

BRAZIL MACRO

MONETARY POLICY PREVIEW

EYEING THE BALANCE OF RISKS

Mauricio Oreng* mauricio.oreng@santander.com.br +5511 3553 5404

January 30, 2023

- The Copom Policy Committee is scheduled to gather this week to announce its interest rate decision on Wednesday (February 1). In line with the broad consensus (in terms of both yield curve pricing and analysts' projections), we expect the Brazilian Central Bank (BCB) to keep the Selic policy rate unchanged at 13.75%.
- In the statement accompanying the decision, we believe that the BCB will not make major changes in the signals for the next monetary policy steps, maintaining the indication that it will continue to evaluate "if the strategy of maintaining the Selic rate for a sufficiently long period will be enough to ensure the convergence of inflation".
- However, the upside risks for the inflation outlook have clearly increased since the last Copom meeting. We calculate that the 18-month-ahead inflation expectations have increased by 7bps since early December. At 4.36%, this statistic got a bit further away from the calendar-adjusted 18-month-ahead inflation target (now standing at 3.06%, from 3.13% previously, as the turn of the quarter leads to a greater weight for 2024 vis-à-vis 2023).
- While the final move in 18-month expectations may seem small to the "naked eye", it is important to bear in mind a couple of things: first, the rise in median IPCA expectations for the horizons of 2023 and 2024 more than offset a downward calendar effect totaling 0.4 p.p. following the change in weights for the policy horizon. Second, inflation expectations have increased despite the mark-up in the median Selic forecasts (+75bps to 12.50% for YE2023 and +100bps to 9.50% for YE2024). The latter means that the markets anticipate risks of a worse trade-off for monetary policy and less room for easing interest rates ahead, reflecting both the perception of fiscal risks and a debate on the inflation targets.
- As the market and the monetary authority await economic policy decisions that could potentially imply large fiscal stimulus and higher inflation expectations, we believe the authority will not change the strategy now, but it could well step up its assessment of inflationary risks. In our view, an eventual signal of upward asymmetry in the balance of risks at this stage would be warranted.
- We continue to believe that a change in the flight plan (of rate stability for long) would require the confirmation of a significant deviation from the BCB's scenario and hypotheses. We continue to pencil in a YE2023 Selic rate at 12.00%, with rate cuts starting in August. But the risks of a slower and later policy easing are definitely on the rise.

IMPORTANT DISCLOSURES/CERTIFICATIONS ARE IN THE "IMPORTANT DISCLOSURES" SECTION OF THIS REPORT.

U.S. investors' inquiries should be directed to Santander Investment Securities Inc. at (212) 583-4629 / (212) 350-3918.

* Employed by a non-US affiliate of Santander Investment Securities, Inc. and is not registered/qualified as a

research analyst under FINRA rules



At the December Copom meeting¹, the Brazilian Central Bank (BCB) held the Selic rate steady at 13.75%, as widely expected, with no changes in the policy signals. On that occasion, the authority once again pledged to "remain vigilant" and to assess "if the strategy of maintaining the Selic rate for a sufficiently long period will be enough to ensure the convergence of inflation". The BCB still claims that "future monetary policy steps can be adjusted" and that it "will not hesitate to resume the tightening cycle if the disinflationary process does not proceed as expected". Until that moment, the BCB had chosen to take a mild, cautious approach to the fiscal risks. The authority stated that it will "closely monitor future developments in fiscal policy", particularly focusing on "its effects on asset prices and inflation expectations, with potential impacts on the dynamics of future inflation." Elsewhere, in the scenario assessment, the BCB slightly moderated its tone on economic activity, kept its hawkish wording on inflation, and indicated that it remains alert about the global (economic and financial) risks and developments.

The Copom continued to project IPCA inflation converging toward the mid-target for the relevant policy horizon, assuming a scenario with rate cuts in August 2023. At the December meeting, the BCB made slight changes in its inflation forecasts. It penciled in IPCA inflation at 3.3% for 2Q24 (the key policy horizon at that moment), up from 3.2% at the October Copom. For YE2024, the BCB revised its forecast slightly higher, to 3.0% (previously: 2.9%; mid-target: 3.00%). Importantly, the BCB's inflation forecast for free-market items remained considerably below the consensus for both 2023 and 2024.

