



## BRAZIL MACRO August 01, 2023

## DATA ANALYSIS - ECONOMIC ACTIVITY

## INDUSTRIAL PRODUCTION: ANOTHER INCREASE IN JUNE, THOUGH DECELERATING

Felipe Kotinda\* felipe.kotinda@santander.com.br +5511 3553 8071

- Industrial production (IP) increased 0.1% MoM-sa (0.3% YoY) in June. This result was above market consensus of -0.1% MoM-sa (-0.1% YoY) but below our forecast of 0.4% MoM-sa (0.8% YoY). June's figure reflected a drop in manufacturing (-0.2% MoM-sa) and a rise in mining (2.9% MoM-sa).
- Across major economic categories, a mixed showing. Durable goods (-4.6% MoM-sa), capital goods (-1.2% MoM-sa) and intermediate goods (-0.3% MoM-sa) were the lowlights, while nondurable goods (0.9% MoM-sa) contributed positively.
- In the breakdown, 9 of 25 industrial activities expanded at the margin, with the diffusion index falling to 36% (from 80% in May). In terms of contribution, mining (0.43 p.p.), and manufacture of clothing and accessories (0.10 p.p.) contributed the most, while oil and biofuel coke (-0.49 p.p.), vehicles (-0.25 p.p.) and machines and equipment (-0.17 p.p.) contributed the least.
- All in all, a second positive print for IP in June, though decelerating. The breakdown shows another
  negative impact from manufacturing that was offset by an acceleration in mining. The diffusion index fell
  considerably from May's level. In quarterly terms, June's result implies a 0.4% QoQ-sa variation for IP in
  2Q23 and a 0.2% QoQ-sa carryover to 3Q23. For manufacturing, there was a 0.0% QoQ-sa variation for
  2Q23, and we calculate a -0.1% QoQ-sa carryover to 3Q23.
- We believe contractionary effects of shaky financial conditions started to materialize in 3Q22, mainly affecting goods-related sectors. In our view, restrictive financial conditions are likely to continue stifling the performance of industrial output and retail sales in the coming quarters.
- Our tracking for June's IBC-Br broad activity index was kept unchanged at 0.5% MoM-sa), partially offsetting May's strong decrease (-2.0% MoM-sa). Our 2Q23 GDP tracking was also kept unchanged at 0.0% QoQ-sa). Our 2023 GDP growth forecast stands at +1.9%. We continue to see signs of deceleration for broad activity ahead, as more cyclical segments indicate a continued slowing trend owing to highly restrictive financial conditions. In addition, we expect the positive impact of the record summer crops to be limited to 1Q23 and the beginning of 2Q23.

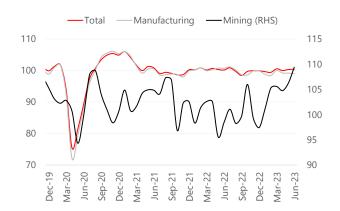


Figure 1 - Monthly Industrial Survey

| Industrial Production Breakdown |         |        |           |        |        |        |        |        |        |        |
|---------------------------------|---------|--------|-----------|--------|--------|--------|--------|--------|--------|--------|
|                                 |         | 9      | % MoM-s.a |        | % QoQ  |        |        |        |        |        |
|                                 | Weights | Apr-23 | May-23    | Jun-23 | Apr-23 | May-23 | Jun-23 | Dec-22 | Mar-23 | Jun-23 |
| Total Industry                  | 100%    | -0.6   | 0.3       | 0.1    | -2.7   | 1.9    | 0.3    | 0.2    | 0.0    | 0.4    |
| Mining                          | 15%     | -0.8   | 1.4       | 2.9    | 1.7    | 12.0   | 11.0   | 1.2    | 3.1    | 2.7    |
| Manufacturing                   | 85%     | -0.8   | -0.1      | -0.2   | -3.4   | 0.3    | -1.5   | -0.5   | -0.4   | 0.0    |
| Capital Goods                   | 6%      | -11.8  | 4.1       | -1.2   | -15.4  | -11.6  | -10.3  | -3.2   | -2.1   | -4.8   |
| Intermediate Goods              | 61%     | 0.4    | 0.0       | -0.3   | -2.7   | 3.1    | 1.8    | 1.3    | -0.4   | 1.1    |
| Consumer goods                  | 32%     | 1.3    | -0.8      | 0.3    | -0.1   | 2.2    | -0.5   | -1.6   | 0.9    | -0.1   |
| Durable                         | 4%      | -5.0   | 9.4       | -4.6   | 0.4    | 11.1   | -3.9   | -3.2   | -2.1   | -4.8   |
| Non-Durable                     | 27%     | 0.9    | -1.1      | 0.9    | -0.2   | 0.9    | 0.1    | 1.3    | -0.4   | 1.1    |
| Construction Supplies           | -       | -9.4   | 10.7      | -3.4   | -5.2   | -2.5   | -2.3   | -9.6   | -2.2   | 5.2    |

