



Brazil Macro | July 2021

INFLATION

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- 1. Forecasting accountability**
- 2. Inflationary pressures are spreading**
- 3. Usual determinants still point to an upwardly pressured inflation outlook**
- 4. IPCA's groups analysis**
- 5. Risks**

Forecasting
Accountability

01

Forecast accountability: shocks are piling up and starting to spread

- More industrial goods and regulated prices inflation for IPCA 2021, but also a bit of spreading to services
- For 2022, more industrial goods inflation, also with spillover to services

	old	2021 new	Δ bps
IPCA headline	5.9	6.7	87
Free prices	5.0	5.1	10
Food-at-home	8.5	6.5	-31
Industrial goods	5.1	6.7	37
Tradables	5.1	6.7	32
Non-Tradables	5.1	6.7	5
Services	3.4	3.5	3
Food-service	7.5	8.7	7
Airline tickets	18.3	10.3	-2
Economic activity	1.9	1.9	0
Education	3.0	3.0	0
Inertial	2.9	2.9	0
Salaries	2.3	2.3	0
Regulated	8.3	11.1	76
Gasoline	25.2	29.7	27
Energy	0.3	10.7	46
Health insurance	5.0	3.9	-4
Bus fares	1.5	1.5	0
Cores	4.2	4.9	70

Sources: Santander

	old	2022 new	Δ bps
IPCA headline	3.9	4.0	7
Free prices	3.6	4.1	34
Food-at-home	3.5	3.5	0
Industrial goods	3.8	4.7	21
Tradables	3.8	4.7	18
Non-Tradables	3.8	4.7	3
Services	3.5	3.9	14
Food-service	5.0	6.0	6
Airline tickets	12.0	16.0	1
Economic activity	2.5	2.7	2
Education	5.0	5.5	2
Inertial	3.1	3.3	2
Salaries	2.5	2.7	1
Regulated	5.0	3.8	-33
Gasoline	4.5	4.5	0
Energy	4.0	-3.0	-31
Health insurance	9.0	9.0	0
Bus fares	6.0	6.0	0
Cores	3.7	3.9	20

Sources: Santander

High-frequency tracking: even higher inflation for 2021

- Since the publishing of our scenario-review in July 1st, new data was released and we updated our high frequency tracking further up for 2021
- And the higher inflation for 2021 adds upside risks for IPCA 2022, coming from the higher inertia

	old	2021 new	Δ bps
IPCA headline	6.7	7.0	31
Free prices	5.1	5.5	23
Food-at-home	6.5	7.5	14
Industrial goods	6.7	7.0	6
Tradables	6.7	7.0	5
Non-Tradables	6.7	7.0	1
Services	3.5	3.6	3
Food-service	8.7	8.1	-4
Airline tickets	10.3	25.5	5
Economic activity	1.9	1.9	0
Education	3.0	3.0	0
Inertial	2.9	3.3	3
Salaries	2.3	2.1	-1
Regulated	11.1	11.4	8
Gasoline	29.7	29.7	0
Energy	10.7	14.5	17
Health insurance	3.9	2.6	-5
Bus fares	1.5	1.5	0
Cores	4.9	5.0	10

Sources: Santander

	old	2022 new	Δ bps
IPCA headline	4.0	4.0	-3
Free prices	4.1	4.1	-3
Food-at-home	3.5	3.5	-1
Industrial goods	4.7	4.7	0
Tradables	4.7	4.7	0
Non-Tradables	4.7	4.7	0
Services	3.9	3.9	0
Food-service	6.0	6.0	0
Airline tickets	16.0	16.0	0
Economic activity	2.7	2.7	-1
Education	5.5	5.5	0
Inertial	3.3	3.3	0
Salaries	2.7	2.7	0
Regulated	3.8	3.8	-1
Gasoline	4.5	4.5	0
Energy	-3.0	-3.0	0
Health insurance	9.0	9.0	0
Bus fares	6.0	6.0	0
Cores	3.9	3.9	0

Sources: Santander

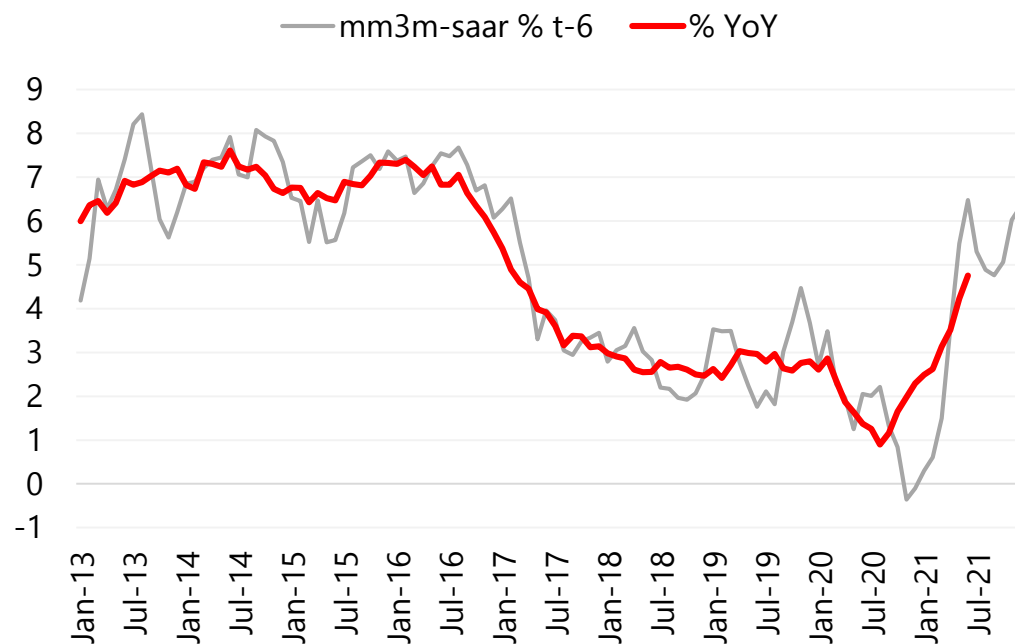
Inflationary pressures are
spreading

02

Core gauges are at high levels

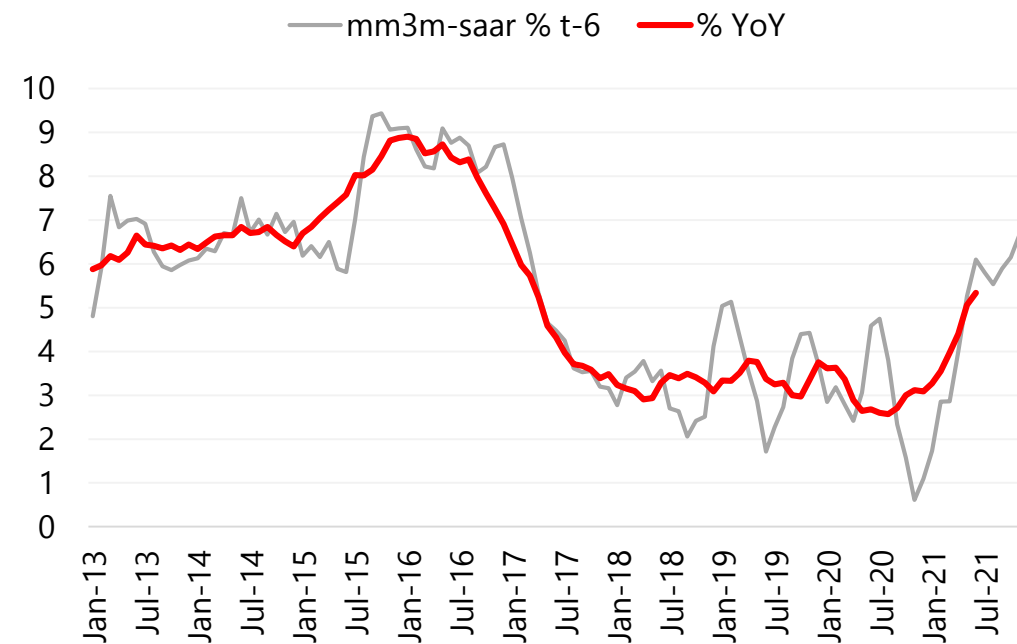
- All of the main five core measures closely followed by the BCB are hovering above 5.0% in 3mma-saar terms, with most of them still on a rising trend

