 1.2     | 0.8       | 14.3     | 0.3       | 0.9     | 0.6       | 14.1    | -0.1      | 0.3     | 0.2       | 13.0    | -0.4      | 0.4     | -0.1      | 7.3     | 3.4       | 2.1     | 2.7       |
| 2021/12 | 7.9     | -0.6      | 0.2     | -0.1      | 8.8      | -0.6      | 0.1     | -0.2      | 8.8     | -0.7      | 0.1     | 0.0       | 7.3     | -1.5      | 0.1     | -0.3      | -0.5    | 0.3       | 0.4     | 0.8       |
| 2022/1  | 4.9     | -2.2      | -0.5    | -0.8      | 5.5      | -2.3      | -0.6    | -1.1      | 5.6     | -3.0      | -0.6    | -0.9      | 4.1     | -3.5      | -0.7    | -1.2      | -3.2    | -0.9      | 0.0     | 0.0       |
| 2022/2  | 5.2     | -3.1      | -0.9    | -2.1      | 5.8      | -3.1      | -0.9    | -2.1      | 5.5     | -2.5      | -1.1    | -1.7      | 4.5     | -2.6      | -1.0    | -1.8      | -2.2    | -0.1      | 0.5     | 0.4       |
| 2022/3  | 10.9    | 0.2       | 1.5     | 0.1       | 11.3     | 0.1       | 1.6     | 0.1       | 11.4    | 0.0       | 1.5     | 0.4       | 11.0    | 0.3       | 1.8     | 0.5       | 2.6     | -0.7      | 1.5     | -0.1      |
| 2022/4  | 15.3    | 2.5       | 1.0     | 0.7       | 15.4     | 2.0       | 0.9     | 0.5       | 16.8    | 3.1       | 1.6     | 1.5       | 16.8    | 3.4       | 2.2     | 2.0       | 9.1     | 2.3       | 1.8     | 1.4       |
| 2022/5  | 18.8    | -0.7      | 0.0     | -1.0      | 19.0     | -0.7      | 0.2     | -0.8      | 20.0    | -0.8      | -0.1    | -0.6      | 19.5    | -1.1      | 0.1     | -0.7      | 14.9    | 1.2       | 1.9     | 0.8       |
| 2022/6  | 23.0    | -0.2      | 1.1     | 0.6       | 22.9     | -0.5      | 1.1     | 0.4       | 24.4    | -0.5      | 0.8     | 0.7       | 24.3    | -0.3      | 1.3     | 0.9       | 16.8    | -1.5      | -0.2    | -0.6      |
| 2022/7  | 27.4    | 3.1       | 1.7     | 1.4       | 27.1     | 2.7       | 1.5     | 1.1       | 28.4    | 2.4       | 0.7     | 0.7       | 27.5    | 2.1       | 0.6     | 0.3       | 23.1    | 1.9       | 2.0     | 0.9       |
| 2022/8  | 27.5    | -1.6      | 0.6     | -0.4      | 27.6     | -1.5      | 0.6     | -0.3      | 29.5    | -1.2      | 0.5     | 0.1       | 28.5    | -1.8      | 0.3     | -0.5      | 22.7    | -0.6      | 0.4     | 0.4       |
| 2022/9  | 24.4    | 0.2       | 1.1     | 0.9       | 24.7     | 0.1       | 1.0     | 0.9       | 26.2    | 0.4       | 1.0     | 1.1       | 26.1    | 0.7       | 1.6     | 1.4       | 19.8    | -0.3      | 1.2     | 0.8       |
| 2022/10 | 17.2    | -0.3      | -0.8    | -1.0      | 17.9     | 0.0       | -0.6    | -0.8      | 19.0    | 0.3       | -0.5    | -0.6      | 18.7    | 0.7       | 0.1     | -0.3      | 12.6    | -0.5      | 0.5     | 0.0       |
| 2022/11 | 14.5    | 0.5       | 2.0     | 1.2       | 15.2     | 0.5       | 1.8     | 1.1       | 15.2    | 0.5       | 1.4     | 1.2       | 14.6    | 0.6       | 2.0     | 1.5       | 7.1     | 0.8       | 1.9     | 1.5       |
| 2022/12 | 7.5     | -0.2      | -0.2    | -0.3      | 8.4      | -0.4      | -0.3    | -0.4      | 7.9     | -0.8      | -0.8    | -0.8      | 6.6     | -0.8      | -0.6    | -0.9      | -1.4    | 0.2       | -0.5    | -0.2      |
| 2023/1  | 5.7     | 0.3       | 0.3     | 0.2       | 6.4      | 0.2       | 0.3     | 0.1       | 6.5     | 0.3       | 0.3     | 0.1       | 5.2     | 0.2       | 0.4     | 0.1       | -4.4    | 0.0       | -1.2    | -1.3      |
| 2023/2  | 7.3     | -1.2      | 1.2     | 0.4       | 7.9      | -1.2      | 1.2     | 0.4       | 7.0     | -1.7      | 0.4     | -0.1      | 6.5     | -1.0      | 1.0     | 0.3       | -2.7    | -0.5      | 0.0     | 0.0       |
| 2023/3  | 12.9    | 0.1       | 3.5     | 1.6       | 13.2     | 0.0       | 3.5     | 1.5       | 13.0    | 0.8       | 3.1     | 1.6       | 12.7    | 0.7       | 3.5     | 1.7       | 4.9     | 1.1       | 3.8     | 2.0       |
| 2023/4  | 16.3    | 1.2       | 2.0     | 1.5       | 16.6     | 1.4       | 2.1     | 1.6       | 15.9    | 0.4       | 0.7     | 0.4       | 15.9    | 0.7       | 1.3     | 0.7       | 9.2     | 1.3       | 1.9     | 1.2       |
| 2023/5  | 19.0    | -0.6      | 0.2     | -0.5      | 19.0     | -0.6      | 0.2     | -0.6      | 20.0    | 0.0       | -0.1    | -0.4      | 20.2    | 0.7       | 0.8     | 0.2       | 13.8    | 0.7       | 0.8     | -0.4      |
| 2023/6  | 23.2    | 0.5       | 1.3     | 0.6       | 23.2     | 0.5       | 1.4     | 0.6       | 23.8    | -0.1      | 0.2     | -0.3      | 23.8    | 0.4       | 0.8     | 0.0       | 19.3    | 0.4       | 2.3     | 1.7       |
| 2023/7  | 28.7    | 2.8       | 3.0     | 2.7       | 28.2     | 2.2       | 2.6     | 2.2       | 28.9    | 1.0       | 1.2     | 1.2       | 28.9    | 1.5       | 2.0     | 1.8       | 23.8    | -0.1      | 2.7     | 1.5       |
| 2023/8  | 29.2    | 1.8       | 2.3     | 1.1       | 29.1     | 1.6       | 2.1     | 1.0       | 29.9    | 1.8       | 0.9     | 0.5       | 29.4    | 1.6       | 1.2     | 0.4       | 26.7    | 3.8       | 4.4     | 4.2       |
| 2023/9  | 26.7    | 4.4       | 3.4     | 2.9       | 26.9     | 4.3       | 3.2     | 2.8       | 27.9    | 3.1       | 2.7     | 2.4       | 27.3    | 3.2       | 2.8     | 2.1       | 21.5    | 2.7       | 2.9     | 2.1       |
| 2023/10 | 18.9    | 0.7       | 0.9     | 0.6       | 19.5     | 0.8       | 1.0     | 0.7       | 19.3    | -1.0      | -0.2    | -0.4      | 18.3    | -1.6      | -0.3    | -0.9      | 13.3    | 0.8       | 1.2     | 0.4       |
| 2023/11 | 14.4    | 0.7       | 1.9     | 0.5       | 15.2     | 0.9       | 1.8     | 0.6       | 14.4    | 0.3       | 0.6     | -0.2      | 13.6    | 0.6       | 1.0     | -0.2      | 6.7     | -0.6      | 1.5     | 0.5       |
| 2023/12 | 9.4     | 1.5       | 1.7     | 1.4       | 10.2     | 1.4       | 1.5     | 1.3       | 9.3     | 0.5       | 0.6     | 0.4       | 8.4     | 1.1       | 1.2     | 0.8       | -0.7    | -0.2      | 0.2     | 0.4       |

Source: Japan Meteorological Agency, BofA Global Research

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**Exhibit 8: Monthly temperature trends**

Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama

|         | Fukuoka |               |             |               | Kobe    |               |             |               | Hiroshima |               |             |               | Sendai  |               |             |               | Matsuyama |               |             |               |
|---------|---------|---------------|-------------|---------------|---------|---------------|-------------|---------------|-----------|---------------|-------------|---------------|---------|---------------|-------------|---------------|-----------|---------------|-------------|---------------|
|         | Average | vs. last year | vs. average | vs. 5 yrs ave | Average | vs. last year | vs. average | vs. 5 yrs ave | Average   | vs. last year | vs. average | vs. 5 yrs ave | Average | vs. last year | vs. average | vs. 5 yrs ave | Average   | vs. last year | vs. average | vs. 5 yrs ave |
| 2021/1  | 7.0     | -1.0          | 0.1         | -0.5          | 6.1     | -0.6          | -0.1        | -0.7          | 5.2       | -1.2          | -0.2        | -0.8          | 1.2     | -1.2          | -0.8        | -1.3          | 6.2       | -1.0          | 0.0         | -0.6          |
| 2021/2  | 10.2    | 0.8           | 2.4         | 1.9           | 8.8     | 0.8           | 2.3         | 1.7           | 8.2       | 0.6           | 2.0         | 1.7           | 3.7     | 0.0           | 1.3         | 0.5           | 8.9       | 0.7           | 2.1         | 1.6           |
| 2021/3  | 13.5    | 1.6           | 2.7         | 1.9           | 12.3    | 1.5           | 2.5         | 1.6           | 12.1      | 1.5           | 2.6         | 1.8           | 8.6     | 1.6           | 3.1         | 1.7           | 12.7      | 1.8           | 2.8         | 2.0           |
| 2021/4  | 16.7    | 1.3           | 1.3         | 0.7           | 15.3    | 0.8           | 0.3         | -0.1          | 15.4      | 0.6           | 0.6         | 0.2           | 11.6    | 1.4           | 0.9         | 0.4           | 15.5      | 0.7           | 0.7         | 0.2           |
| 2021/5  | 20.4    | -0.7          | 0.5         | -0.4          | 19.7    | -0.9          | -0.1        | -0.8          | 19.5      | -1.0          | -0.1        | -0.8          | 17.0    | -0.4          | 1.4         | 0.0           | 19.5      | -0.8          | 0.1         | -0.6          |
| 2021/6  | 24.2    | 0.8           | 0.9         | 0.5           | 23.7    | 0.3           | 0.3         | 0.4           | 23.8      | 0.6           | 0.6         | 0.5           | 20.6    | 1.6           | 1.4         | 0.8           | 23.4      | 0.4           | 0.5         | 0.2           |
| 2021/7  | 28.9    | 2.5           | 1.5         | 1.2           | 27.5    | 1.1           | 0.4         | 0.2           | 27.6      | 1.2           | 0.4         | 0.2           | 24.1    | 1.7           | 1.2         | 0.6           | 27.2      | 1.1           | 0.1         | -0.1          |
| 2021/8  | 27.5    | -0.5          | -0.9        | -1.9          | 27.8    | -1.0          | -0.8        | -1.5          | 27.4      | -1.1          | -1.1        | -1.9          | 24.9    | -1.3          | 0.5         | -0.4          | 27.5      | -0.3          | -0.6        | -1.5          |
| 2021/9  | 25.9    | 0.0           | 1.2         | 1.0           | 25.1    | -1.8          | -0.3        | -0.4          | 25.0      | -1.3          | 0.3         | 0.3           | 20.8    | -1.6          | -0.4        | -1.0          | 25.0      | -1.3          | 0.4         | 0.1           |
| 2021/10 | 21.0    | -0.5          | 1.4         | 1.0           | 20.6    | -0.6          | 0.8         | 0.6           | 19.9      | -0.4          | 1.1         | 0.7           | 15.8    | -1.1          | 0.1         | -0.1          | 20.1      | -0.6          | 1.0         | 0.4           |
| 2021/11 | 13.9    | -1.0          | -0.3        | -0.6          | 14.5    | -0.1          | 0.3         | 0.2           | 13.1      | -0.4          | 0.2         | -0.1          | 11.1    | 1.1           | 1.3         | 1.3           | 13.7      | -0.4          | 0.1         | -0.1          |
| 2021/12 | 9.1     | -1.2          | 0.0         | -0.3          | 8.9     | -1.0          | 0.1         | -0.2          | 7.8       | -0.8          | 0.3         | 0.0           | 4.7     | -0.7          | 0.2         | 0.1           | 8.8       | -0.9          | 0.3         | 0.1           |
| 2022/1  | 6.9     | -2.6          | 0.0         | -0.6          | 5.7     | -3.1          | -0.5        | -0.9          | 5.3       | -2.8          | -0.1        | -0.6          | 1.7     | -2.3          | -0.3        | -0.6          | 5.9       | -2.8          | -0.3        | -0.8          |
| 2022/2  | 6.3     | -3.4          | -1.5        | -2.5          | 5.6     | -2.6          | -0.9        | -1.7          | 4.8       | -3.0          | -1.4        | -2.1          | 1.9     | -2.5          | -0.5        | -1.4          | 5.2       | -3.2          | -1.6        | -2.4          |
| 2022/3  | 12.7    | 0.3           | 1.9         | 0.7           | 11.5    | 0.1           | 1.7         | 0.5           | 11.5      | 0.5           | 2.0         | 0.8           | 6.4     | -1.1          | 0.9         | -0.8          | 11.9      | 0.5           | 2.0         | 0.8           |
| 2022/4  | 16.4    | 2.3           | 1.0         | 0.4           | 16.6    | 3.0           | 1.6         | 1.5           | 16.4      | 3.2           | 1.6         | 1.4           | 11.8    | 1.7           | 1.1         | 0.6           | 15.9      | 2.6           | 1.1         | 0.7           |
| 2022/5  | 20.6    | 0.2           | 0.7         | -0.1          | 19.8    | -0.8          | 0.0         | -0.5          | 20.0      | -0.3          | 0.4         | -0.1          | 16.5    | -0.3          | 0.9         | -0.5          | 19.3      | -0.8          | -0.1        | -0.7          |
| 2022/6  | 24.8    | -0.1          | 1.5         | 0.9           | 23.9    | -0.4          | 0.5         | 0.5           | 24.2      | 0.0           | 1.0         | 0.8           | 20.2    | -1.0          | 1.0         | 0.3           | 24.1      | -0.1          | 1.2         | 0.9           |
| 2022/7  | 28.9    | 3.4           | 1.5         | 1.1           | 28.0    | 2.3           | 0.9         | 0.7           | 28.1      | 2.9           | 0.9         | 0.8           | 24.9    | 3.6           | 2.0         | 1.2           | 27.8      | 2.2           | 0.7         | 0.7           |
| 2022/8  | 29.8    | -0.4          | 1.4         | 0.8           | 29.2    | -0.8          | 0.6         | 0.2           | 29.2      | -0.7          | 0.7         | 0.3           | 25.1    | -1.5          | 0.7         | 0.0           | 29.1      | -0.6          | 1.0         | 0.5           |
| 2022/9  | 25.7    | 1.2           | 1.0         | 0.6           | 26.7    | 0.8           | 1.3         | 1.4           | 26.0      | 1.0           | 1.3         | 1.3           | 22.2    | -0.3          | 1.0         | 0.7           | 26.2      | 1.0           | 1.6         | 1.3           |
| 2022/10 | 19.6    | 0.2           | 0.0         | -0.4          | 19.5    | 0.4           | -0.3        | -0.4          | 18.9      | 0.2           | 0.1         | -0.3          | 15.5    | -0.1          | -0.2        | -0.4          | 19.2      | 0.4           | 0.1         | -0.3          |
| 2022/11 | 16.2    | 0.9           | 2.0         | 1.8           | 15.8    | 0.7           | 1.6         | 1.4           | 14.9      | 0.7           | 2.0         | 1.7           | 11.9    | 1.1           | 2.1         | 1.6           | 15.5      | 0.8           | 1.9         | 1.7           |
| 2022/12 | 7.7     | -0.8          | -1.4        | -1.4          | 7.9     | -0.9          | -0.9        | -1.0          | 6.4       | -0.8          | -1.1        | -1.2          | 4.2     | 0.3           | -0.3        | -0.2          | 7.4       | -0.5          | -1.1        | -1.1          |
| 2023/1  | 7.2     | 0.2           | 0.3         | -0.2          | 6.6     | 0.5           | 0.4         | 0.1           | 5.7       | 0.5           | 0.3         | -0.2          | 2.1     | 0.9           | 0.1         | 0.0           | 6.5       | 0.3           | 0.3         | -0.1          |
| 2023/2  | 9.0     | -1.2          | 1.2         | 0.6           | 7.2     | -1.6          | 0.7         | 0.0           | 6.9       | -1.3          | 0.7         | 0.3           | 3.0     | -0.7          | 0.6         | 0.0           | 7.6       | -1.3          | 0.8         | 0.4           |
| 2023/3  | 13.6    | 0.1           | 2.8         | 1.1           | 13.0    | 0.7           | 3.2         | 1.5           | 12.6      | 0.5           | 3.1         | 1.4           | 9.3     | 0.7           | 3.8         | 1.9           | 12.7      | 0.0           | 2.8         | 1.0           |
| 2023/4  | 16.7    | 0.0           | 1.3         | 0.8           | 15.9    | 0.6           | 0.9         | 0.6           | 15.7      | 0.3           | 0.9         | 0.5           | 13.3    | 1.7           | 2.6         | 2.1           | 15.9      | 0.4           | 1.1         | 0.7           |
| 2023/5  | 20.2    | -0.2          | 0.3         | -0.5          | 19.8    | 0.1           | 0.0         | -0.3          | 19.9      | 0.4           | 0.3         | -0.1          | 16.6    | -0.4          | 1.0         | -0.3          | 19.8      | 0.3           | 0.4         | 0.0           |
| 2023/6  | 24.4    | 0.2           | 1.1         | 0.2           | 23.4    | -0.3          | 0.0         | -0.3          | 23.3      | -0.5          | 0.1         | -0.4          | 21.6    | 1.0           | 2.4         | 1.3           | 23.1      | -0.3          | 0.2         | -0.4          |
| 2023/7  | 28.9    | 0.0           | 1.5         | 1.2           | 28.0    | 0.5           | 0.9         | 0.7           | 27.9      | 0.3           | 0.7         | 0.6           | 26.6    | 2.5           | 3.7         | 3.0           | 28.0      | 0.8           | 0.9         | 1.0           |
| 2023/8  | 29.7    | 2.2           | 1.3         | 0.6           | 29.7    | 1.9           | 1.1         | 0.7           | 30.0      | 2.6           | 1.5         | 1.0           | 28.6    | 3.7           | 4.2         | 3.1           | 28.9      | 1.4           | 0.8         | 0.2           |
| 2023/9  | 26.9    | 1.0           | 2.2         | 1.5           | 27.9    | 2.8           | 2.5         | 2.1           | 27.2      | 2.2           | 2.5         | 2.0           | 25.1    | 4.3           | 3.9         | 3.4           | 27.3      | 2.3           | 2.7         | 1.9           |
| 2023/10 | 19.8    | -1.2          | 0.2         | -0.1          | 19.6    | -1.0          | -0.2        | -0.5          | 18.9      | -1.0          | 0.1         | -0.4          | 16.7    | 0.9           | 1.0         | 0.6           | 19.4      | -0.7          | 0.3         | -0.2          |
| 2023/11 | 15.1    | 1.2           | 0.9         | 0.2           | 14.7    | 0.2           | 0.5         | -0.3          | 14.0      | 0.9           | 1.1         | 0.2           | 11.4    | 0.3           | 1.6         | 0.5           | 14.8      | 1.1           | 1.2         | 0.5           |
| 2023/12 | 9.9     | 0.8           | 0.8         | 0.7           | 9.7     | 0.8           | 0.9         | 0.7           | 8.2       | 0.4           | 0.7         | 0.5           | 5.7     | 1.0           | 1.2         | 1.2           | 9.3       | 0.5           | 0.8         | 0.7           |

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.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>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%             |

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 | last year | average   | 5 yrs ave | 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%      |

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**Exhibit 11: Monthly sunshine hours**

Tokyo, Yokohama, Osaka, Nagoya, Sapporo

|         | Tokyo            |                |                  | Yokohama         |                |                  | Osaka            |                |                  | Nagoya           |                |                  | Sapporo          |                |                  |
|---------|------------------|----------------|------------------|------------------|----------------|------------------|------------------|----------------|------------------|------------------|----------------|------------------|------------------|----------------|------------------|
|         | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>5 yrs ave | vs.<br>last year | vs.<br>average | vs.<br>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%              |