Sources: IBGE, Santander.

Figure 2 – Industrial Production Index (sa, 2022=100)



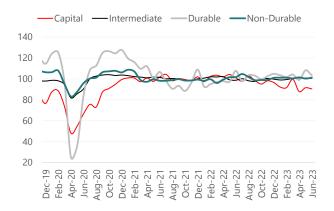
Sources: IBGE, Santander.

Figure 4 - Related to Investment (sa, 2022=100)



Sources: IBGE, Santander.

Figure 3 - Economic Categories (sa, 2022=100)



Sources: IBGE, Santander.



Figure 6 - Industrial Production by Activity

| Industrial Activities Breakdown                      |         |        |        |        |        |        |        |        |        |        |  |
|--|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|
|  |         | % МоМ  |        |        |        | % YoY  |        |        | % QoQ  |        |  |
|  | Weights | Apr-23 | May-23 | Jun-23 | Apr-23 | May-23 | Jun-23 | Dec-22 | Mar-23 | Jun-23 |  |
| Mining   | 14.6%   | -0.8   | 1.4    | 2.9    | 1.7    | 12.0   | 11.0   | 1.2    | 3.1    | 2.7    |  |
| Food products  | 15.1%   | -2.9   | -2.6   | -0.2   | 2.0    | 5.8    | 4.9    | 10.9   | 1.2    | -5.1   |  |
| Oil and biofuel coke                                 | 13.5%   | 3.3    | 7.4    | -3.6   | 3.2    | 7.1    | 4.3    | -5.4   | 0.1    | 9.0    |  |
| Vehicles   | 6.2%    | -2.6   | 7.2    | -4.0   | -6.9   | 2.8    | -6.2   | -2.1   | -5.9   | 0.3    |  |
| Metallurgy   | 4.9%    | -0.4   | 2.1    | -0.1   | -4.7   | -1.2   | 0.7    | 0.6    | -3.0   | 1.9    |  |
| Chemical products                                    | 7.4%    | 0.6    | -0.2   | 0.0    | -12.2  | -6.4   | -9.4   | -3.3   | -2.8   | -0.1   |  |
| Machines and equipments                              | 3.8%    | -11.9  | 12.6   | -4.5   | -14.5  | -3.0   | -7.3   | -4.6   | 0.4    | -2.0   |  |
| Metallic products except machines and equipments     | 3.0%    | -5.3   | 6.9    | 1.2    | -8.7   | -4.4   | -1.8   | 1.1    | -0.7   | -1.5   |  |
| Non-metallic minerals                                | 2.7%    | -2.0   | 2.3    | -0.5   | -10.5  | -6.2   | -5.7   | -5.8   | -0.2   | 0.5    |  |
| Rubber and plastic products                          | 3.4%    | -0.5   | 0.2    | 1.2    | 0.0    | -1.2   | 1.1    | -2.3   | 2.0    | 0.3    |  |
| Beverages  | 3.0%    | -2.9   | 0.4    | -0.4   | -7.2   | -3.3   | -2.1   | -5.0   | 5.5    | -1.3   |  |
| Cellulose,paper and paper-based products             | 3.7%    | 0.1    | 0.4    | 0.6    | -2.0   | 1.8    | -2.5   | -2.9   | -1.1   | 0.3    |  |
| Machines, equipments and electric material           | 2.3%    | -3.9   | 1.7    | 0.4    | -14.3  | -16.7  | -13.0  | -2.3   | -5.5   | -2.9   |  |
| Computer equipments, electronics and optical product | 2.0%    | -9.7   | 0.9    | -2.8   | -13.5  | -13.6  | -12.6  | -3.9   | 2.4    | -4.4   |  |
| Pharmaceuticals                                      | 2.4%    | -0.5   | -9.2   | -4.9   | 18.3   | 1.4    | -6.5   | 8.7    | -2.4   | -8.5   |  |
| Manufacture of clothing and accessories              | 2.0%    | -0.1   | 0.3    | 4.9    | -11.9  | -9.6   | -4.6   | -8.7   | 6.1    | -1.2   |  |
| Leather, travel items and footwears                  | 1.4%    | 1.2    | 4.6    | -6.8   | -2.2   | -0.9   | -10.5  | -8.4   | 5.1    | 4.0    |  |
| Textile products                                     | 1.3%    | 0.6    | -0.4   | 0.1    | -4.6   | -2.6   | -3.5   | -4.2   | 4.0    | 1.2    |  |
| Other transport equipments, except motor vehicles    | 1.1%    | -6.3   | 10.4   | -5.5   | 17.0   | 23.9   | 10.1   | 3.3    | 6.5    | 1.4    |  |
| Repair of machines and equipments                    | 1.6%    | 0.4    | 3.0    | 0.0    | -2.2   | -2.4   | -2.0   | -4.4   | 1.1    | 2.8    |  |
| Furniture  | 1.2%    | -0.2   | -2.2   | -2.4   | -2.5   | -5.8   | -7.9   | -1.6   | 7.3    | -5.1   |  |
| Wood products  | 1.1%    | -0.3   | 1.7    | -0.5   | -16.3  | -15.3  | -12.3  | -10.9  | 5.4    | 0.3    |  |
| Printing and playback of recordings                  | 0.6%    | 6.4    | 7.3    | -4.4   | 12.9   | 18.8   | 23.7   | 1.7    | 4.6    | 13.6   |  |
| Miscellaneous  | 1.2%    | 0.6    | 6.5    | -2.0   | -7.5   | -2.5   | -2.6   | -9.0   | 3.6    | 3.7    |  |
| Tobacco products                                     | 0.4%    | -4.9   | 3.5    | -1.1   | -3.9   | 5.1    | 5.1    | 0.1    | 5.7    | -2.7   |  |

Sources: IBGE, Santander.

Figure 7 - Heatmap Showing Industrial Production by Activity (% MoM-sa)