EX0 IPCA Core - annual



Sources: IBGE, BCB, Santander

Double Weighted IPCA Core - annual

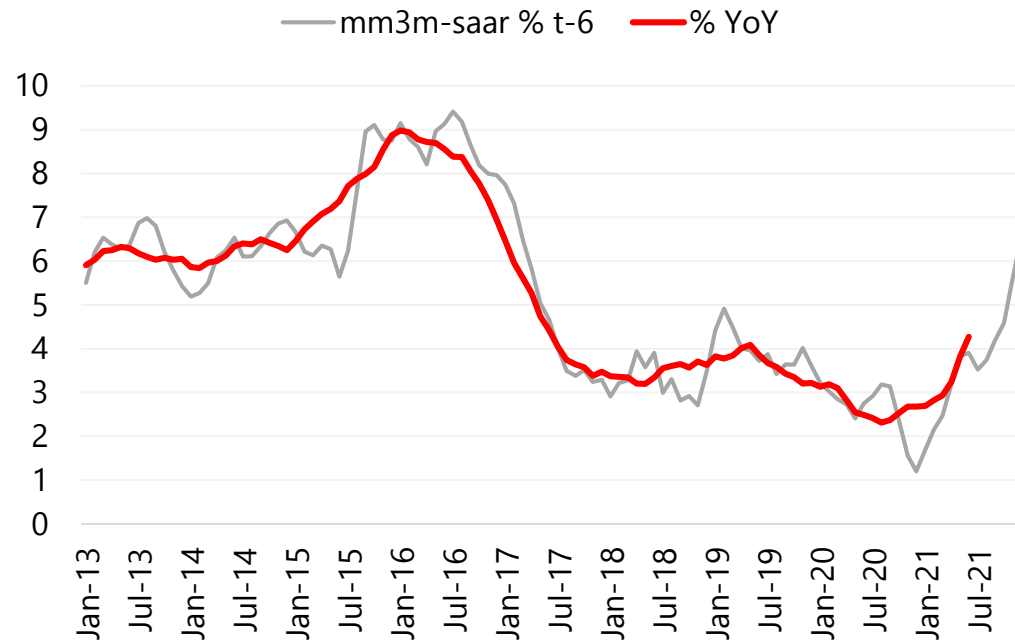


Sources: IBGE, BCB, Santander

Cores gauges are a way to measure the spreading of primary shocks to general prices

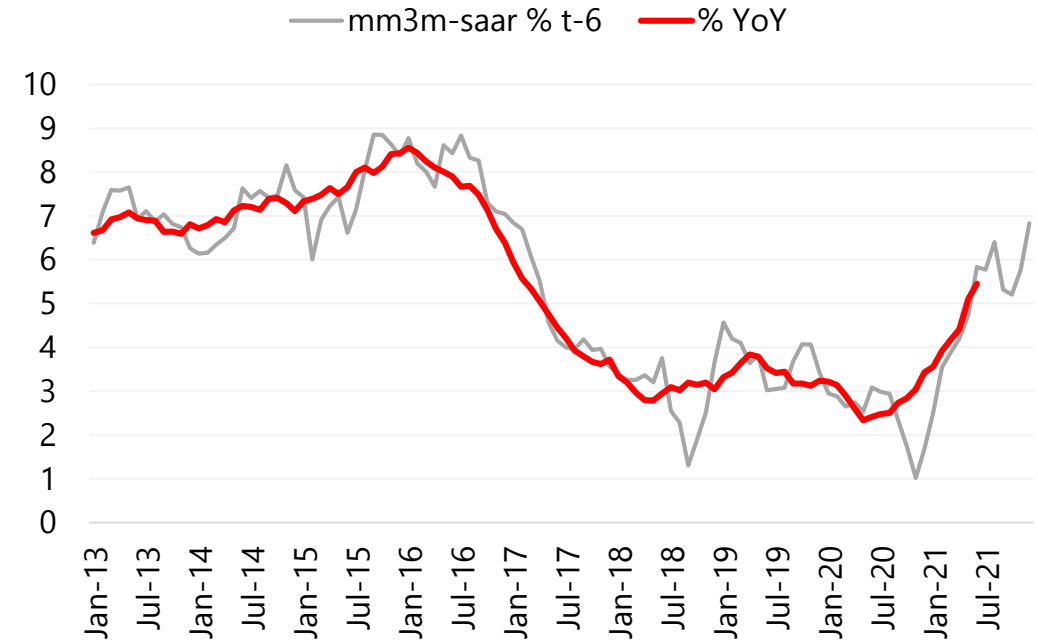
- They sign that shocks on specific items/groups are spreading to prices non-directly related to those items