December communications from the BCB were complemented by the minutes and the quarterly inflation report (QIR) for 4Q22. In the minutes², the BCB said it will continue to pay special attention to the evolution of the output gap, activity projections, and services inflation. The BCB believed the inflation risks remained high and required "continuous monitoring and serenity in their assessment" regarding the inflation outlook. The Copom considered that there had been "some decrease in the estimated [economic] slack since its latest update", but the authority continued to estimate "an increase in slack throughout the monetary policy horizon, as a result of the monetary adjustment undertaken in recent quarters." The BCB pointed to "a more moderate pace of growth" in the data that "contribute to the assessment of the degree of slack." The authority also noted the initial impact of monetary policy on bank lending and on broader economic activity. On inflation, the authority continued to recognize that CPI remained high, as the BCB saw "the inflation of the components more sensitive to the economic cycle and the monetary policy, which present greater inflationary inertia", still running above the target.

In the inflation report, the BCB revised its 2022 GDP forecast higher to 2.9% (previously 2.7%), owing to the historical time series revision and the results for 3Q22 GDP. For 2023, growth was still seen at 1.0%, with the slowdown led by the global economy and a tight monetary policy. The authority calculated that the output gap was open and was expected to remain so ahead: the economy was seen running 1.1% below its potential for 4Q22 (previously -1.6%) and 1.8% below the trend for 4Q23 (previously -2.1%). On that topic, one of the BCB boxes of studies took a closer look at services inflation and concluded that inertia had the greater role in the recent price acceleration for that group, with the weaker trend in cyclical services being viewed by the BCB as confirmation of a still open output gap.

In our view, the December communications showed the Copom was in "wait-and-see" mode, believing that the strategy of high for long would bring inflation down to the mid-target in the medium term.

¹ Santander Brazil Monetary Policy: "COPOM DECISION: Serenely Waiting and Seeing Fiscal Events" – December 7, 2022 – Available on: https://bit.ly/Std-COPOM-dec22

² Santander Brazil Monetary Policy: "Copom Minutes: Just Watching, For Now – November 1, 2022 – Available on: https://bit.ly/Std-COPOMmin-oct22

THE CONTEXT FOR THE FEBRUARY 2023 MEETING

In our view, the recent increase in the perception of fiscal risk would justify the BCB in issuing more forceful signals about the consequences for monetary policy of the continuation of an expansionary fiscal stance, from the standpoint of both aggregate supply-demand balance (i.e., the economic cycle) and government debt sustainability.

This discussion becomes even more relevant amid initial signs of contagion in inflation expectations, given the considerable uncertainty in the realm of fiscal policy and the market conjectures on future government decisions on the path of the inflation targets. After the approval of a rather elevated waiver for federal spending to settle above the constitutional ceiling this year, we believe the proposal for a new budget framework will be of paramount importance. The debate on a possible change in the inflation targets for the medium term is still incipient, and there is a lack of visibility on that front as well. Analysts' surveys indicate that expectations are starting to feel the effects: since the last Copom meeting (in early December), there has been an increase of about half a percentage point in inflation projections for all horizons between 2023 and 2026 (for details, see Figure 7).

Importantly, we calculate that the 18-month ahead inflation expectations increased by 7bps to 4.36%, getting a bit further away from the calendar-adjusted 18-month ahead inflation target (now 3.06%, previously 3.13%, as the turn of the quarter leads to a greater weight for 2024 vis-à-vis 2023³). While the final move in the 18-month expectations may seem small to the "naked eye", it is important to bear in mind a couple of things: first, the increase in median IPCA expectations for the horizons of 2023 and — most importantly — 2024 (the latter going to 3.90% from 3.50%) more than offset a downward calendar effect totaling 0.4 p.p. following the change in the weights for the policy horizon (as we entered a new quarter). Secondl inflation expectations increased despite the mark-up in the median Selic rate forecasts (+75bps to 12.50% for YE2023 and +100bps to 9.50% for YE2024). The latter means that the markets are anticipating a worse trade-off for monetary policy and less room for rate cuts ahead⁴.