Source: Japan Meteorological Agency, BofA Global Research

BofA GLOBAL RESEARCH



**Exhibit 12: Monthly sunshine hours**

Fukuoka, Kobe, Hiroshima, Sendai, Matsuyama

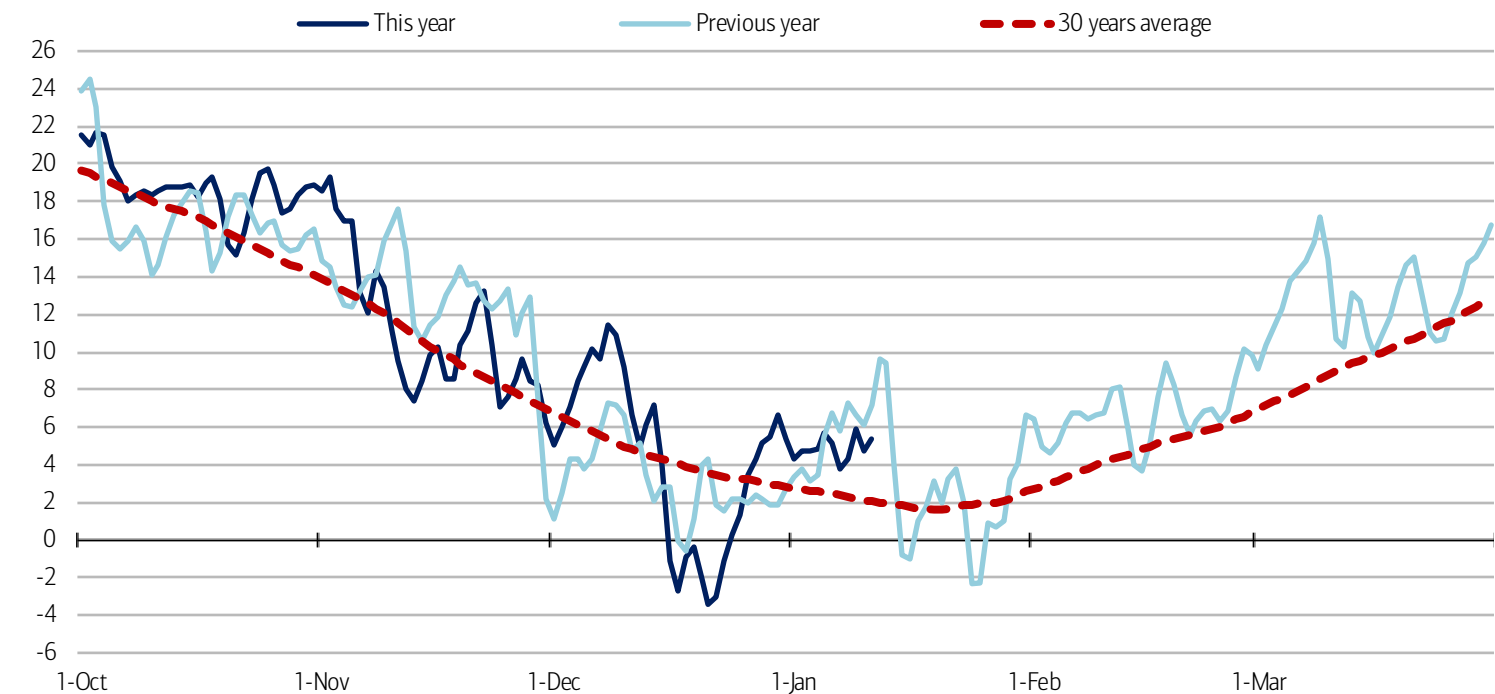
|         | Fukuoka   |         |           | Kobe      |         |           | Hiroshima |         |           | Sendai    |         |      | Matsuyama |         |           |
|---------|-----------|---------|-----------|-----------|---------|-----------|-----------|---------|-----------|-----------|---------|------|-----------|---------|-----------|
|         | 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 |      | 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%        |

Source: Japan Meteorological Agency, BofA Global Research

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# China temperature trends

**Exhibit 13: China temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures slightly below previous year level recently



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 14: China monthly temperatures (simple average)**  
The Jan average was up YoY as of 11 Jan

|                  | 2022 |     |     |      |     |     |     |      |      |     |      |      | 2023 |     |      |     |     |      |      |     |     |      |      |      | 2024 |  |
|------------------|------|-----|-----|------|-----|-----|-----|------|------|-----|------|------|------|-----|------|-----|-----|------|------|-----|-----|------|------|------|------|--|
|                  | 2    | 3   | 4   | 5    | 6   | 7   | 8   | 9    | 10   | 11  | 12   | 1    | 2    | 3   | 4    | 5   | 6   | 7    | 8    | 9   | 10  | 11   | 12   | 1    |      |  |
| vs. last year    | -4.5 | 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  | -0.5 |      |  |
| vs. average year | -1.0 | 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 | 2.5  |      |  |

Note: Jan 2024 temperature is the average as of 11 Jan

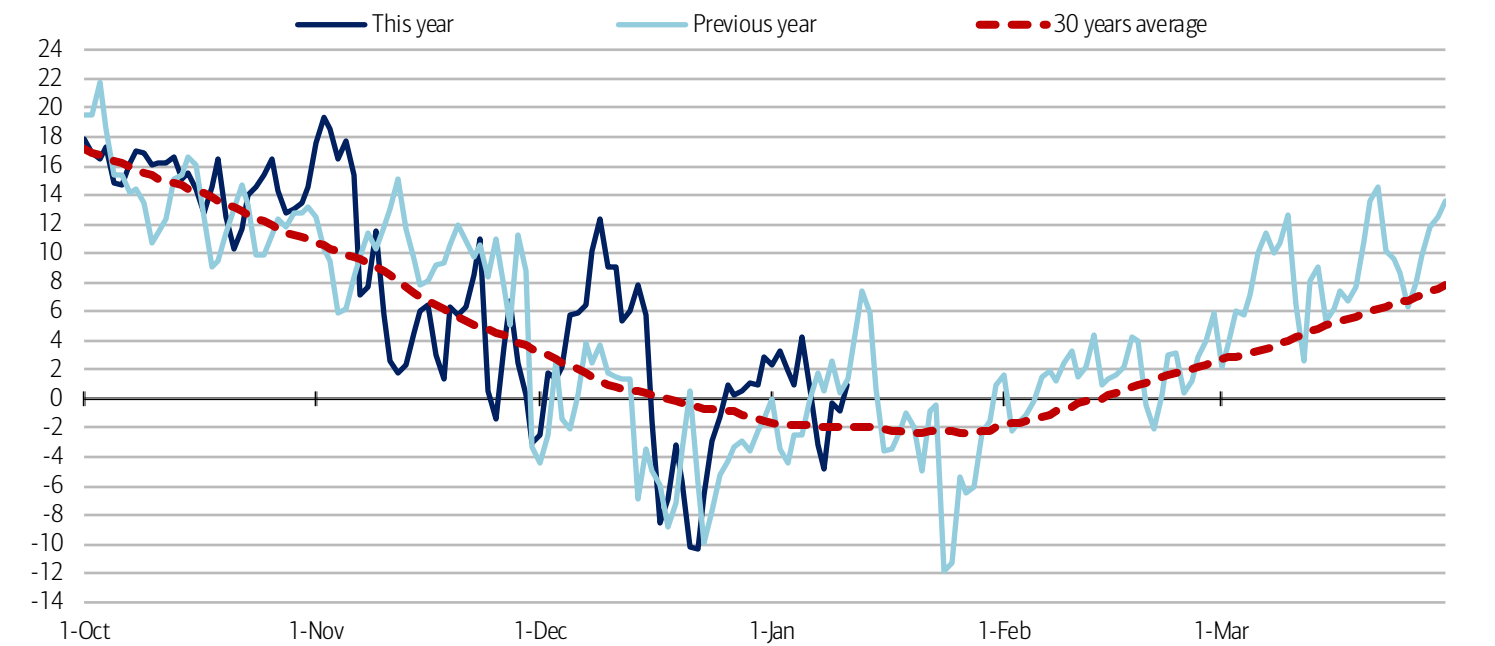
Source: Bloomberg, BofA Global Research

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# Korea temperature trends

**Exhibit 15: Korea temperature trends (current-year, previous-year, and 30-year averages)**  
Recently, temperatures slightly lower than last year



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 16: Korea monthly temperatures (simple average)**  
The Jan average was also up YoY as of 11 Jan

|                  | 2022 |      |     |     |     |      |     |      |      |     |      |     | 2023 |     |      |     |     |      |     |     |     |      |     |     | 2024 |  |
|------------------|------|------|-----|-----|-----|------|-----|------|------|-----|------|-----|------|-----|------|-----|-----|------|-----|-----|-----|------|-----|-----|------|--|
|                  | 2    | 3    | 4   | 5   | 6   | 7    | 8   | 9    | 10   | 11  | 12   | 1   | 2    | 3   | 4    | 5   | 6   | 7    | 8   | 9   | 10  | 11   | 12  | 1   |      |  |
| vs. last year    | -3.5 | -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 | 1.0 |      |  |
| vs. average year | -1.5 | 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 | 2.3 |      |  |

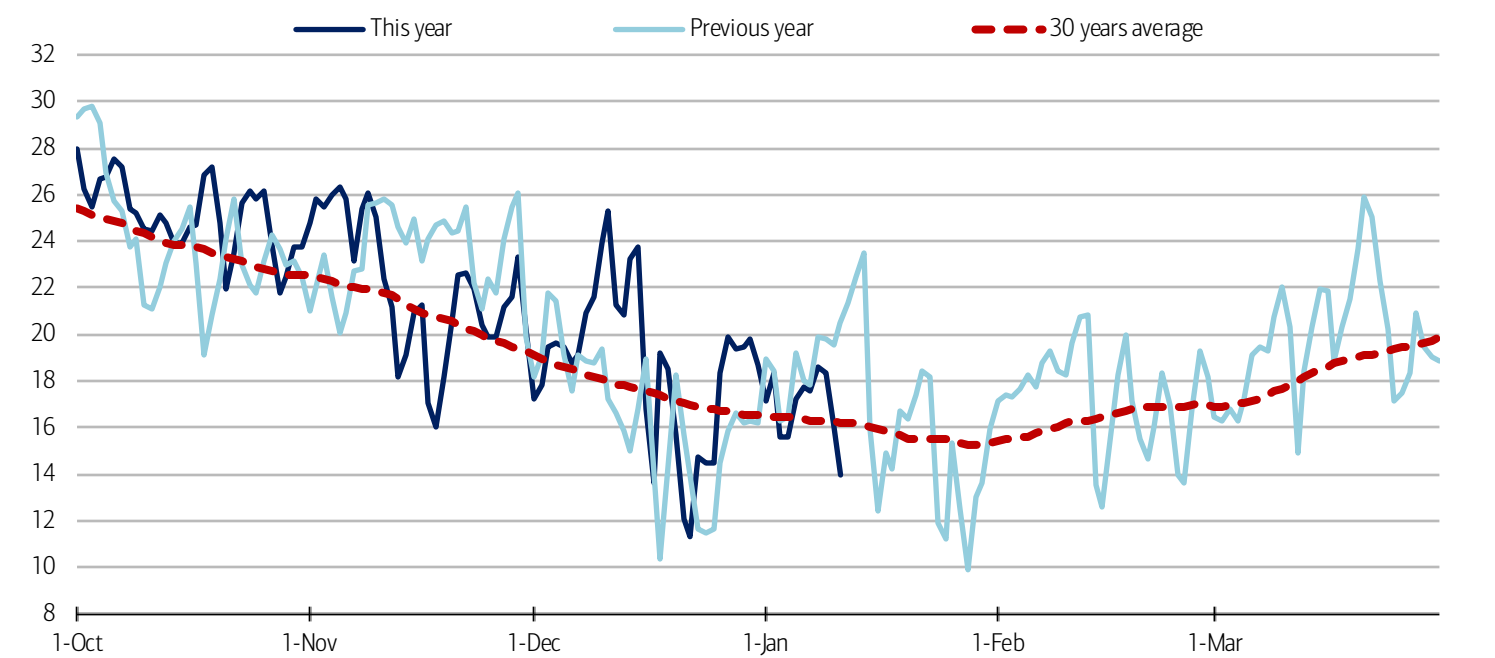
Note: Jan 2024 temperature is the average as of 11 Jan  
Source: Bloomberg, BofA Global Research