Smoothed trimmed mean IPCA Core - annual



Sources: IBGE, BCB, Santander

P55 IPCA Core - annual

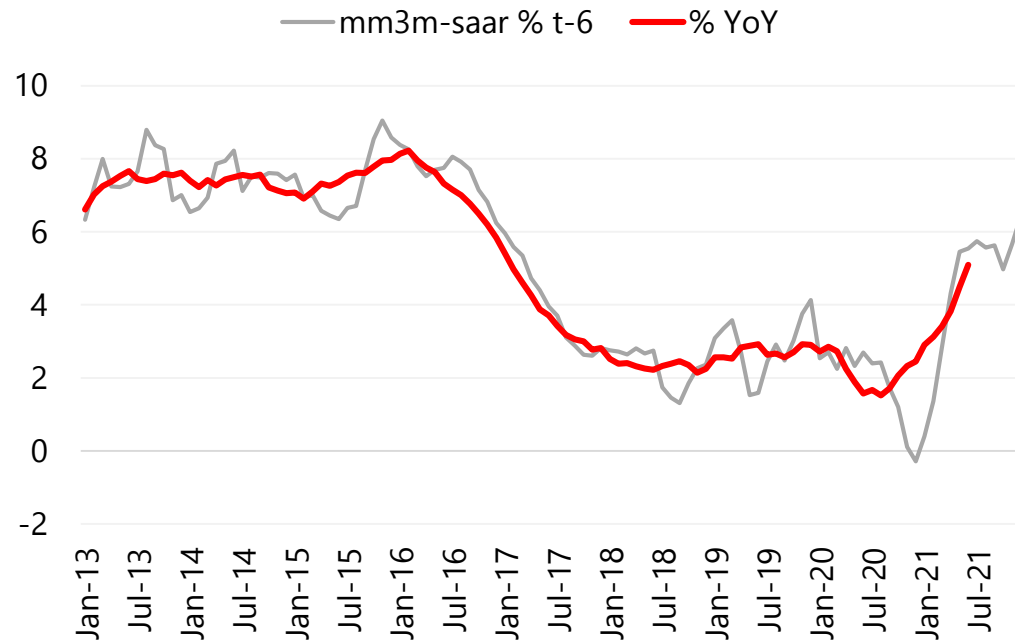


Sources: IBGE, BCB, Santander

The average of the main core gauges is at 5.8% 3mma-saar and rising

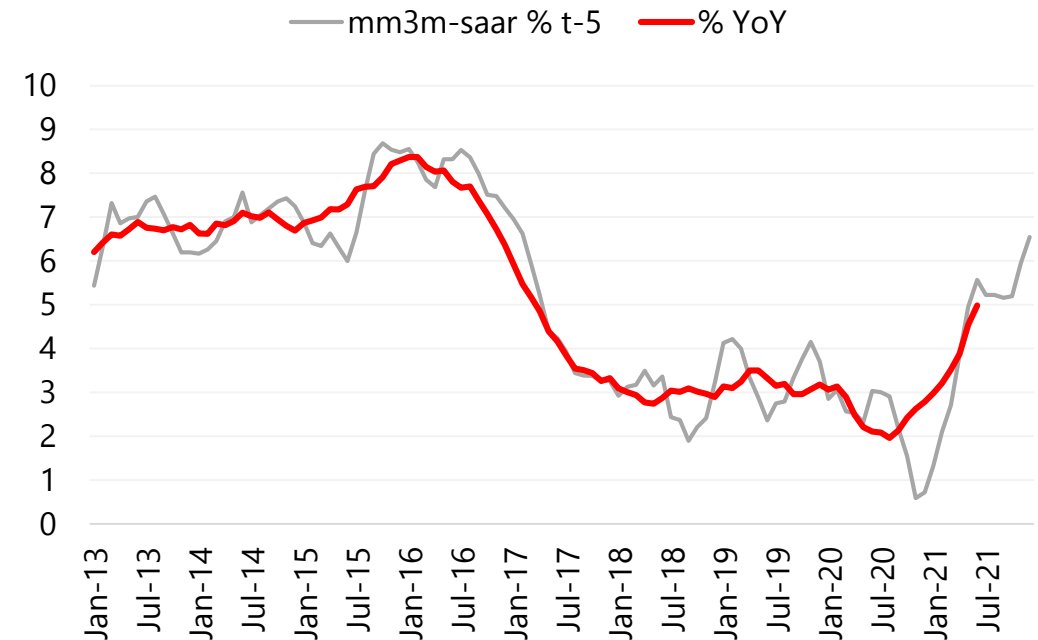
- Core gauges are a measure of trend inflation (as they, in theory, remove the effect of shocks) so the rising trend shows a difficult outlook for inflation

EX3 IPCA Core - annual



Sources: IBGE, BCB, Santander

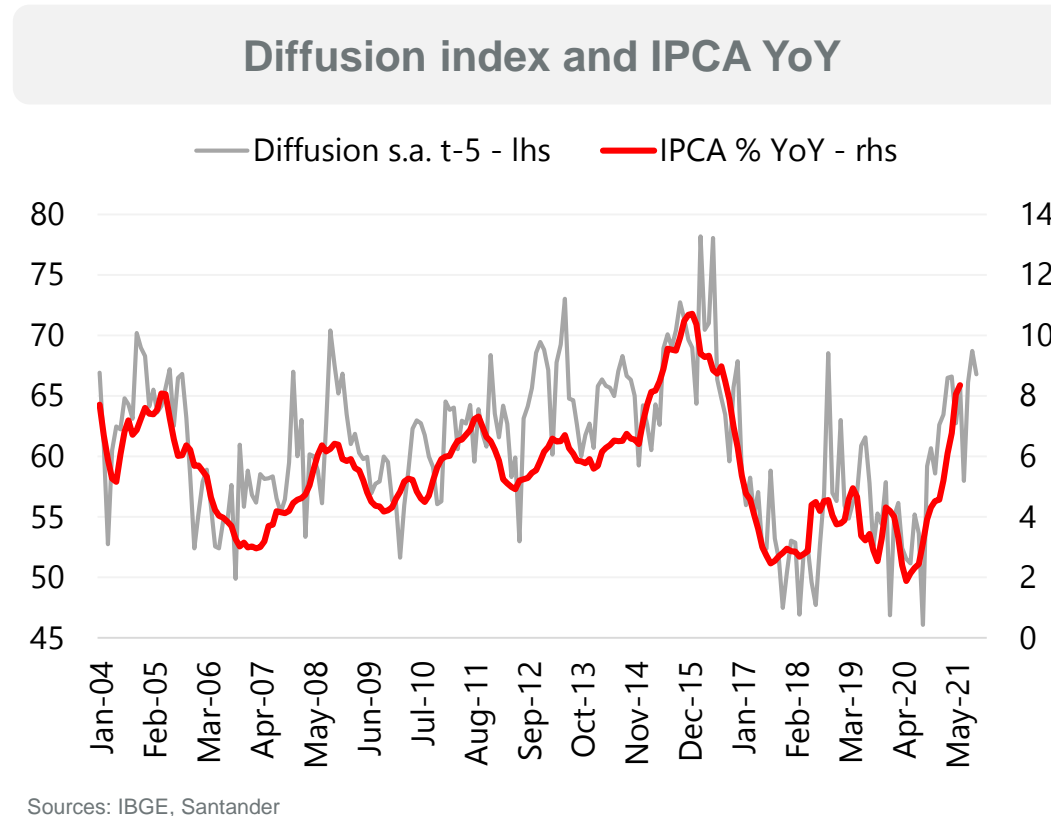
Average of Core IPCA measures - annual



Sources: IBGE, BCB, Santander

The diffusion index is another way to measure the spreading of shocks to general prices

- Also the diffusion tends to anticipate annual inflation by around five months and current levels suggest that IPCA should continue to rise around 9% YoY for the coming months



Usual inflation determinants do not point to a cool down at the short-term

03

Usual inflation determinants do not point to a cool down at the short-term

- High inertia, high expectations, a closing output gap and a still pressured imported inflation