Although inflation projections are starting to gradually move away from the mid-target, both for the relevant horizon (i.e., 18 months) and in the longer term, the preliminary signs of a de-anchoring could still potentially be contained (or reversed) with appropriate signs from economic policy, more specifically if there are eventual indications of planned curbs in government spending and a stronger signal of no intention to change the inflation targets. Thus, even though the upward risks for the future trajectory of inflation are intensifying, we still believe that a change in strategy on the part of the BCB would be premature at this point.

Regarding the scenario assessment, core inflation remains quite high, but real activity seems to lose strength in 2H22 (particularly in 4Q22) and into 1Q23, which is in line with the BCB's scenario. Tight monetary policy and financial conditions continue to suggest a slowing pace ahead. However, the level of economic slack remains a big question mark and a major source of uncertainty: our numbers point to a narrower output gap than the BCB estimates presented in the 4Q22 inflation report. Despite the methodological difficulties involved in calculating unobservable variables (e.g., potential GDP, structural unemployment), the apparent erosion of economic slack is an important risk factor, raising the probability of even more persistent inflation, especially amid an abundance of fiscal stimulus. Moreover, we believe there are indirect signs that economic idleness may be running out, given: (i) the ongoing acceleration of average wage growth, in both real and nominal terms; (ii) the persistence of underlying inflation, as signaled by cyclical core gauges (e.g., IPCA EX3 ~ 7.5% QoQ-saar); and (iii) the high level of the current account deficit (running close to 3% of GDP).

³ We calculate IPCA expectations and calendar-adjusted target for the rolling 18 months ahead based on the weights of each calendar year comprised in the BCB's policy horizon (according to the authority's own rule of thumb). For 1Q23, this means 25% for 2023 and 75% for 2024.
⁴ This worse trade-off means higher inflation (expectations) for any given level of (expected) Selic policy rate. Both the perceptions of fiscal risks and the debate on an eventual upward revision of the inflation target could explain these movements.

WHAT CAN WE EXPECT FOR THE MEETING AND FUTURE STEPS?

In line with the broad consensus (in terms of both asset prices and analysts' forecasts), we expect the BCB to hold the Selic rate steady at 13.75% on Wednesday (February 1).

In its statement, we believe the BCB will not make major changes to the flight plan, keeping the indication that it will continue to evaluate "if the strategy of maintaining the Selic rate for a sufficiently long period will be enough to ensure the convergence of inflation". We expect the BCB to continue to state that "it will not hesitate to resume the adjustment cycle if the disinflation process does not proceed as expected". Thus, we believe the Copom will send the message that it intends to remain "vigilant" regarding the next steps and will signal a flight plan that maintains interest rates on hold for a sufficiently long period.

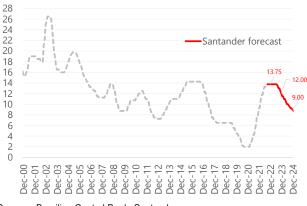
However, amid the possibility of economic policy decisions leading to greater fiscal stimulus and higher inflation expectations, we believe that the authority could raise the tone in its assessment of inflationary risks. We believe that mentioning an upward asymmetry in the balance of risks would be adequate, even though the BCB may continue to implicitly suggest an absence of bias. We also think it would be adequate for the BCB to convey a stronger message on the higher risk that the start of an easing cycle (as embedded in the BCB's and market's scenario for the Selic rate) could be pushed out further.

We still believe that a change in the flight plan (toward a hike in interest rates) would require strong evidence against the current "null hypothesis" of the BCB (i.e., that the strategy of stable rates at high levels for longer will bring inflation to the mid-target for the relevant policy horizon). That would require major deviations in the scenario and hypotheses adopted by the authority. We continue to pencil in rate cuts in 2H23 (Selic at 12.00% at YE2023), with risks for the expected path skewed to the upside, given the fiscal and policy uncertainties.

Refer to a summary of the Copom dataset and the following graphs.



Figure 1. Santander Selic Forecast (% pa)



Sources: Brazilian Central Bank, Santander

Figure 3. Calendar-Adjusted IPCA Estimates, Target (18 months ahead)

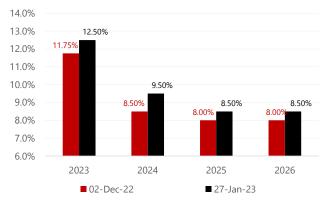


Sources: Brazilian Central Bank, Santander.