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# Taiwan temperature trends

**Exhibit 17: Taiwan temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures fell over the past few days to below last year



Source: Bloomberg, BofA Global Research

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**Exhibit 18: Taiwan monthly temperatures (simple average)**  
The Jan average was down YoY as of 11 Jan

|                  | 2022 |     |      |      |      |     |     |      |      |     |      |      | 2023 |      |     |     |     |      |      |     |     |      |     |      |
|------------------|------|-----|------|------|------|-----|-----|------|------|-----|------|------|------|------|-----|-----|-----|------|------|-----|-----|------|-----|------|
|                  | 2    | 3   | 4    | 5    | 6    | 7   | 8   | 9    | 10   | 11  | 12   | 1    | 2    | 3    | 4   | 5   | 6   | 7    | 8    | 9   | 10  | 11   | 12  | 1    |
| vs. last year    | -2.7 | 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 | -1.7 |
| vs. average year | -0.1 | 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 | 0.6  |

Note: Jan 2024 temperature is the average as of 11 Jan

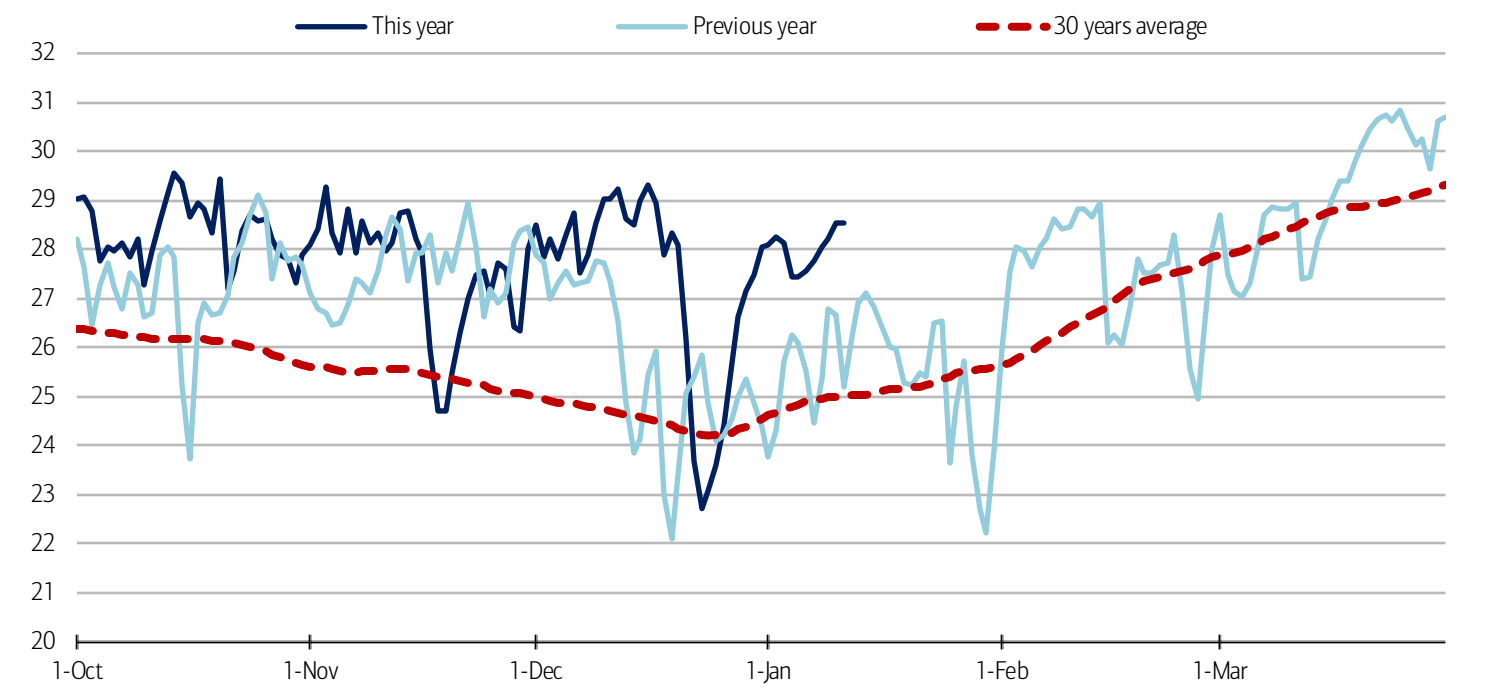
Source: Bloomberg, BofA Global Research

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# Thailand temperature trends

**Exhibit 19: Thailand temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures recently higher than last year



Source: Bloomberg, BofA Global Research

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**Exhibit 20: Thailand monthly temperatures (simple average)**  
The Jan average was up YoY as of 11 Jan

|                  | 2022 |      |      |      |      |      |      |     |      |     |     |  | 2023 |     |      |     |     |     |     |     |     |     |      |     | 2024 |
|------------------|------|------|------|------|------|------|------|-----|------|-----|-----|--|------|-----|------|-----|-----|-----|-----|-----|-----|-----|------|-----|------|
|                  | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9   | 10   | 11  | 12  |  | 1    | 2   | 3    | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11   | 12  | 1    |
| vs. last year    | -0.3 | -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 | 2.5  |
| vs. average year | 0.2  | 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 | 3.1  |

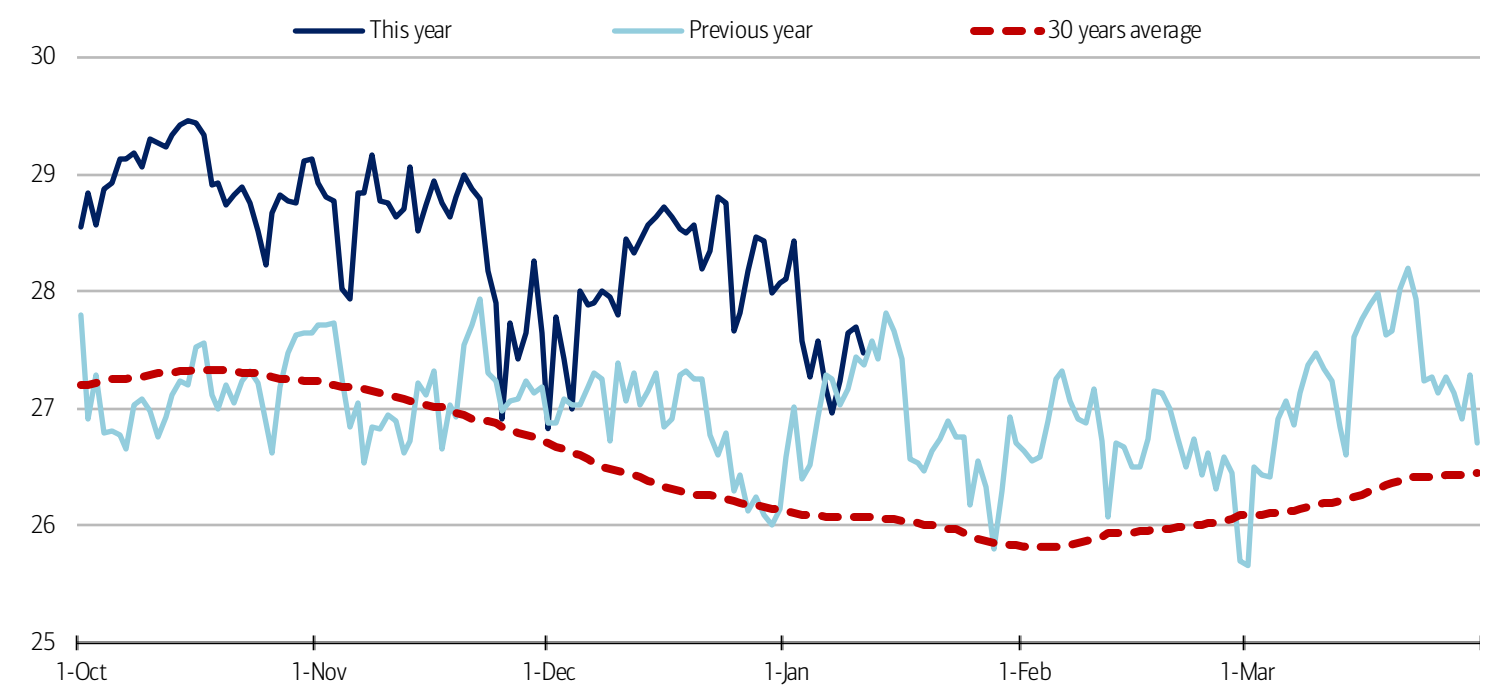
Note: Jan 2024 temperature is the average as of 11 Jan

Source: Bloomberg, BofA Global Research

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# Indonesia temperature trends

**Exhibit 21: Indonesia temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures on par with last year over the past few days



Source: Bloomberg, BofA Global Research

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**Exhibit 22: Indonesia monthly temperatures (simple average)**  
Monthly average remains up YoY in Jan as of 11 Jan

|                  | 2022 |     |     |      |      |      |     |      |      |      |      |      | 2023 |      |     |     |     |     |     |     |     |     |     |     | 2024 |
|------------------|------|-----|-----|------|------|------|-----|------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
|                  | 2    | 3   | 4   | 5    | 6    | 7    | 8   | 9    | 10   | 11   | 12   | 1    | 2    | 3    | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 1   |      |
| vs. last year    | 0.1  | 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 | 0.6 |      |
| vs. average year | 1.1  | 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 | 1.5 |      |