| By Activity (% MoM sa) |   |        |        |        |        |        |        |        |        |        |        |        |        |        |
|------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Weight                 |   | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 |
| 14.6%                  | Mining  | 3.06   | 2.66   | -2.79  | 1.49   | 6.30   | -6.34  | -1.86  | 3.79   | 4.11   | 0.29   | -0.77  | 1.43   | 2.95   |
| 15.1%                  | Food products   | -0.80  | 2.05   | -1.62  | -2.80  | 6.98   | 7.05   | 4.43   | -3.00  | -1.09  | -0.23  | -2.91  | -2.56  | -0.24  |
| 13.5%                  | Oil and biofuel coke                                  | -0.86  | 6.00   | -5.21  | -4.16  | -1.49  | 1.17   | -0.48  | -1.33  | 0.92   | 2.15   | 3.35   | 7.42   | -3.59  |
| 6.2%                   | Vehicles  | 6.47   | -6.68  | 13.22  | 0.52   | -9.44  | 7.36   | -3.91  | -5.44  | 0.05   | -0.43  | -2.64  | 7.15   | -4.03  |
| 4.9%                   | Metallurgy  | -2.44  | 2.53   | 1.13   | -7.68  | 5.18   | 4.36   | -6.81  | -0.96  | 1.51   | 0.62   | -0.36  | 2.07   | -0.08  |
| 7.4%                   | Chemical products                                     | 2.32   | -4.33  | 1.17   | -0.47  | -4.02  | 1.32   | -0.73  | -1.40  | -2.15  | 0.31   | 0.60   | -0.25  | 0.01   |
| 3.8%                   | Machines and equipments                               | -0.13  | -4.24  | 4.47   | -2.83  | -3.41  | 0.25   | -2.89  | 0.51   | -0.79  | 6.92   | -11.89 | 12.65  | -4.51  |
| 3.0%                   | Metallic products except machines and equipments      | -1.24  | -4.24  | -0.64  | 2.19   | -1.13  | -1.78  | 6.78   | -3.48  | -0.88  | -1.00  | -5.29  | 6.87   | 1.24   |
| 2.7%                   | Non-metallic minerals                                 | -1.42  | -1.11  | 2.40   | -3.37  | -2.12  | -1.34  | -4.26  | 2.55   | 0.16   | 1.60   | -1.99  | 2.33   | -0.50  |
| 3.4%                   | Rubber and plastic products                           | -0.85  | -0.39  | 0.99   | -0.83  | -3.01  | 1.59   | -0.19  | 1.49   | -0.13  | 0.51   | -0.46  | 0.18   | 1.16   |
| 3.0%                   | Beverages   | -1.69  | -0.46  | 1.47   | -4.88  | -6.40  | 7.43   | -1.55  | 1.45   | 3.87   | 0.33   | -2.89  | 0.37   | -0.39  |
| 3.7%                   | Cellulose, paper and paper-based products             | 5.62   | 2.47   | -1.95  | -1.81  | -1.54  | 0.58   | 0.22   | -1.35  | -0.02  | -0.29  | 0.07   | 0.36   | 0.58   |