Note 1: IPCA expectations and target adjusted for the weight of each calendar-year as a policy horizon. For 1Q23, this means 25% for 2023 and 75% for 2024.

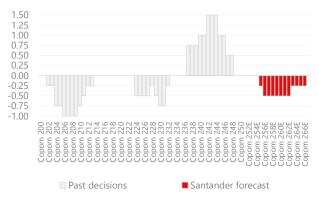
Note 2: Figures for the end of month. For January 2023, up to the 27th.

Figure 5. Median Selic Rate Expectations (% annual)



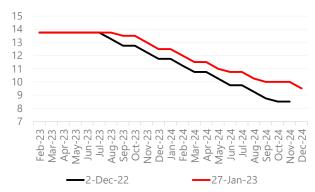
Sources: Brazilian Central Bank, Santander. Note: As of the most recent BCB Focus report: January 27, 2023.

Figure 2. Historical, Expected BCB Moves (% pp)



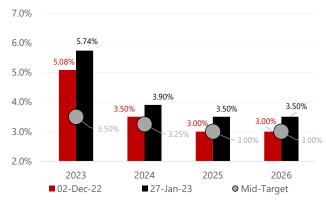
Sources: Brazilian Central Bank, Santander.

Figure 4. Median Selic Rate Expectations (% annual, monthly path)



Sources: Brazilian Central Bank, Bloomberg, Santander. Note: As of the most recent BCB Focus report: January 27, 2022.

Figure 6. Median IPCA Inflation Expectations (% annual)



Sources: Brazilian Central Bank, Santander.

Note 1: As of the most recent BCB Focus report: January 27, 2023.

1

Figure 7. Proxy for the Copom Dataset, Part 1

ECONOMIC TOPIC	LATEST DATA		THIS MEETING	LAST MEETING	SECOND LAST
Key Variables	When?		Feb-23	Dec-22	Oct-22
INFLATION					
Forecasts (% p.a.) - BCB's Focus report					
Calendar-Weighted Forecast (~18 months)	27-Jan-23	ŵ	4.36	4.29	4.22
Calendar-Weighted Target (~18 months)	27-Jan-23		3.06	3.13	3.13
Calendar-Weighted Expectations Gap	27-Jan-23	ŵ	1.30	1.17	1.09
Forecast for a year ahead (12 months)	27-Jan-23	ŵ	5.63	5.28	5.13
Forecast for 2023 - target: 3.25%	27-Jan-23	Ŷ	5.74	5.08	4.94
Forecast for 2024 - target: 3.00%	27-Jan-23	Ŷ	3.90	3.50	3.50
Forecast for 2025 - target: 3.00%	27-Jan-23	ጥ	3.50	3.00	3.00
Forecast for 2026 - target: 3.00%	27-Jan-23	ጭ	3.50	3.00	3.00
Breakeven inflation rates (% p.a.)					
1-year	27-Jan-23	ጭ	6.36	6.11	5.82
2-year	27-Jan-23	ዋ	6.39	6.12	5.83
5-year	27-Jan-23	ዮ	7.28	6.94	7.25
10-year	27-Jan-23	Ŷ	6.51	6.34	5.96
Actual CPI data					
Headline (% YoY)	Dec-22		5.8	5.9	6.5
Headline (% QoQ, saar)	Dec-22	Ŷ	4.8	1.9	0.3
Core IPCA EX3 (% YoY)	Dec-22		11.1	11.3	11.3
Core IPCA EX3 (% QoQ, saar)	Dec-22	ጥ	8.3	8.1	10.2
New cores average (% YoY)	Dec-22		9.1	9.4	9.7
New cores average (% QoQ, saar)	Dec-22	ዋ	6.1	5.9	7.1
Diffusion index (sa, 3m)	Dec-22	Ŷ	63.4%	63.3%	65.6%
Diffusion index ex-food (sa, 3m)	Dec-22		20.9%	42.7%	66.1%
MONETARY POLICY					
Selic rate (% p.a.)					
Current level	27-Jan-23	Ð	13.75	13.75	13.75
Forecast for 2023	27-Jan-23	Ŷ	12.50	11.75	11.25
Forecast for 2024	27-Jan-23	Ŷ	9.50	8.50	8.00
Forecast for 2025	27-Jan-23	Ŷ	8.50	8.00	7.75
Forecast for 2026	27-Jan-23	Ŷ	8.50	8.00	7.50
Yield curve (% p.a.)					
1-year OIS swaps (pré-DI)	27-Jan-23		13.5	13.9	13.2
2-year OIS swaps (pré-DI)	27-Jan-23		12.8	13.4	12.0
Ex-ante real interest rate (% p.a.)					
1-year (OIS swaps vs. inflation forecast)	27-Jan-23	•	7.5	8.2	7.7
FISCAL POLICY					
Primary Fiscal Balance (% GDP)					
Forecast for 2023	27-Jan-23	•	-1.1	-0.9	-0.5
Forecast for 2024	27-Jan-23	•	-1.0	-0.5	0.0
Forecast for 2027	27-Jan-23	Ð	0.0	0.0	0.6
Forecast for 2030	27-Jan-23	•	0.6	0.8	1.0
Gross General Government Debt (% GDP)					
Forecast for 2023	27-Jan-23		79.0	81.7	81.5
Forecast for 2024	27-Jan-23		82.0	83.6	82.5
Forecast for 2027	27-Jan-23	•	88.0	88.7	86.8
Forecast for 2030	27-Jan-23	Ŷ	91.8	90.7	90.0