Phillips Curve for IPCA inflation

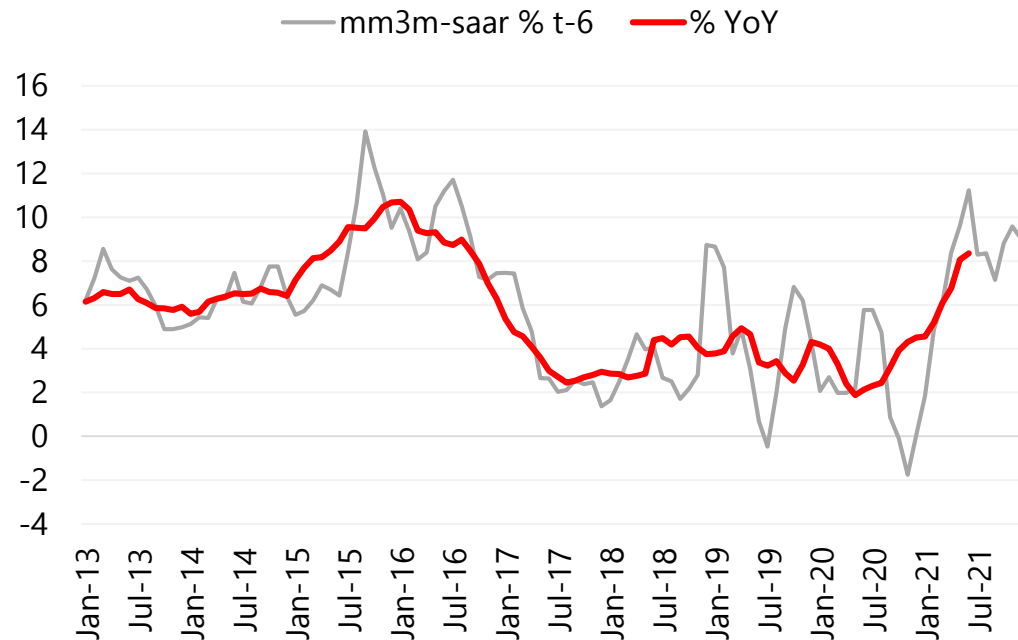
$$\pi_t = c + \alpha_1 \pi_{t-1} + \alpha_2 E_t(\pi_{t+1}) + \alpha_3 h_{t-1} + \alpha_4 \Delta(p_t + e_t) + \varepsilon_t^F$$

- Where π_t is IPCA inflation,
- π_{t-1} is past inflation (and α_1 the inertia coefficient)
- $E_t(\pi_{t+1})$ is the inflation expectations (and α_2 the expectations coefficient)
- h_{t-1} is the output gap and
- p_t is a measure of international prices (commodities) and e_t is the exchange rate (and α_4 the pass-through coefficient)
- ε_t^F the error

Inertia and expectations are pressuring inflation upwards at the margin

- IPCA inflation was 4.5% in 2020 and will be around 7.0% for 2021 (per our projection), adding an inertial pressure – this is particularly important in Brazil where many prices are still indexed by past inflation
- Expectations rose sharply, particularly market-based ones, which have a better forecasting performance than survey-based ones

IPCA - annual



Sources: IBGE, Santander

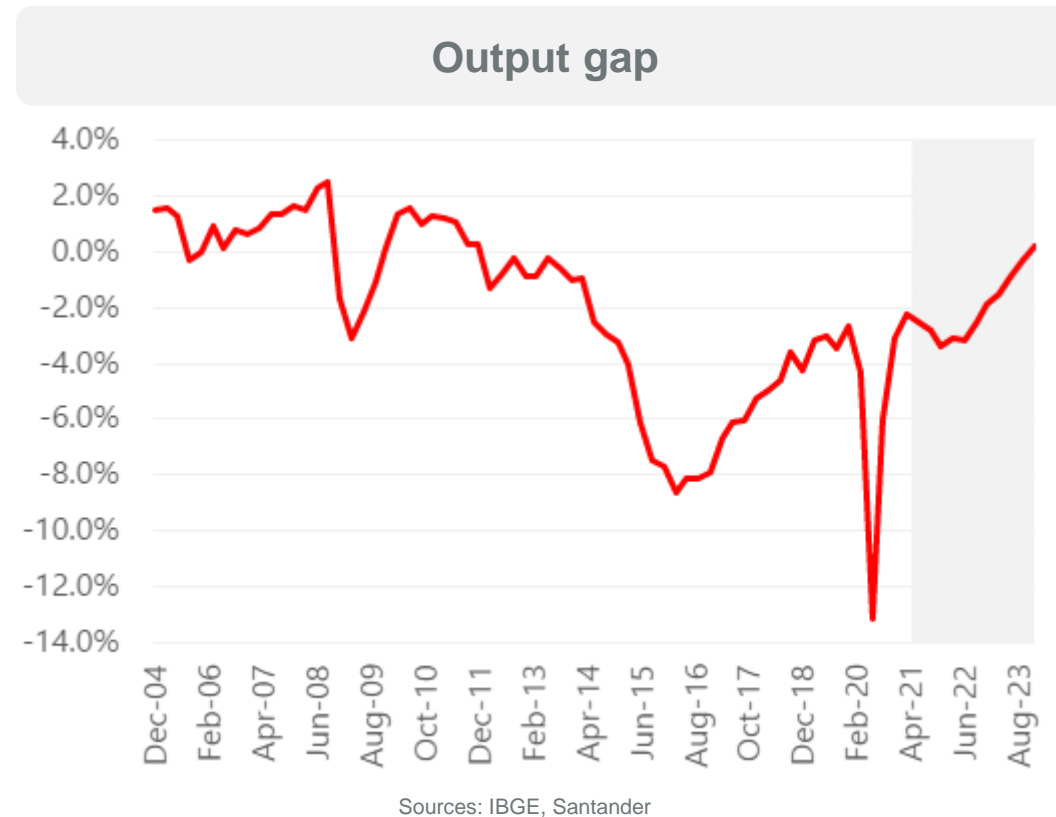
IPCA expectations: market-based x survey-based



Sources: BCB, Anbima/MCM

Economic activity is picking up and the output gap should continue its closing trend

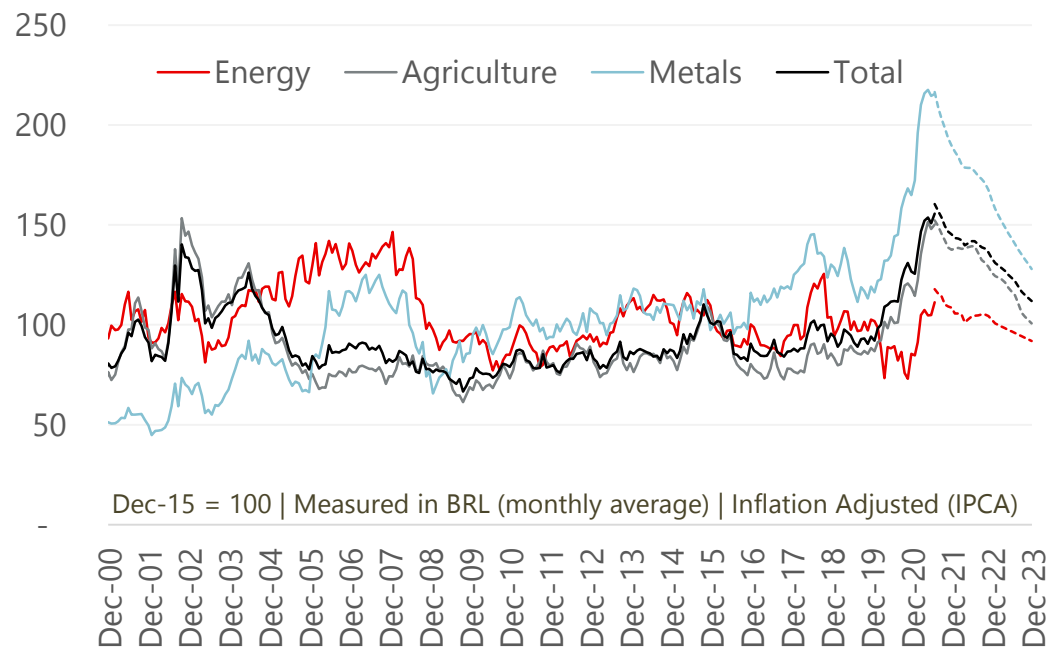
- Although there is still heterogeneity between sectors (manufacturing vs. services), as the pandemic starts to fade, the economy should recover