| 2.3%                   | Machines, equipments and electric material            | -4.15  | -4.64  | 1.24   | -0.46  | -2.69  | 0.03   | 0.93   | -4.03  | -4.05  | 1.70   | -3.92  | 1.72   | 0.45   |
| 2.0%                   | Computer equipments, electronics and optical products | -4.66  | -3.97  | -1.53  | -2.36  | -0.71  | -2.92  | 2.53   | -2.34  | 1.76   | 8.71   | -9.72  | 0.89   | -2.81  |
| 2.4%                   | Pharmaceuticals                                       | 3.64   | 2.20   | 5.37   | -6.51  | 0.69   | 7.27   | 17.30  | -12.78 | -2.17  | 0.56   | -0.54  | -9.23  | -4.89  |
| 2.0%                   | Manufacture of clothing and accessories               | 1.26   | -5.81  | 4.47   | -3.64  | -9.41  | -3.04  | 11.97  | 1.07   | -0.25  | -4.14  | -0.12  | 0.29   | 4.93   |
| 1.4%                   | Leather, travel items and footwears                   | 1.74   | -9.39  | 3.89   | -1.27  | -9.88  | -1.04  | 5.67   | 0.31   | 0.62   | 2.73   | 1.21   | 4.61   | -6.81  |
| 1.3%                   | Textile products                                      | -0.27  | -1.17  | -5.52  | -1.58  | 1.08   | -4.83  | 2.93   | 2.53   | 1.64   | 0.31   | 0.63   | -0.39  | 0.12   |
| 1.1%                   | Other transport equipments, except motor vehicles     | 6.75   | -4.37  | 3.38   | 3.61   | -0.04  | -1.43  | 2.39   | 3.57   | 0.32   | 4.48   | -6.25  | 10.45  | -5.48  |
| 1.6%                   | Repair of machines and equipments                     | -0.38  | -3.30  | 1.87   | -2.67  | -4.40  | 0.58   | 2.37   | 0.00   | -1.58  | 1.31   | 0.39   | 3.01   | 0.03   |
| 1.2%                   | Furniture   | -0.34  | -5.66  | -0.32  | -0.80  | -7.54  | 7.48   | 5.89   | 2.14   | 0.36   | -4.14  | -0.21  | -2.20  | -2.39  |
| 1.1%                   | Wood products   | -4.48  | -4.82  | 0.94   | -10.13 | -11.08 | 11.38  | -0.45  | 1.96   | 0.60   | -0.76  | -0.32  | 1.66   | -0.50  |
| 0.6%                   | Printing and playback of recordings                   | -7.19  | 2.48   | 0.06   | -7.32  | 5.19   | -0.27  | 5.93   | -5.25  | 9.20   | 0.75   | 6.40   | 7.27   | -4.42  |
| 1.2%                   | Miscellaneous   | -1.79  | -3.46  | 6.53   | -6.54  | -8.42  | 10.67  | -14.24 | 10.54  | 1.82   | -1.73  | 0.63   | 6.53   | -2.03  |
| 0.4%                   | Tobacco products                                      | -1.74  | -3.03  | 2.29   | 9.52   | -4.80  | 1.26   | -7.36  | 7.97   | 4.88   | -1.88  | -4.89  | 3.50   | -1.13  |