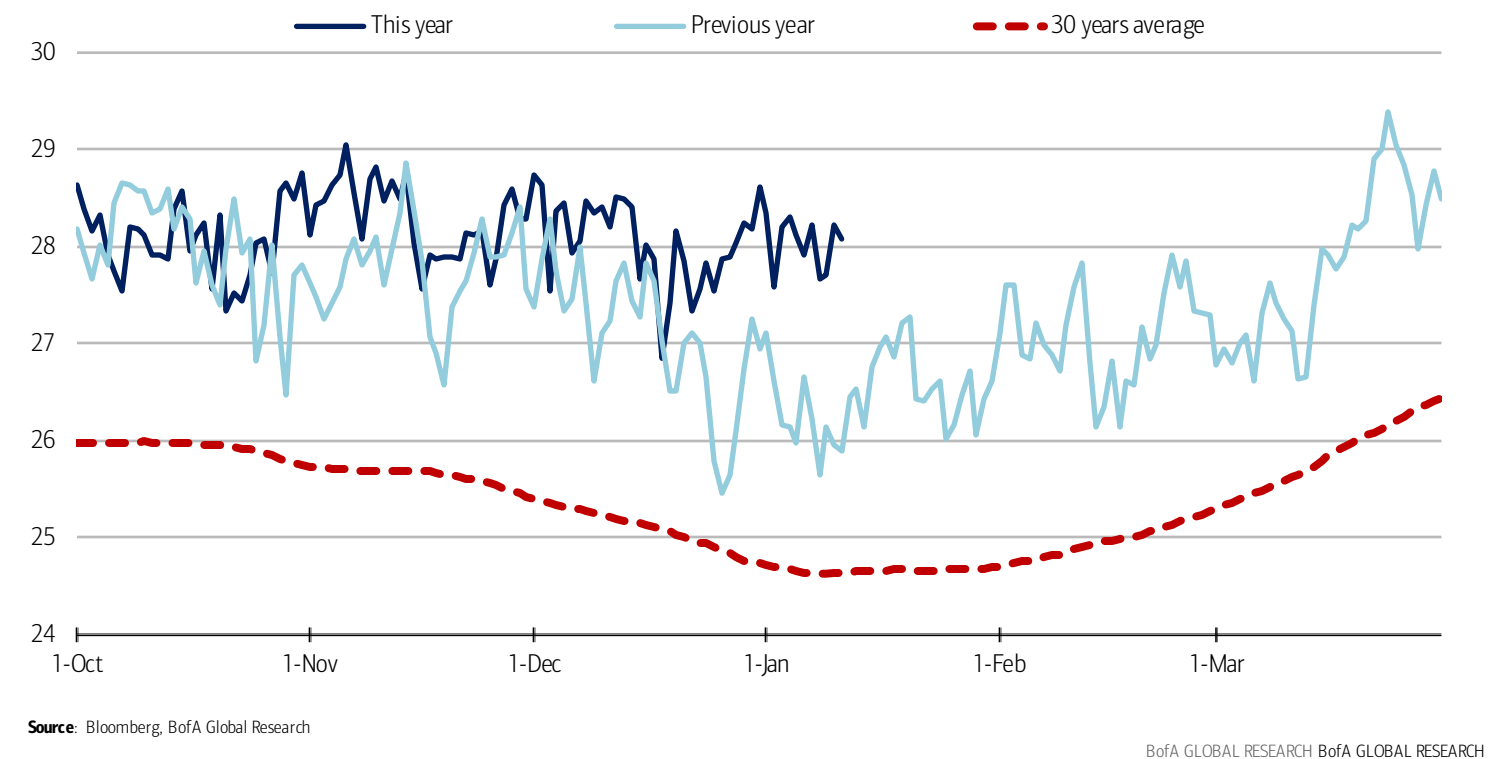
Note: Jan 2024 temperature is the average as of 11 Jan  
Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH



# Philippines temperature trends

**Exhibit 23: Philippines temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures higher than last year for the past weeks



**Exhibit 24: Philippines monthly temperatures (simple average)**  
Monthly average remains up YoY in Jan as of 11 Jan

|                  | 2022 |     |      |      |     |     |      |     |     |      |     |      | 2023 |      |     |     |      |     |     |     |     |     |     |     | 2024 |
|------------------|------|-----|------|------|-----|-----|------|-----|-----|------|-----|------|------|------|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|------|
|                  | 2    | 3   | 4    | 5    | 6   | 7   | 8    | 9   | 10  | 11   | 12  | 1    | 2    | 3    | 4   | 5   | 6    | 7   | 8   | 9   | 10  | 11  | 12  | 1   |      |
| vs. last year    | 0.2  | 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 | 1.8 |      |
| vs. average year | 2.1  | 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 | 3.4 |      |

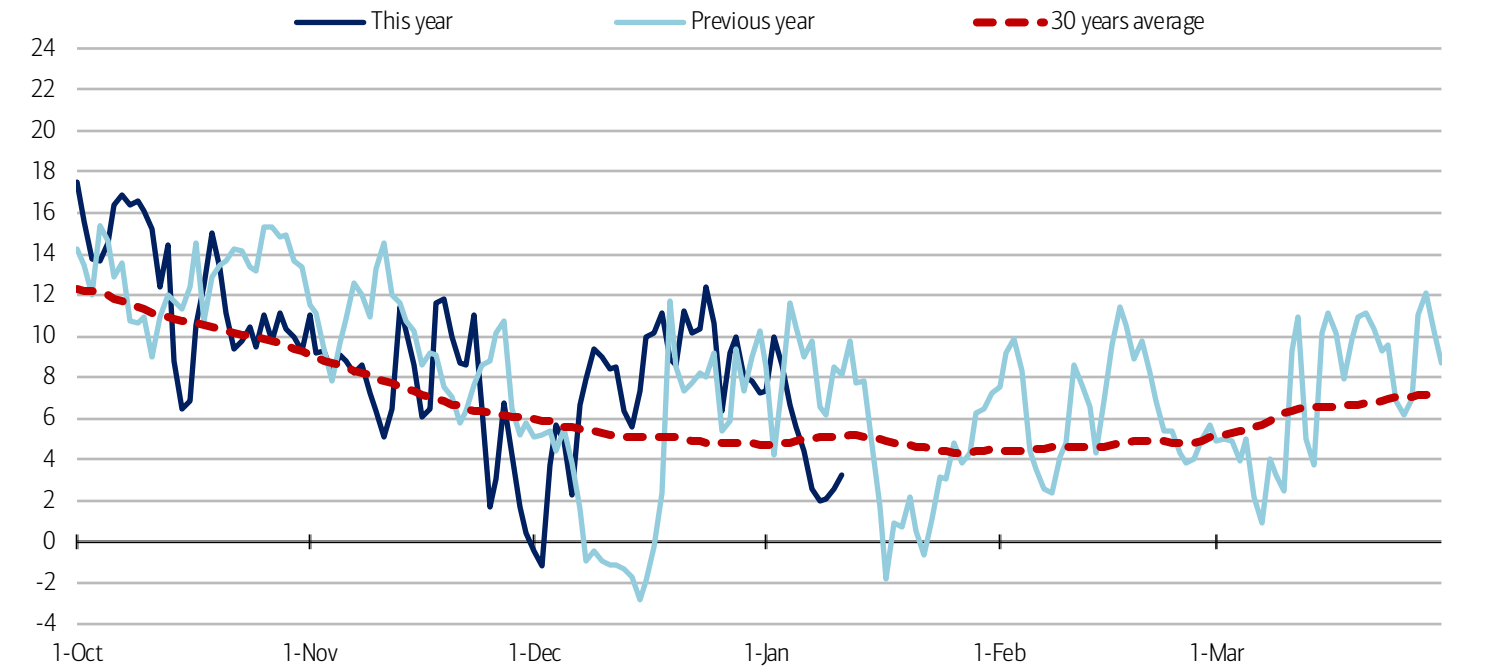
Note: Jan 2024 temperature is the average as of 11 Jan  
Source: Bloomberg, BofA Global Research

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# UK temperature trends

**Exhibit 25: UK temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures recently lower than last year



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 26: UK monthly temperatures (simple average)**  
The Jan average was down YoY as of 11 Jan

|                  | 2022 |     |     |     |      |     |     |      |     |     |      |  | 2023 |      |      |      |      |     |      |      |     |      |      |     | 2024 |
|------------------|------|-----|-----|-----|------|-----|-----|------|-----|-----|------|--|------|------|------|------|------|-----|------|------|-----|------|------|-----|------|
|                  | 2    | 3   | 4   | 5   | 6    | 7   | 8   | 9    | 10  | 11  | 12   |  | 1    | 2    | 3    | 4    | 5    | 6   | 7    | 8    | 9   | 10   | 11   | 12  | 1    |
| vs. last year    | 1.8  | 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 | -3.2 |
| vs. average year | 2.7  | 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 | 0.1  |

Note: Jan 2024 temperature is the average as of 11 Jan

Source: Bloomberg, BofA Global Research

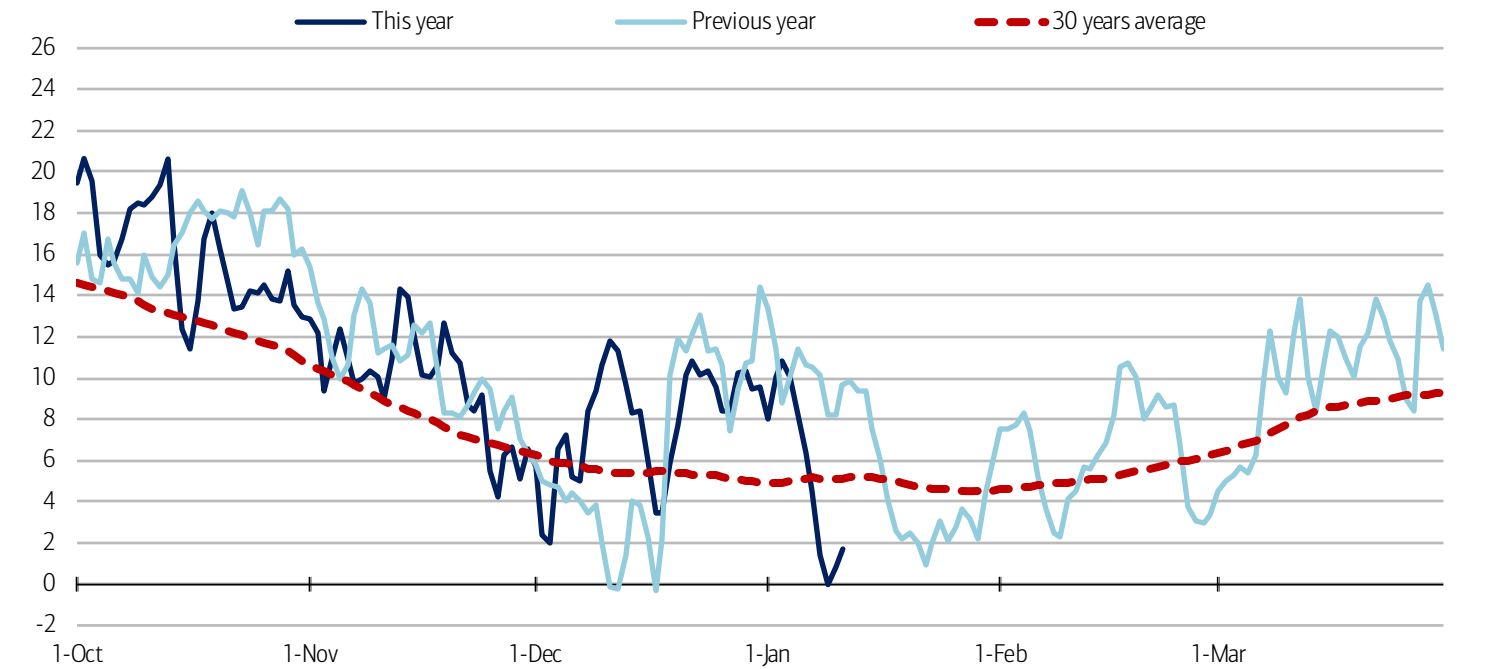
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# France temperature trends