Sources: IBGE, FGV, Brazilian Central Bank, Anbima, Bloomberg, Santander.

Last update: January 27, 2022.



Figure 8. Proxy for the Copom Dataset, Part 2

ΕCONOMIC ΤΟΡΙΟ	LATEST DATA		THIS MEETING	LAST MEETING	SECOND LAS
Key Variables	When?		Feb-23	Dec-22	Oct-22
REAL ACTIVITY					
GDP forecasts (% p.a.) - BCB's Focus report					
Forecast for 2023	27-Jan-23	Ŷ	0.80	0.75	0.63
Forecast for 2024	27-Jan-23	•	1.50	1.71	1.80
Forecast for 2025	27-Jan-23	•	1.89	2.00	2.00
Forecast for 2026	27-Jan-23	Ð	2.00	2.00	2.00
Actual activity data					
IBC-Br (% QoQ, saar)	Nov-22	Ψ	-2.7	0.7	6.1
Industrial production (% QoQ, saar)	Nov-22	⊎	-3.1	-3.2	-1.2
Retail sales (% QoQ, saar)	Nov-22	Ŷ	3.2	-2.0	-6.3
Services volume (% QoQ, saar)	Nov-22	Ŷ	5.4	10.0	12.1
Unemployment rate (% 3m, SA)	Nov-22	Ð	8.6	8.6	8.8
Real average wage (% YoY, 3m)	Nov-22	ŵ	7.2	4.7	2.5
Real wage bill (% YoY, 3m)	Nov-22	ŵ	13.0	11.5	9.9
Caged payrolls (thousands, SA, 3m)	Nov-22	ŵ	115	131	143
Economic confidence (2011=100)	Jan-23	•	83.0	85.2	84.5
EXTERNAL SECTOR	Jun 25		03.0	03.2	01.5
X rate (USD/BRL)					
Current level	27-Jan-23	•	5.11	5.22	5.38
Actual: 5-day average (previous week)	27-Jan-23	Ť	5.12	5.25	5.23
USD/BRL (to be) used in simulations	27-Jan-23	Ť	5.10	5.25	5.25
Forecast for 2023	27-Jan-23	÷	5.25	5.25	5.20
Forecast for 2024	27-Jan-23	ŵ	5.30	5.23	5.20
Forecast for 2025	27-Jan-23	P	5.30	5.23	5.15
Forecast for 2026	27-Jan-23	->	5.30	5.30	5.20
Current account balance (USD Billions, 12m)	27-341-23	-	5.50	5.50	5.20
Current level (12-month rolling)	Dec-22	P	-60.4	-61.3	-58.5
Forecast for 2023	27-Jan-23	4	-46.0	-43.0	-34.0
Forecast for 2024	27-Jan-23	Ť	-40.0	-43.0	-34.0
Forecast for 2025	27-Jan-23	Ť	-43.0	-44.2	-38.0
		Ť			
Forecast for 2026	27-Jan-23		-45.5	-45.1	-45.0
ASSET PRICES Santander Brasil's financial conditions index*	Jan-23		1.08	1.13	1.56
IC-Br (% YoY)		Ť	-1.6		
	Dec-22	•		-0.1	-1.7
CRB Commodity Index (Futures, USD terms)	Jan-23	Tr P	278	266	277
CRB Commodity Index (Futures, BRL terms)	27-Jan-23	T U	1,416	1,384	1,484
CRB Commodities in BRL: 50-day average	27-Jan-23	•	1,430	1,460	1,457
Brent Oil Price (USD bbl) / 1st Active Future	27-Jan-23	T U	87	78	91
Brazil 5-year CDS (basis-points)	27-Jan-23		233	247	286
Ibovespa stock index (points)	27-Jan-23	<u></u>	112,316	109,069	112,764
DI Jan-24 (% p.a.) / Futures	27-Jan-23	<u>ч</u>	13.55	13.85	12.99
DI Jan-25 (% p.a.) / Futures	27-Jan-23	<u>т</u>	12.85	13.04	11.92
DI Jan-26 (% p.a.) / Futures	27-Jan-23	-	12.79	12.79	11.80
NTN-F 2029 (% p.a.) / Pre-Fixed Rate	27-Jan-23	•	13.12	12.84	12.16
NTN-F 2033 (% p.a.) / Pre-Fixed Rate	27-Jan-23	•	13.23	12.86	12.22
NTN-B 2045 (% p.a.) / Inflation-Linked	27-Jan-23	•	6.46	6.16	5.86
NTN-B 2055 (% p.a.) / Inflation-Linked	27-Jan-23	The second secon	6.48	6.17	5.86