Sources: IBGE, Santander.



Figure 8 - Heatmap Showing Industrial Production by Activity (contribution)

| By Activity (Contribution p.p. sa) |   |        |        |        |        |        |        |        |        |        |        |        |        |        |
|------------------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Weight                             |   | Jun-22 | Jul-22 | Aug-22 | Sep-22 | Oct-22 | Nov-22 | Dec-22 | Jan-23 | Feb-23 | Mar-23 | Apr-23 | May-23 | Jun-23 |
| 14.6%                              | Mining  | 0.44   | 0.39   | -0.41  | 0.22   | 0.92   | -0.92  | -0.27  | 0.55   | 0.60   | 0.04   | -0.11  | 0.21   | 0.43   |
| 15.1%                              | Food products   | -0.12  | 0.31   | -0.24  | -0.42  | 1.05   | 1.06   | 0.67   | -0.45  | -0.16  | -0.04  | -0.44  | -0.39  | -0.04  |
| 13.5%                              | Oil and biofuel coke                                  | -0.12  | 0.81   | -0.70  | -0.56  | -0.20  | 0.16   | -0.06  | -0.18  | 0.12   | 0.29   | 0.45   | 1.00   | -0.49  |
| 6.2%                               | Vehicles  | 0.40   | -0.41  | 0.82   | 0.03   | -0.58  | 0.46   | -0.24  | -0.34  | 0.00   | -0.03  | -0.16  | 0.44   | -0.25  |
| 4.9%                               | Metallurgy  | -0.12  | 0.12   | 0.06   | -0.38  | 0.26   | 0.22   | -0.34  | -0.05  | 0.07   | 0.03   | -0.02  | 0.10   | 0.00   |
| 7.4%                               | Chemical products                                     | 0.17   | -0.32  | 0.09   | -0.03  | -0.30  | 0.10   | -0.05  | -0.10  | -0.16  | 0.02   | 0.04   | -0.02  | 0.00   |
| 3.8%                               | Machines and equipments                               | -0.01  | -0.16  | 0.17   | -0.11  | -0.13  | 0.01   | -0.11  | 0.02   | -0.03  | 0.27   | -0.46  | 0.49   | -0.17  |
| 3.0%                               | Metallic products except machines and equipments      | -0.04  | -0.13  | -0.02  | 0.07   | -0.03  | -0.05  | 0.20   | -0.10  | -0.03  | -0.03  | -0.16  | 0.21   | 0.04   |
| 2.7%                               | Non-metallic minerals                                 | -0.04  | -0.03  | 0.06   | -0.09  | -0.06  | -0.04  | -0.11  | 0.07   | 0.00   | 0.04   | -0.05  | 0.06   | -0.01  |
| 3.4%                               | Rubber and plastic products                           | -0.03  | -0.01  | 0.03   | -0.03  | -0.10  | 0.05   | -0.01  | 0.05   | 0.00   | 0.02   | -0.02  | 0.01   | 0.04   |
| 3.0%                               | Beverages   | -0.05  | -0.01  | 0.04   | -0.15  | -0.19  | 0.22   | -0.05  | 0.04   | 0.12   | 0.01   | -0.09  | 0.01   | -0.01  |
| 3.7%                               | Cellulose,paper and paper-based products              | 0.21   | 0.09   | -0.07  | -0.07  | -0.06  | 0.02   | 0.01   | -0.05  | 0.00   | -0.01  | 0.00   | 0.01   | 0.02   |