Commodities' prices should cool down a bit, but BRL should not help much

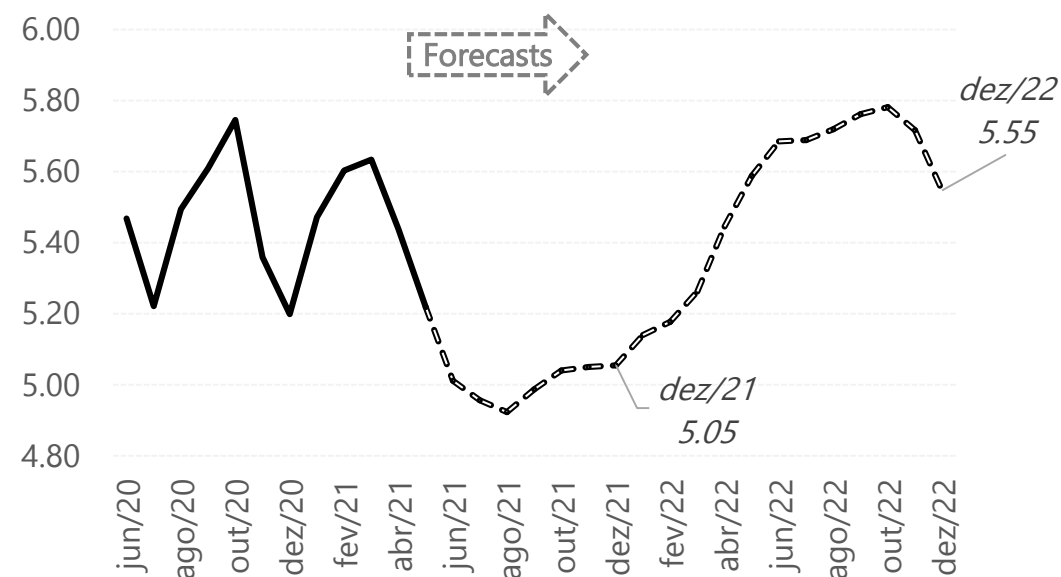
- Although we see commodity prices cooling down, it should not be a major relief
- Moreover, in the medium-term the BRL should continue depreciated, given the fiscal/political risks

Commodities forecast



Sources: Bloomberg, Santander

BRL forecast

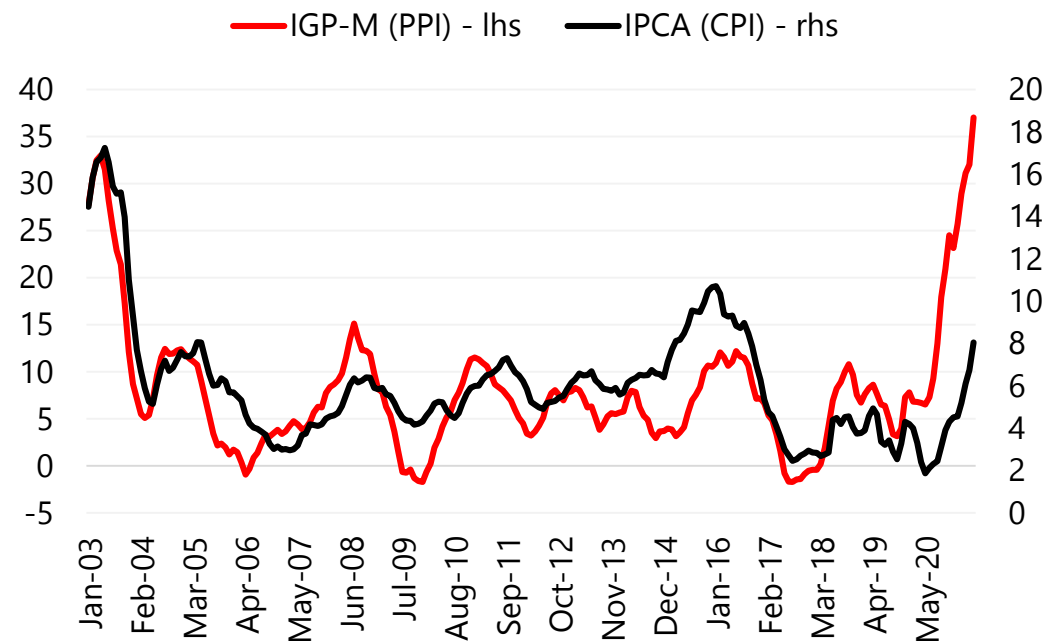


Sources: BCB, Santander

Large distortion of relative price between the wholesale and consumer levels

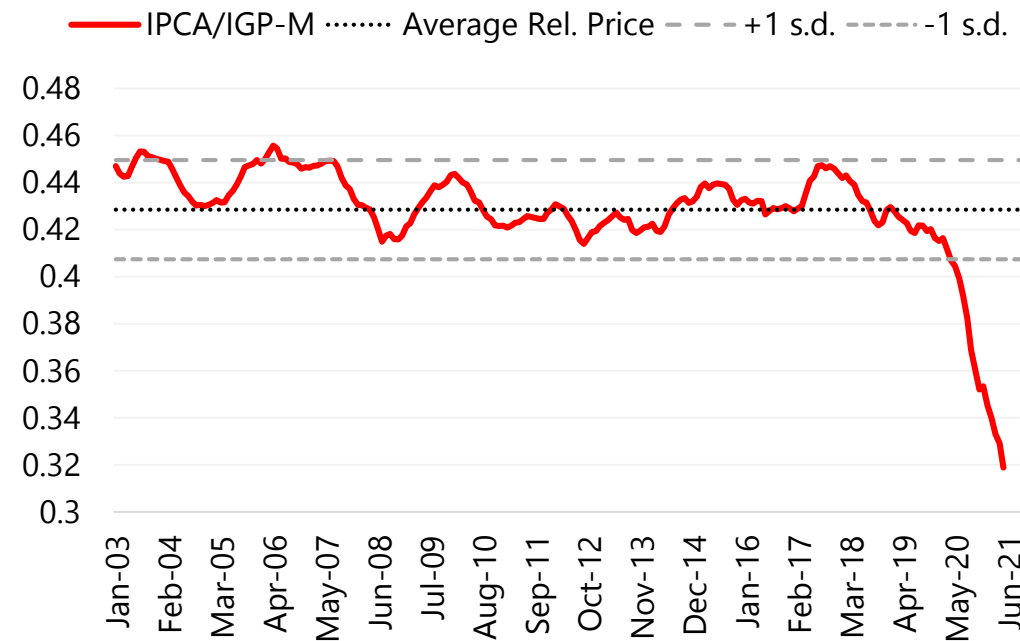
- On top of the usual drivers, we also highlight that there is a backlog of rises at the wholesale level that are still to reach the consumers

IPCA and IGP-M % YoY



Sources: IBGE, FGV

Relative price level: IPCA (CPI) / IGP-M (PPI)