Sources: IBGE, FGV, Brazilian Central Bank, Anbima, Bloomberg, Santander.

* Santander Brazil Economic Activity: "Financial Conditions Remain Restrictive, Despite Relief at the Margin" – January 17, 2023 – Available on: https://bit.ly/Std-FCI-jan23 Last update: January 27, 2022.

CONTACTS / IMPORTANT DISCLOSURES

Brazil Macro Resea	arch		
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
Tomas Urani*	Economist – Global Economics	tomas.urani@santander.com.br	5511-3553-9520
Lucas Maynard*	Economist – Economic Activity	lucas.maynard.da.silva@santander.com.br	5511-3553-7495
Felipe Kotinda*	Economist – Commodities	felipe.kotinda@santander.com.br	5511-3553-8071
Gabriel Couto* Fabiana Moreira*	Economist – Special Projects	gabriel.couto@santander.com.br	5511-3553-8487
Gilmar Lima*	Economist – Credit	fabiana.de.oliveira@santander.com.br	5511-3553-6120 5511-3553-6327
	Economist – Modeling	gilmar.lima@santander.com.br	0011-0000-002 <i>1</i>
Global Macro Rese			40.00 504.4000
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 Rese	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
Equity Research			
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
Mariana Cahen Margulies*	Head, Brazil	mmargulies@santander.com.br	5511-3553-1684
Electronic	,	······································	

Bloomberg Reuters SIEQ <GO>

Pages SISEMA through SISEMZ

This report has been prepared by Santander Investment Securities Inc. ("SIS"; SIS 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 document 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. SIS, 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: Mauricio Oreng*.

*Employed by a non-US affiliate of Santander Investment Securities Inc. and not registered/gualified as a research analyst under FINRA rules, and is not an associated person of the member firm, and, therefore, may not be subject to the FINRA Rule 2242 and Incorporated NYSE Rule 472 restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account. The information contained herein has been compiled from sources believed to be reliable, but, although all reasonable care has been taken to ensure that the information contained herein is not untrue or misleading, we make no representation that it is accurate or complete and it should not be relied upon as such. All opinions and estimates included herein constitute our judgment as at the date of this 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 SIS, 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 researchsingapore@gruposantander.com 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 Investment Securities Inc. All Rights Reserved.