**Exhibit 27: France temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures recently sharply lower than last year



Source: Bloomberg, BofA Global Research

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**Exhibit 28: France monthly temperatures (simple average)**  
The Jan average was down YoY as of 11 Jan

|                  | 2022 |     |     |     |     |     |     |      |     |     |      |     | 2023 |     |      |      |     |      |      |     |      |      |     |      | 2024 |
|------------------|------|-----|-----|-----|-----|-----|-----|------|-----|-----|------|-----|------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|
|                  | 2    | 3   | 4   | 5   | 6   | 7   | 8   | 9    | 10  | 11  | 12   | 1   | 2    | 3   | 4    | 5    | 6   | 7    | 8    | 9   | 10   | 11   | 12  | 1    |      |
| vs. last year    | 0.2  | 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 | -4.6 |      |
| vs. average year | 2.9  | 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 | 0.6  |      |

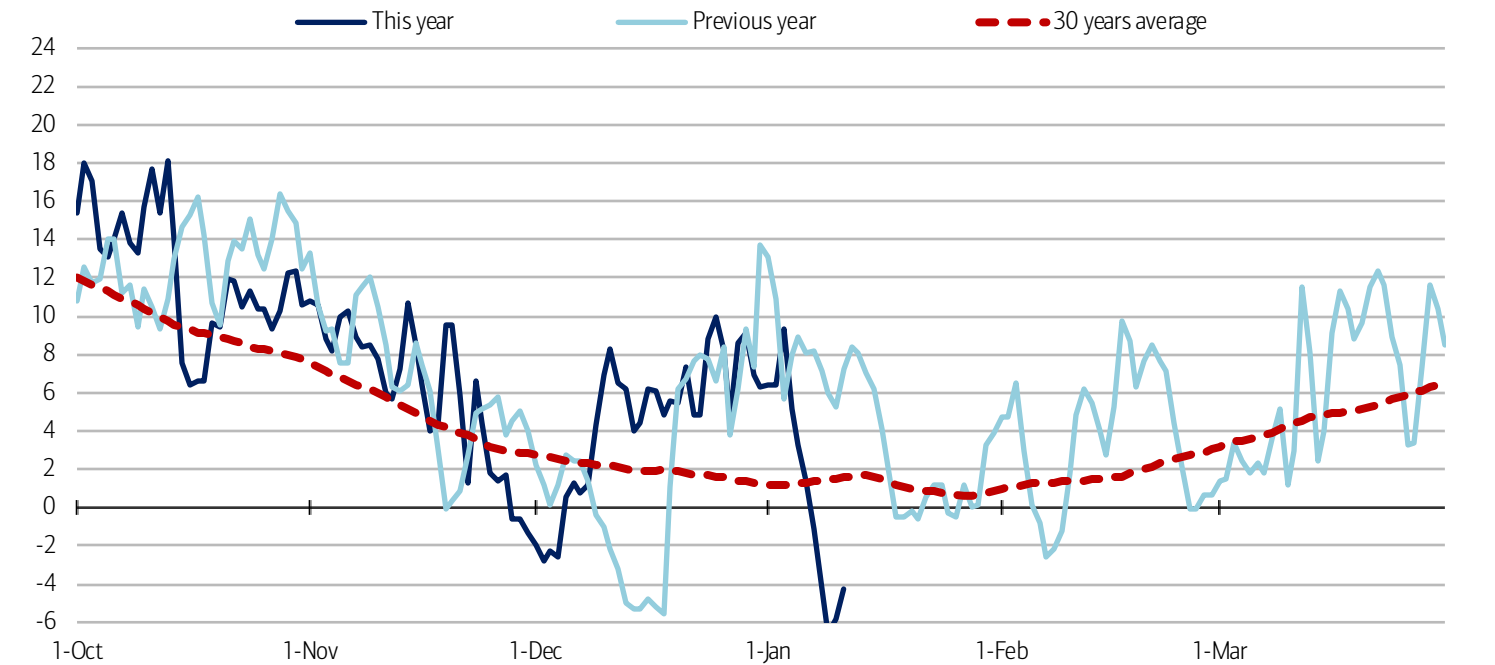
Note: Jan 2024 temperature is the average as of 11 Jan  
Source: Bloomberg, BofA Global Research

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# Germany temperature trends

**Exhibit 29: Germany temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures recently sharply lower than last year



Source: Bloomberg, BofA Global Research

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**Exhibit 30: Germany monthly temperatures (simple average)**  
Temperatures below average and down YoY for Jan as of 11 Jan

|                  | 2022 |     |      |     |      |     |     |      |     |     |      |  | 2023 |      |     |      |      |     |      |      |     |      |      |     | 2024 |
|------------------|------|-----|------|-----|------|-----|-----|------|-----|-----|------|--|------|------|-----|------|------|-----|------|------|-----|------|------|-----|------|
|                  | 2    | 3   | 4    | 5   | 6    | 7   | 8   | 9    | 10  | 11  | 12   |  | 1    | 2    | 3   | 4    | 5    | 6   | 7    | 8    | 9   | 10   | 11   | 12  | 1    |
| vs. last year    | 3.1  | 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 | -7.1 |
| vs. average year | 3.4  | 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 | -0.5 |

Note: Jan 2024 temperature is the average as of 11 Jan

Source: Bloomberg, BofA Global Research

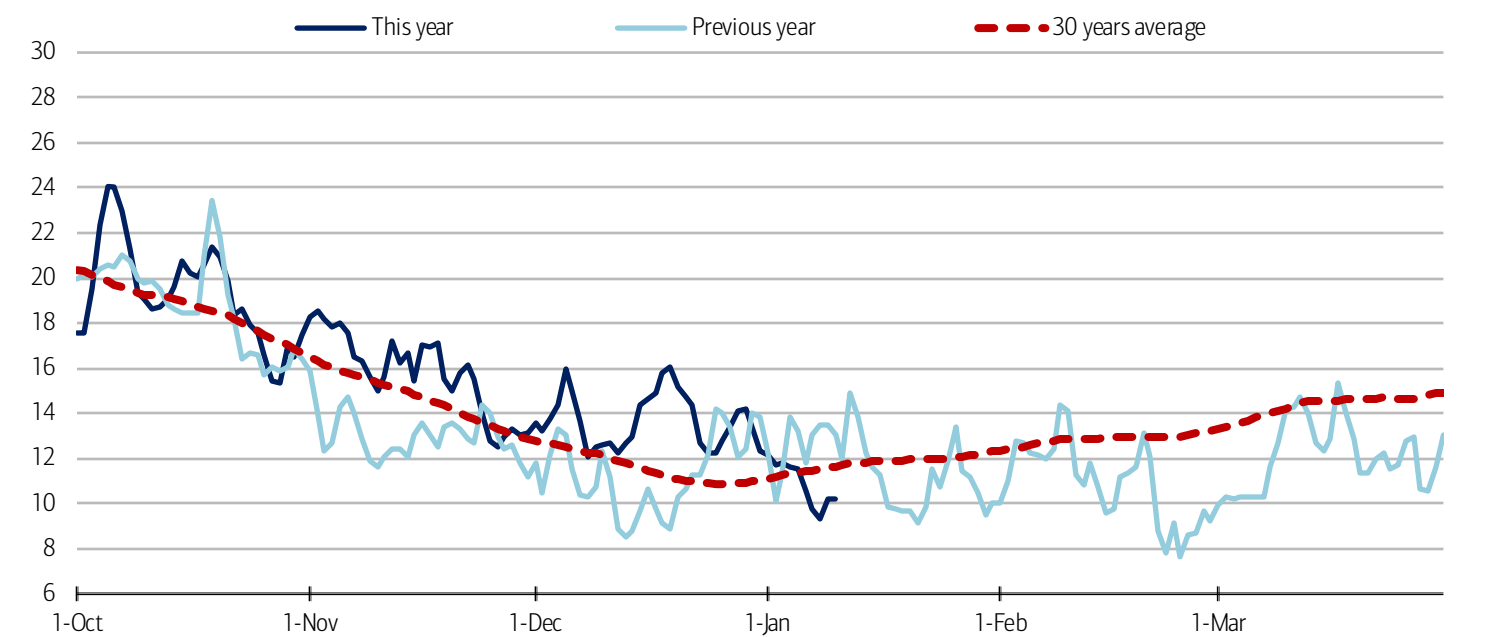
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# US temperature trends

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 recently lower than last year



Source: Bloomberg, BofA Global Research

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**Exhibit 32: California monthly temperatures (simple average)**  
Below historical averages and down YoY for Jan as of 10 Jan