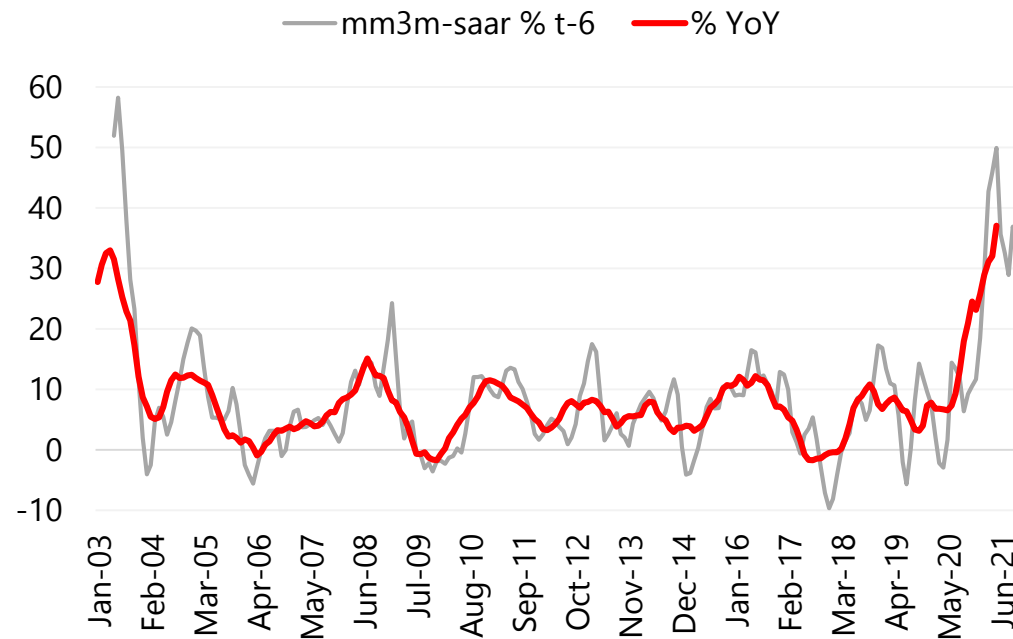


Sources: IBGE, FGV, Santander

And there is no relief in sight for the wholesale level yet

- Before expecting a more clear and robust relief for the consumer, we first need to see a cooling down of prices at the wholesale level and we are not seeing it yet
- IGP-M YoY is at the highest level at least since 2003
- Hence, besides the backlog of raises to come to consumers, more upward pressures keep piling up to that backlog

IGP-M inflation: 3mma-saar still pointing to upward pressures at the margin



Sources: FGV, Santander

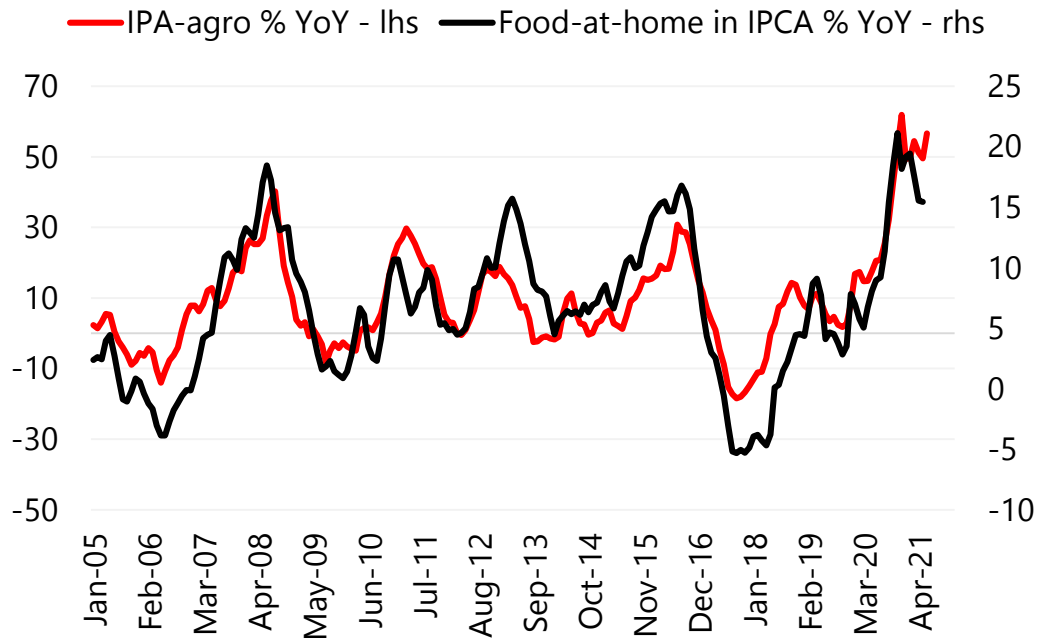
IPCA's groups analysis

04

Part of the distortion comes from food prices

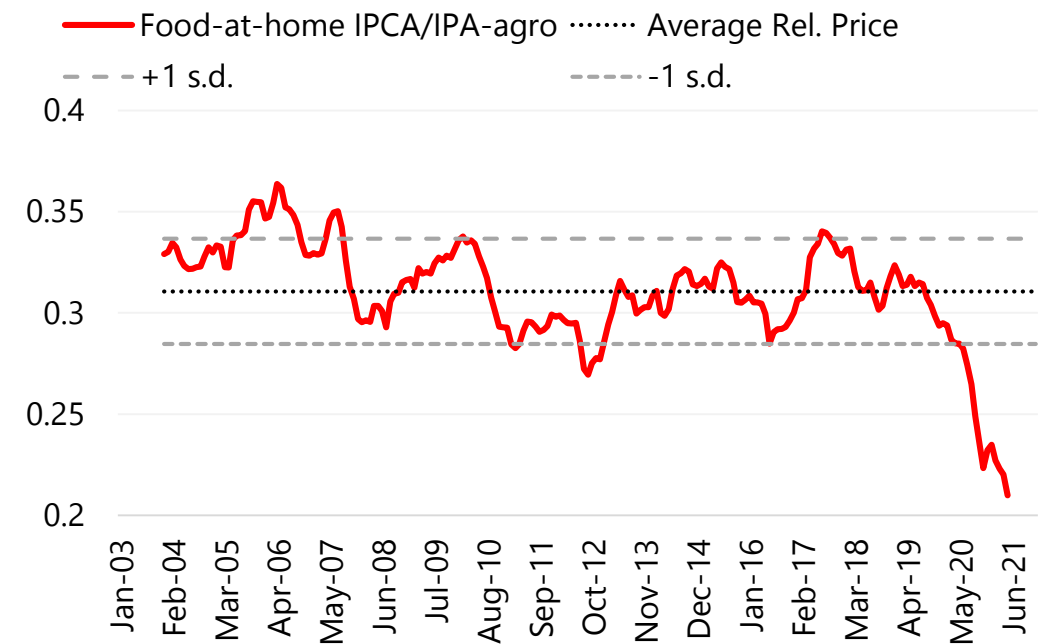
- Agricultural prices at the wholesale level (IPA-agro) tend to cointegrate with food-at-home prices, that is, the relative price tend to hover around a mean, but the recent sharp rise of IPA-agro distorted that relation considerably
- Even with food-at-home already rising in IPCA, it is still too far from normalizing the relation