| 2.3%                               | Machines, equipments and electric material            | -0.09  | -0.11  | 0.03   | -0.01  | -0.06  | 0.00   | 0.02   | -0.09  | -0.09  | 0.04   | -0.09  | 0.04   | 0.01   |
| 2.0%                               | Computer equipments, electronics and optical products | -0.09  | -0.08  | -0.03  | -0.05  | -0.01  | -0.06  | 0.05   | -0.05  | 0.04   | 0.18   | -0.20  | 0.02   | -0.06  |
| 2.4%                               | Pharmaceuticals                                       | 0.09   | 0.05   | 0.13   | -0.16  | 0.02   | 0.18   | 0.42   | -0.31  | -0.05  | 0.01   | -0.01  | -0.22  | -0.12  |
| 2.0%                               | Manufacture of clothing and accessories               | 0.03   | -0.12  | 0.09   | -0.07  | -0.19  | -0.06  | 0.24   | 0.02   | -0.01  | -0.08  | 0.00   | 0.01   | 0.10   |
| 1.4%                               | Leather, travel items and footwears                   | 0.03   | -0.14  | 0.06   | -0.02  | -0.14  | -0.01  | 80.0   | 0.00   | 0.01   | 0.04   | 0.02   | 0.07   | -0.10  |
| 1.3%                               | Textile products                                      | 0.00   | -0.01  | -0.07  | -0.02  | 0.01   | -0.06  | 0.04   | 0.03   | 0.02   | 0.00   | 0.01   | -0.01  | 0.00   |
| 1.1%                               | Other transport equipments, except motor vehicles     | 0.08   | -0.05  | 0.04   | 0.04   | 0.00   | -0.02  | 0.03   | 0.04   | 0.00   | 0.05   | -0.07  | 0.12   | -0.06  |
| 1.6%                               | Repair of machines and equipments                     | -0.01  | -0.05  | 0.03   | -0.04  | -0.07  | 0.01   | 0.04   | 0.00   | -0.03  | 0.02   | 0.01   | 0.05   | 0.00   |
| 1.2%                               | Furniture   | 0.00   | -0.07  | 0.00   | -0.01  | -0.09  | 0.09   | 0.07   | 0.02   | 0.00   | -0.05  | 0.00   | -0.03  | -0.03  |
| 1.1%                               | Wood products   | -0.05  | -0.05  | 0.01   | -0.11  | -0.12  | 0.12   | 0.00   | 0.02   | 0.01   | -0.01  | 0.00   | 0.02   | -0.01  |
| 0.6%                               | Printing and playback of recordings                   | -0.04  | 0.01   | 0.00   | -0.04  | 0.03   | 0.00   | 0.04   | -0.03  | 0.06   | 0.00   | 0.04   | 0.04   | -0.03  |
| 1.2%                               | Miscellaneous   | -0.02  | -0.04  | 0.08   | -0.08  | -0.10  | 0.13   | -0.17  | 0.13   | 0.02   | -0.02  | 0.01   | 0.08   | -0.02  |
| 0.4%                               | Tobacco products                                      | -0.01  | -0.01  | 0.01   | 0.04   | -0.02  | 0.01   | -0.03  | 0.03   | 0.02   | -0.01  | -0.02  | 0.01   | 0.00   |

Sources: IBGE, Santander.