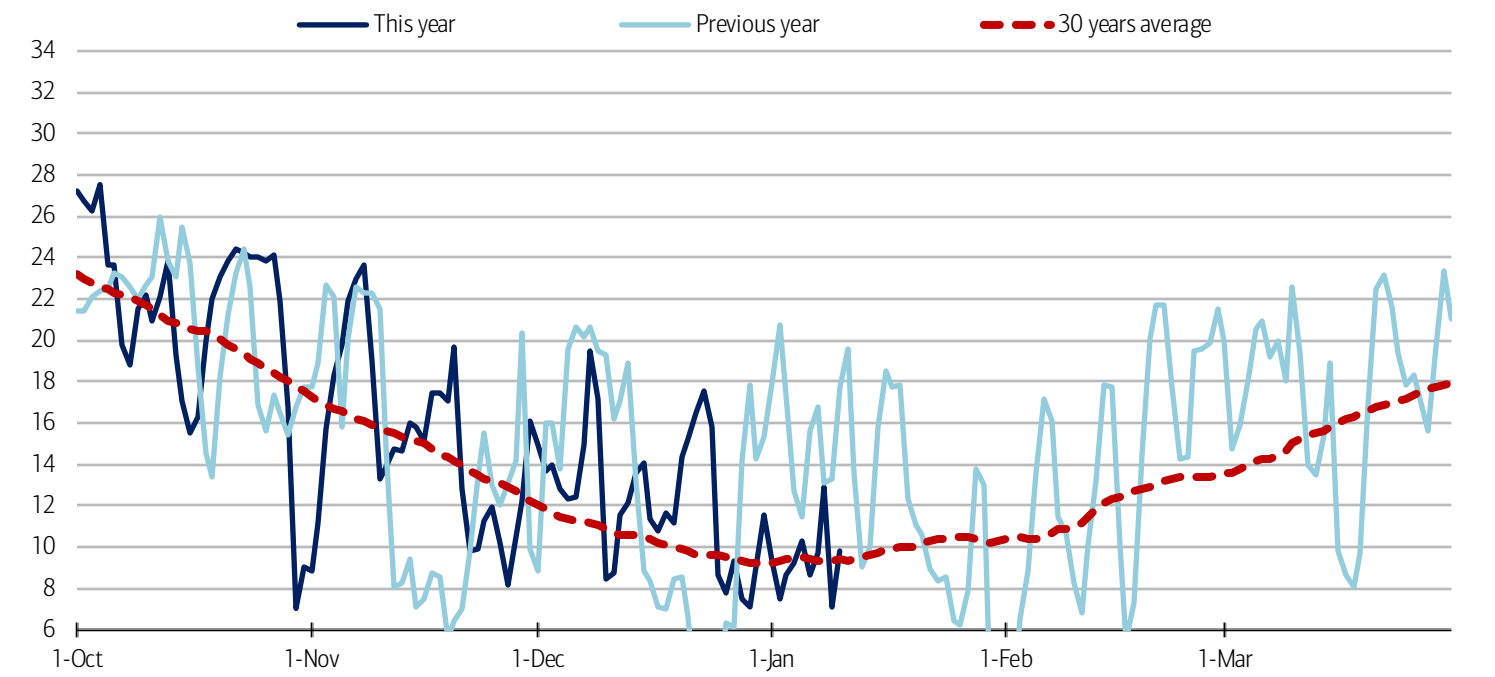
|                  | 2022 |     |     |     |      |     |      |     |     |     |      |      | 2023 |      |      |      |      |      |     |      |      |     |     |     | 2024 |
|------------------|------|-----|-----|-----|------|-----|------|-----|-----|-----|------|------|------|------|------|------|------|------|-----|------|------|-----|-----|-----|------|
|                  | 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    |
| vs. last year    |      | 0.1 | 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 | -1.7 |
| vs. average year |      | 0.5 | 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 | -0.5 |

Note: Jan 2024 temperature is the average as of 10 Jan

Source: Bloomberg, BofA Global Research

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**Exhibit 33: Texas temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures lower than last year over the past few weeks



Source: Bloomberg, BofA Global Research

BofA GLOBAL RESEARCH

**Exhibit 34: Texas monthly temperatures (simple average)**  
Below historical averages and down YoY for Jan as of 10 Jan

|                  | 2022 |      |     |     |     |     |     |     |      |      |      |  | 2023 |     |     |      |      |      |      |     |     |     |     |     | 2024 |
|------------------|------|------|-----|-----|-----|-----|-----|-----|------|------|------|--|------|-----|-----|------|------|------|------|-----|-----|-----|-----|-----|------|
|                  | 2    | 3    | 4   | 5   | 6   | 7   | 8   | 9   | 10   | 11   | 12   |  | 1    | 2   | 3   | 4    | 5    | 6    | 7    | 8   | 9   | 10  | 11  | 12  | 1    |
| vs. last year    | 0.7  | -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 | -6.4 |
| vs. average year | -2.8 | -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 | -0.1 |

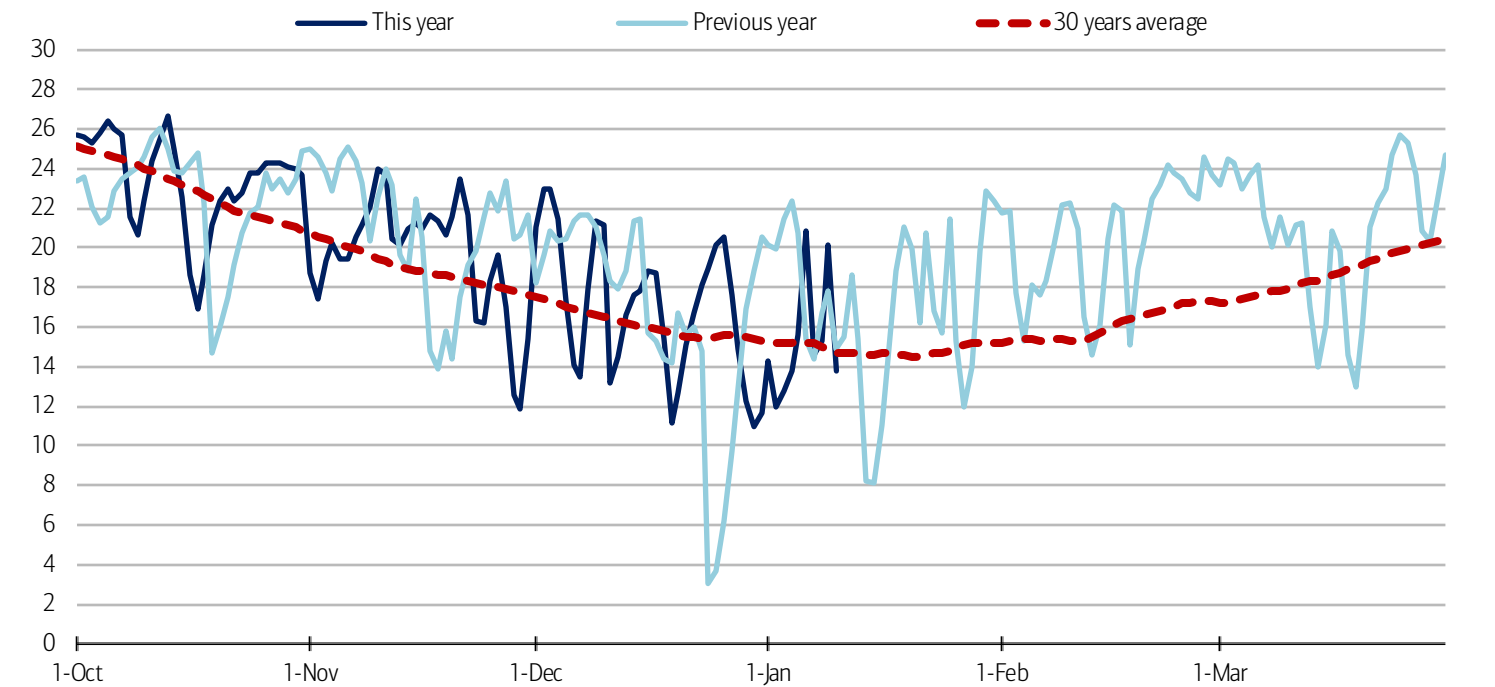
Note: Jan 2024 temperature is the average as of 10 Jan

Source: Bloomberg, BofA Global Research

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**Exhibit 35: Florida temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures on par with last year over the past few days



Source: Bloomberg, BofA Global Research

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**Exhibit 36: Florida monthly temperatures (simple average)**  
The Jan average was down YoY as of 10 Jan

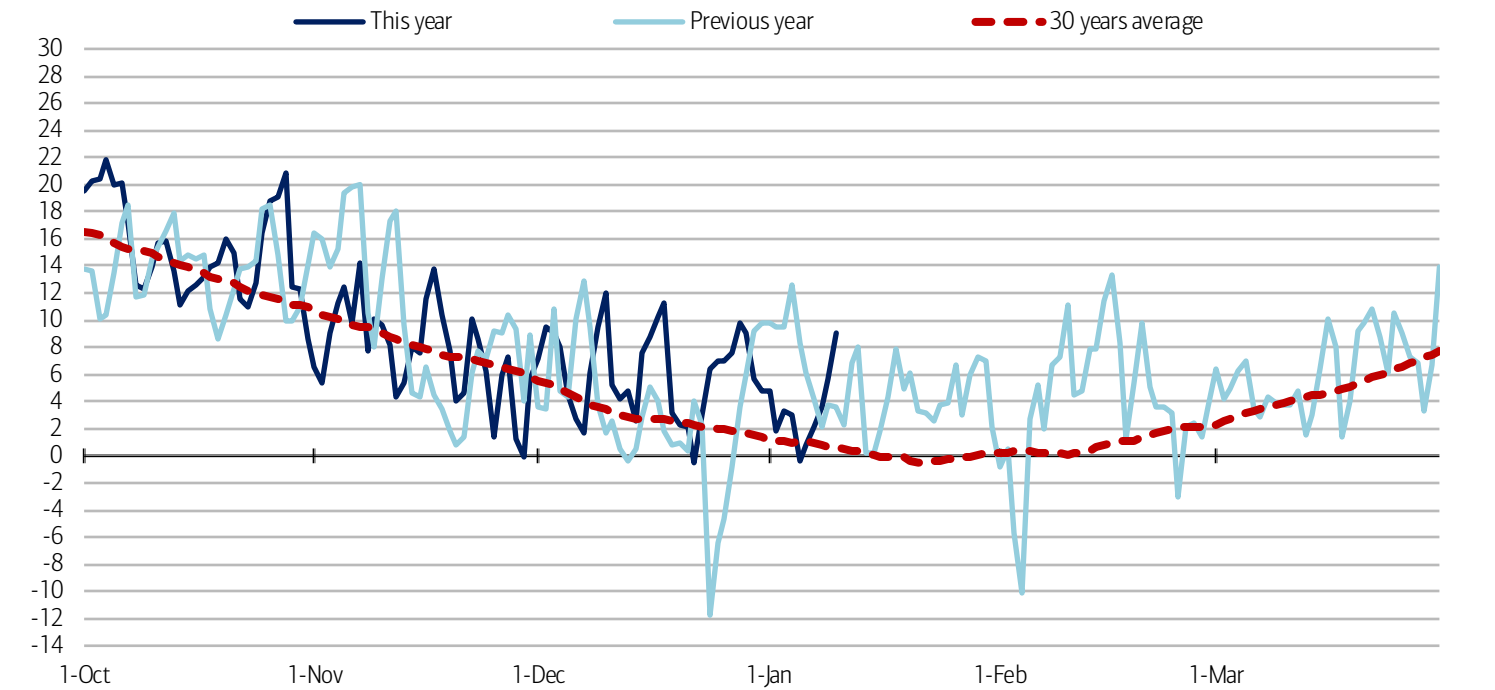
|                  | 2022 |     |     |     |     |     |     |     |      |     |      |  | 2023 |     |     |     |      |      |     |     |     |     |      |     | 2024 |
|------------------|------|-----|-----|-----|-----|-----|-----|-----|------|-----|------|--|------|-----|-----|-----|------|------|-----|-----|-----|-----|------|-----|------|
|                  | 2    | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10   | 11  | 12   |  | 1    | 2   | 3   | 4   | 5    | 6    | 7   | 8   | 9   | 10  | 11   | 12  | 1    |
| vs. last year    | 0.2  | 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 | -3.1 |
| vs. average year | 1.6  | 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 | 0.2  |