Wholesale agricultural inflation (IPA-Agro) and Food-at-home inflation in IPCA



Sources: FGV, IBGE, Santander

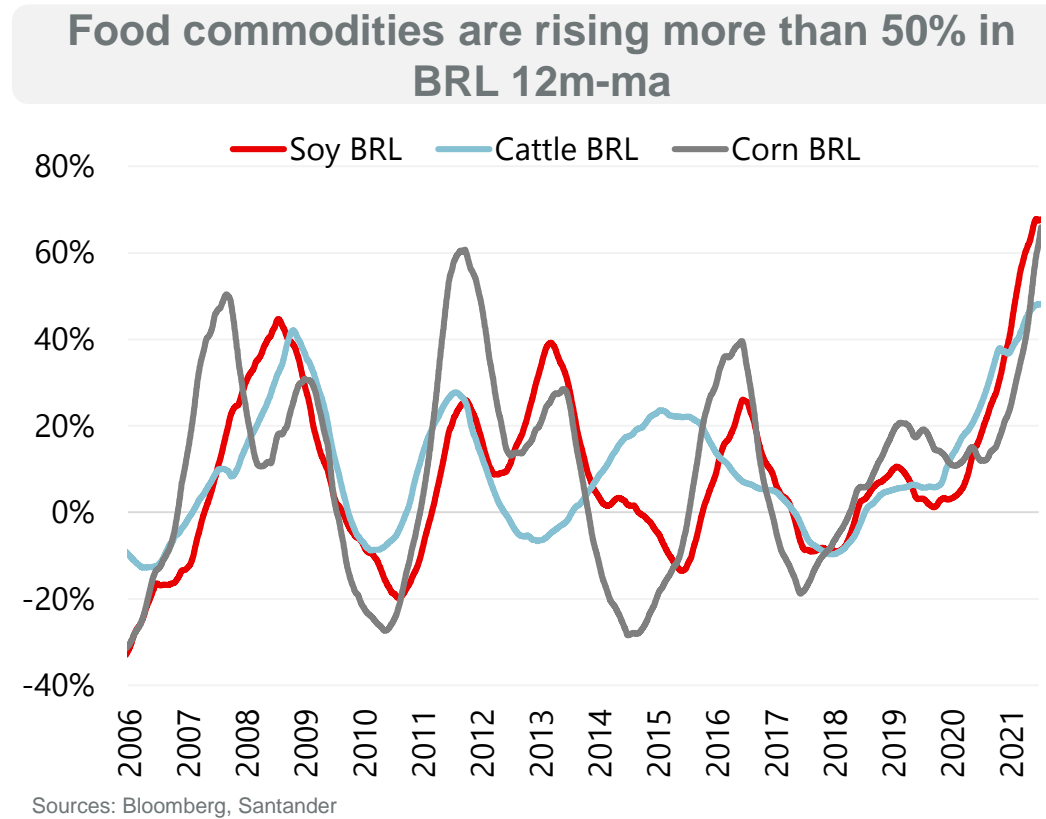
Relative price level: food-at-home IPCA/Wholesale agricultural IPA-agro



Sources: FGV, IBGE, Santander

Grains and proteins are rising more than 50% at the wholesale level

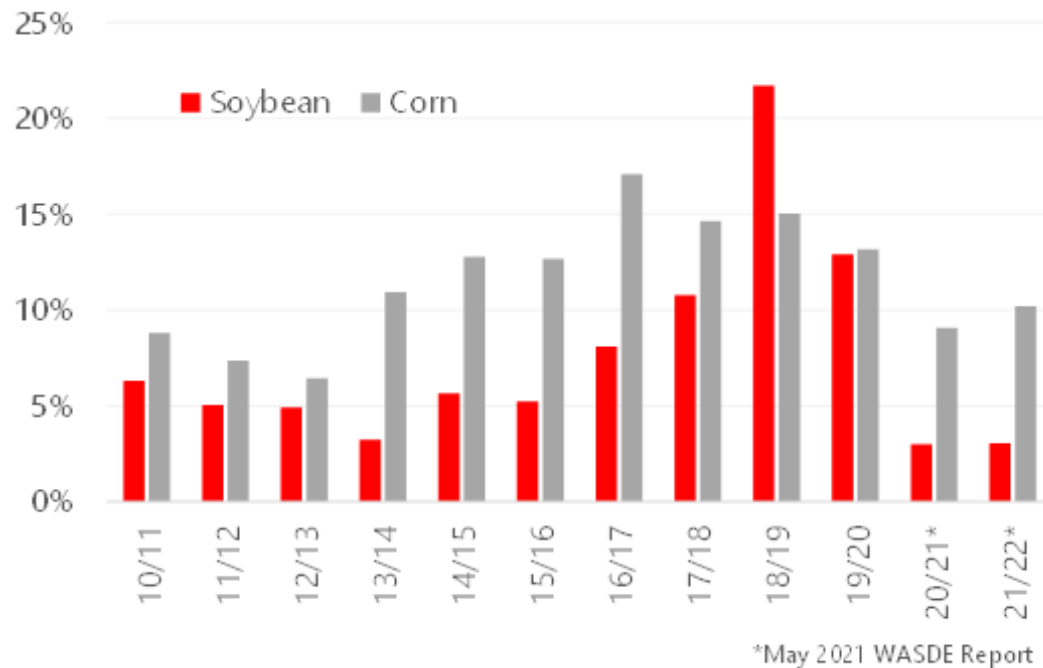
- Strong domestic and external demand, low inventories, weather shocks



A fragile scenario for agricultural commodities

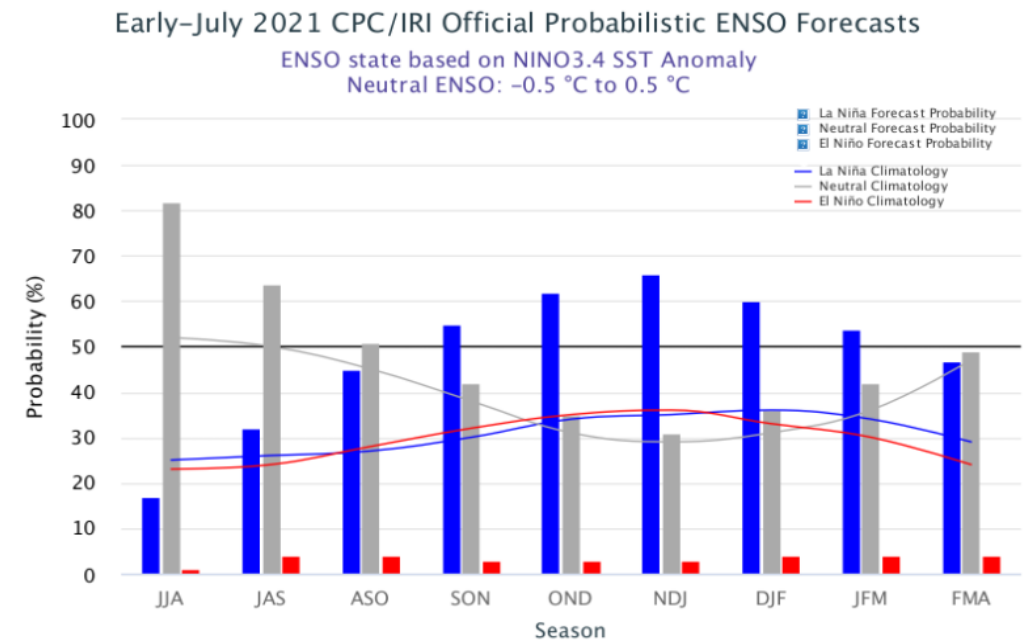
- Very high demand (particularly US and China) and low stock-to-use
- Any weather shock can have major impact on prices on the next years