## **CONTACTS / IMPORTANT DISCLOSURES**

| Brazil Macro Resea        | rch                                     |                                      |                 |
|---------------------------|---|--------------------------------------|-----------------|
| Ana Paula Vescovi*        | Chief Economist                         | anavescovi@santander.com.br          | 5511-3553-8567  |
| Mauricio Oreng*           | Head of Macro Research                  | mauricio.oreng@santander.com.br      | 5511-3553-5404  |
| Jankiel Santos*           | Economist – External Sector             | jankiel.santos@santander.com.br      | 5511-3012-5726  |
| Ítalo Franca*             | Economist – Fiscal Policy               | italo.franca@santander.com.br        | 5511-3553-5235  |
| Daniel Karp Vasquez*      | Economist – Inflation                   | daniel.karp@santander.com.br         | 5511-3553-9828  |
| Adriano Valladao Ribeiro* | Economist – Inflation                   | adriano.ribeiro@santander.com.br     | 5511-3553-7495  |
| Tomas Urani*              | Economist – Global Economics            | tomas.urani@santander.com.br         | 5511-3553-9520  |
| Henrique Danyi Correia*   | Economist – Credit / Monetary Policy    | henrique.danyi@santander.com.br      | 5511-3553-7350  |
| Felipe Kotinda*           | Economist – Commodities                 | felipe.kotinda@santander.com.br      | 5511-3553-8071  |
| Gabriel Couto*            | Economist – Special Projects            | gabriel.couto@santander.com.br       | 5511-3553-8487  |
| Gilmar Lima*              | Economist – Modeling                    | gilmar.lima@santander.com.br         | 5511-3553-6327  |
| Global Macro Resea        |   |                                      |                 |
| Maciej Reluga*            | Head Macro, Rates & FX Strategy - CEE   | maciej.reluga@santander.pl           | 48-22-534-1888  |
| Rodrigo Park *            | Economist – Argentina                   | rpark@santander.com.ar               | 54-11-4341-1272 |
| Ana Paula Vescovi*        | Economist – Brazil                      | anavescovi@santander.com.br          | 5511-3553-8567  |
| Juan Pablo Cabrera*       | Economist – Chile                       | jcabrera@santander.cl                | 562-2320-3778   |
| Guillermo Aboumrad*       | Economist – Mexico                      | gjaboumrad@santander.com.mx          | 5255-5257-8170  |
| Piotr Bielski*            | Economist – Poland                      | piotr.bielski@santander.pl           | 48-22-534-1888  |
| Mike Moran                | Head of Macro Research, US              | mike.moran@santander.us              | 212-350-3500    |
| Fixed Income Research     | arch                                    |                                      |                 |
| Juan Arranz*              | Chief Rates & FX Strategist – Argentina | jarranz@santanderrio.com.ar          | 5411-4341-1065  |
| Mauricio Oreng*           | Senior Economist/Strategist – Brazil    | mauricio.oreng@santander.com.br      | 5511-3553-5404  |
| Juan Pablo Cabrera*       | Chief Rates & FX Strategist - Chile     | jcabrera@santander.cl                | 562-2320-3778   |
| <b>Equity Research</b>    |   |                                      |                 |
| Miguel Machado*           | Head Equity Research Americas           | mmachado@santander.com.mx            | 5255 5269 2228  |
| Alan Alanis*              | Head, Mexico                            | aalanis@santander.com.mx             | 5552-5269-2103  |
| Andres Soto               | Head, Andean                            | asoto@santander.us                   | 212-407-0976    |
| Walter Chiarvesio*        | Head, Argentina                         | wchiarvesio@santanderrio.com.ar      | 5411-4341-1564  |
| Aline de Souza Cardoso*   | Head, Brazil                            | aline.souza.cardoso@santander.com.br | 5511-3553-1684  |
| Electronic                | ,                                       |                                      | 231. 0000 7001  |
| Licotionic                |   |                                      |                 |