Note: Jan 2024 temperature is the average as of 10 Jan

Source: Bloomberg, BofA Global Research

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



Source: Bloomberg, BofA Global Research

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**Exhibit 38: New York monthly temperatures (simple average)**  
The Jan average was down YoY as of 10 Jan

|                  | 2022 |      |      |     |      |     |     |      |      |     |      |  | 2023 |     |      |     |      |      |      |      |     |     |      |     | 2024 |
|------------------|------|------|------|-----|------|-----|-----|------|------|-----|------|--|------|-----|------|-----|------|------|------|------|-----|-----|------|-----|------|
|                  | 2    | 3    | 4    | 5   | 6    | 7   | 8   | 9    | 10   | 11  | 12   |  | 1    | 2   | 3    | 4   | 5    | 6    | 7    | 8    | 9   | 10  | 11   | 12  | 1    |
| vs. last year    | 1.4  | -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 | -3.6 |
| vs. average year | 1.2  | 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 | 2.4  |

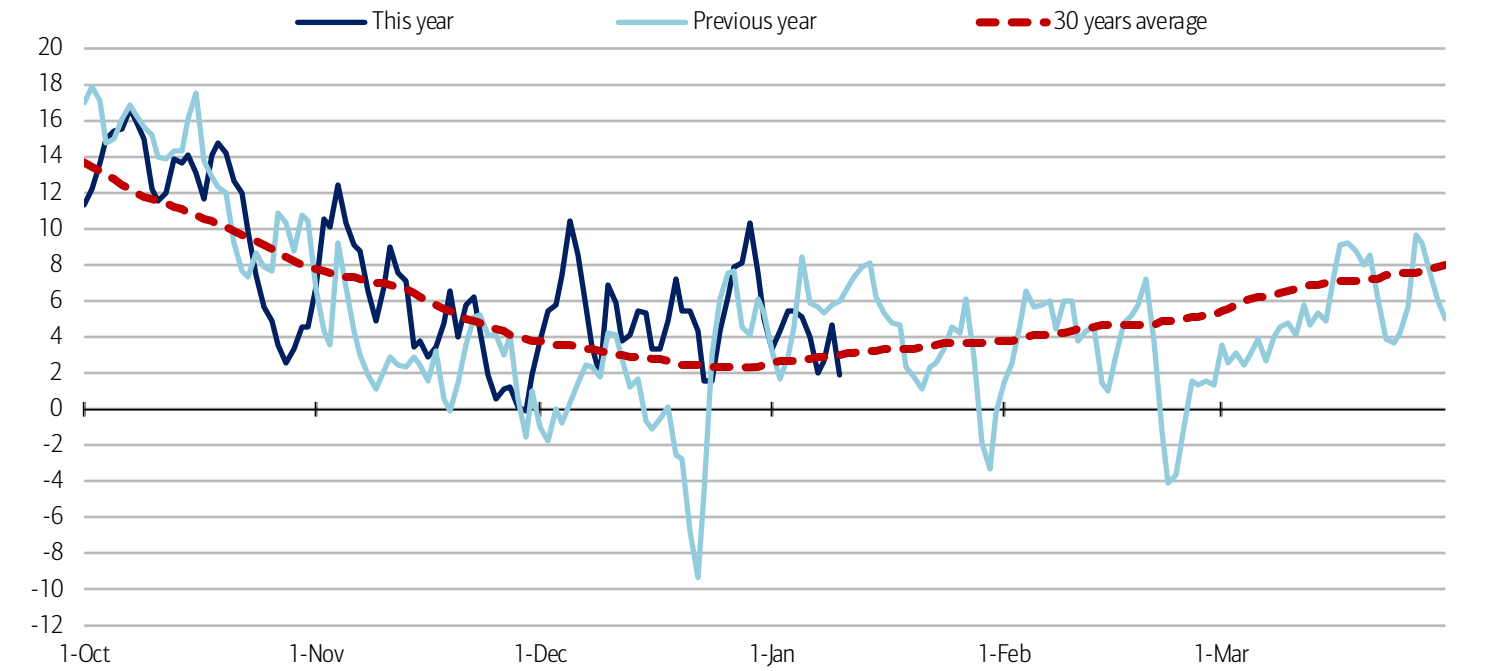
Note: Jan 2024 temperature is the average as of 10 Jan

Source: Bloomberg, BofA Global Research

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**Exhibit 39: Washington temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures recently lower than last year



Source: Bloomberg, BofA Global Research

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**Exhibit 40: Washington monthly temperatures (simple average)**  
The Jan average was down YoY as of 10 Jan

|                  | 2022 |     |      |      |      |      |     |     |     |      |      |  | 2023 |      |      |      |     |     |     |      |      |      |      |     | 2024 |
|------------------|------|-----|------|------|------|------|-----|-----|-----|------|------|--|------|------|------|------|-----|-----|-----|------|------|------|------|-----|------|
|                  | 2    | 3   | 4    | 5    | 6    | 7    | 8   | 9   | 10  | 11   | 12   |  | 1    | 2    | 3    | 4    | 5   | 6   | 7   | 8    | 9    | 10   | 11   | 12  | 1    |
| vs. last year    | 0.6  | 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 | -1.0 |
| vs. average year | -0.8 | 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 | 1.1  |

Note: Jan 2024 temperature is the average as of 10 Jan

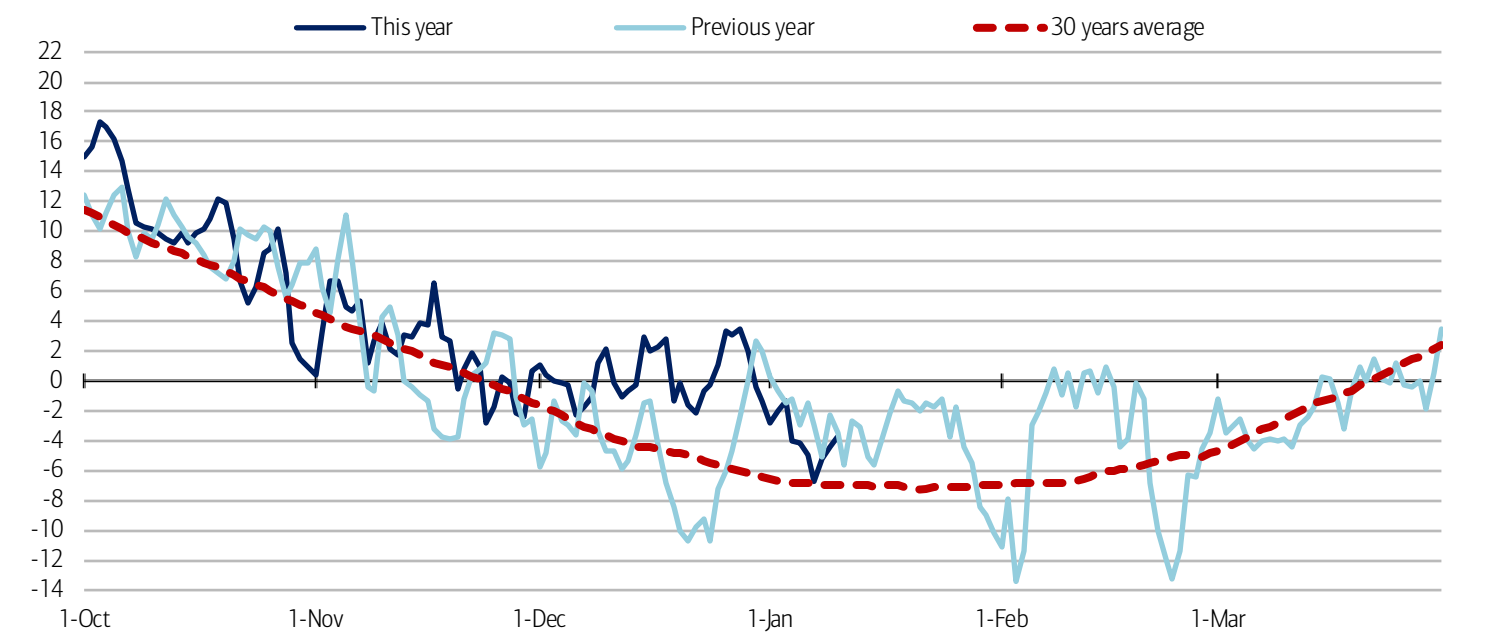
Source: Bloomberg, BofA Global Research

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# Canada temperature trends

**Exhibit 41: Canada temperature trends (current-year, previous-year, and 30-year averages)**  
Temperatures recently slightly lower than last year



Source: Bloomberg, BofA Global Research

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**Exhibit 42: Canada monthly temperatures (simple average)**  
The Jan average was down YoY as of 10 Jan

|                  | 2022 |      |      |     |      |     |      |      |      |      |      |  | 2023 |     |      |     |     |     |      |      |     |     |     |     | 2024 |
|------------------|------|------|------|-----|------|-----|------|------|------|------|------|--|------|-----|------|-----|-----|-----|------|------|-----|-----|-----|-----|------|
|                  | 2    | 3    | 4    | 5   | 6    | 7   | 8    | 9    | 10   | 11   | 12   |  | 1    | 2   | 3    | 4   | 5   | 6   | 7    | 8    | 9   | 10  | 11  | 12  | 1    |
| vs. last year    | 1.6  | -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 | -1.8 |
| vs. average year | 0.0  | 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 | 2.9  |

Note: Jan 2024 temperature is the average as of 10 Jan

Source: Bloomberg, BofA Global Research

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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%  |

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