Bloomberg Reuters SIEQ <GO>
Pages SISEMA through SISEMZ

This research report ("report") has been prepared by Santander US Capital Markets LLC (is a subsidiary of Santander Holdings USA, Inc. which is wholly owned by Banco Santander, S.A. "Santander"]) on behalf of itself and its affiliates (collectively, Grupo Santander) and is provided for information purposes only. This report must not be considered as an offer to sell or a solicitation of an offer to buy any relevant securities (i.e., securities mentioned herein or of the same issuer and/or options, warrants, or rights with respect to or interests in any such securities). Any decision by the recipient to buy or to sell should be based on publicly available information on the related security and, where appropriate, should take into account the content of the related prospectus filed with and available from the entity governing the related market and the company issuing the security. This report is issued in Spain by Santander Investment Bolsa, Sociedad de Valores, S.A. ("Santander Investment Bolsa") and in the United Kingdom by Banco Santander, S.A., London Branch. Santander London is authorized by the Bank of Spain. This report is not being issued to private customers. Santander US Capital Markets LLC, Santander London and Santander Investment Bolsa are members of Grupo Santander. ANALYST CERTIFICATION: The following analysts hereby certify that their views about the companies and their securities discussed in this report are accurately expressed, that their recommendations reflect solely and exclusively their personal opinions, and that such opinions were prepared in an independent and autonomous manner, including as regards the institution to which they are linked, and that they have not received and will not receive direct or indirect compensation in exchange for expressing specific recommendations or views in this report, since their compensation and the compensation system applying to Grupo Santander and any of its affiliates is not pegged to the pricing of any of the securities issued by the companies evaluated in the report, or to the income arising from the businesses and financial transactions carried out by Grupo Santander and any of its affiliates: Felipe Kotinda\*. Employed by a non-US affiliate of Santander US Capital Markets LLC and is not registered/gualified as a research analyst under FINRA rules and is not an associated person of the member firm and therefore is not subject to FINRA Rule 2241 or FINRA Rule 2242 and restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account. The information contained within this report has been compiled from sources believed to be reliable. Although all reasonable care has been taken to ensure the information contained within these reports is not untrue or misleading, we make no representation that such information is accurate or complete and it should not be relied upon as such. All opinions and estimates included within this report constitute our judgment as of the date of the report and are subject to change without notice. Any U.S. recipient of this report (other than a registered broker-dealer or a bank acting in a broker-dealer capacity) that would like to effect any transaction in any security discussed herein should contact and place orders in the United States with Santander US Capital Markets LLC, which, without in any way limiting the foregoing, accepts responsibility (solely for purposes of and within the meaning of Rule 15a-6 under the U.S. Securities Exchange Act of 1934) for this report and its dissemination in the United States. Hong Kong (HK): This report is distributed in Hong Kong by Banco Santander, S.A. (a public limited liability company incorporated in Spain) which has a branch in Hong Kong. Banco Santander, S.A., Hong Kong Branch is regulated as a Registered Institution by the Hong Kong Monetary Authority for the conduct of Advising and Dealing in Securities (Regulated Activity Type 4 and 1 respectively) under the Securities and Futures Ordinance. This report is not intended for distribution to any persons other than professional investors. Banco Santander, S.A. or its affiliates may have a holding in any of the securities discussed in this report; for securities where the holding is greater than 1%, the specific holding is disclosed in the Important Disclosures section above. The recipient of this report must not distribute it to any person



without the prior written consent of Banco Santander, S.A.. Singapore (SG): This report is distributed in Singapore by Banco Santander, S.A. which has a branch in Singapore. It is not intended for distribution to any persons other than institutional investors, accredited investors and expert investors (each as defined in the Securities and Futures Act 2001 of Singapore). Recipients of this report should contact Banco Santander, S.A., Singapore Branch at <a href="mailto:researchsingapore@gruposantander.com">researchsingapore@gruposantander.com</a> for matters arising from, or in connection with, this report. Mainland China (CN): This report is being distributed in Mainland China by Banco Santander, S.A. which has two branches in Mainland China, being Shanghai Branch and Beijing Branch ("Santander China"). Santander China is regulated by China Banking and Insurance Regulatory Commission. Banco Santander, S.A., Shanghai Branch is licensed for foreign currency business, RMB business and derivative business. Banco Santander, S.A., Beijing Branch is licensed with foreign currency business. The recipient of this report must not distribute it to any person without the prior written consent of Banco Santander, S.A.© 2023 by Santander US Capital Markets LLC All Rights Reserved.