Very low stock-to-use grains levels in the US



Sources: Wasde

Probability of La Niña during 4Q21 is increasing

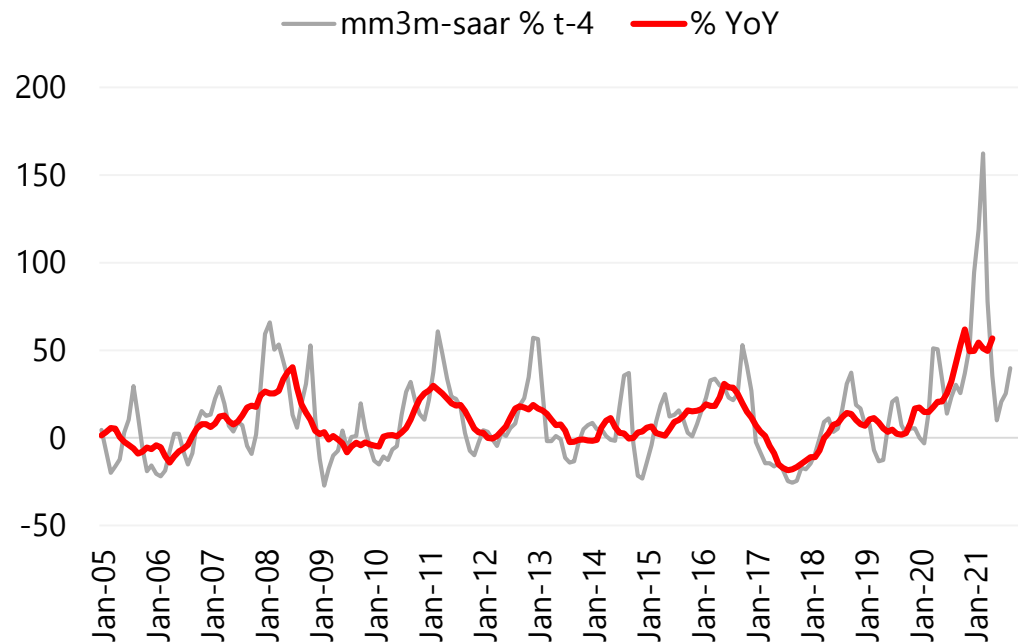


Sources: CPC/IRI

And there is no clear sign of relief for food yet

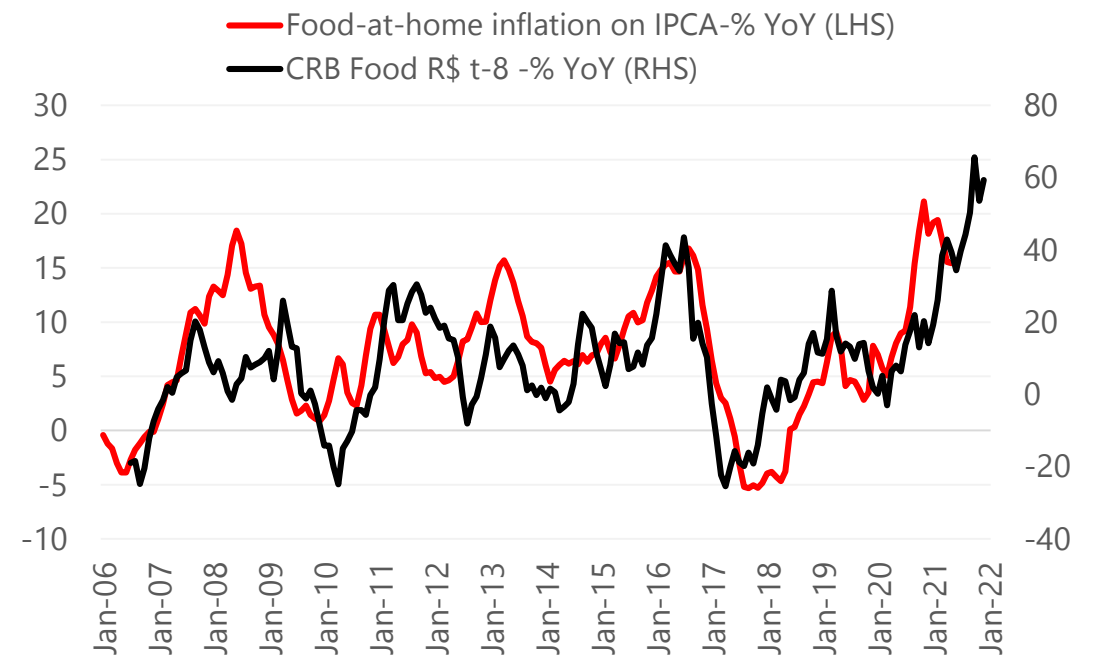
- Despite a recent fall in some agricultural commodities, the recent IPA-agro releases still pointed to a pressured 3mma-saar
- CRB Food in BRL is a good leading indicator for food-at-home in IPCA and it is still showing an upwardly pressured scenario until year-end

IPA-agro: after a short-lived relief, the 3mma-saar rebounded a bit and is around 40% again



Sources: FGV, Santander

CRB Food is rising 60% YoY and it anticipates IPCA's food-inflation

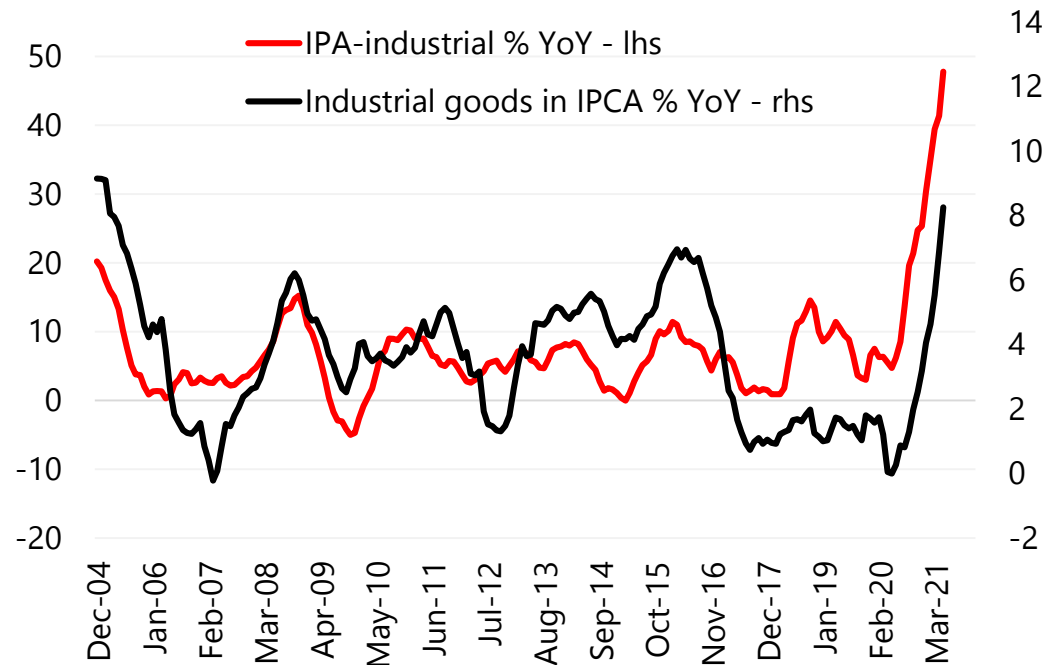


Sources: Bloomberg, IBGE, Santander

Other part of the distortion comes on industrial goods

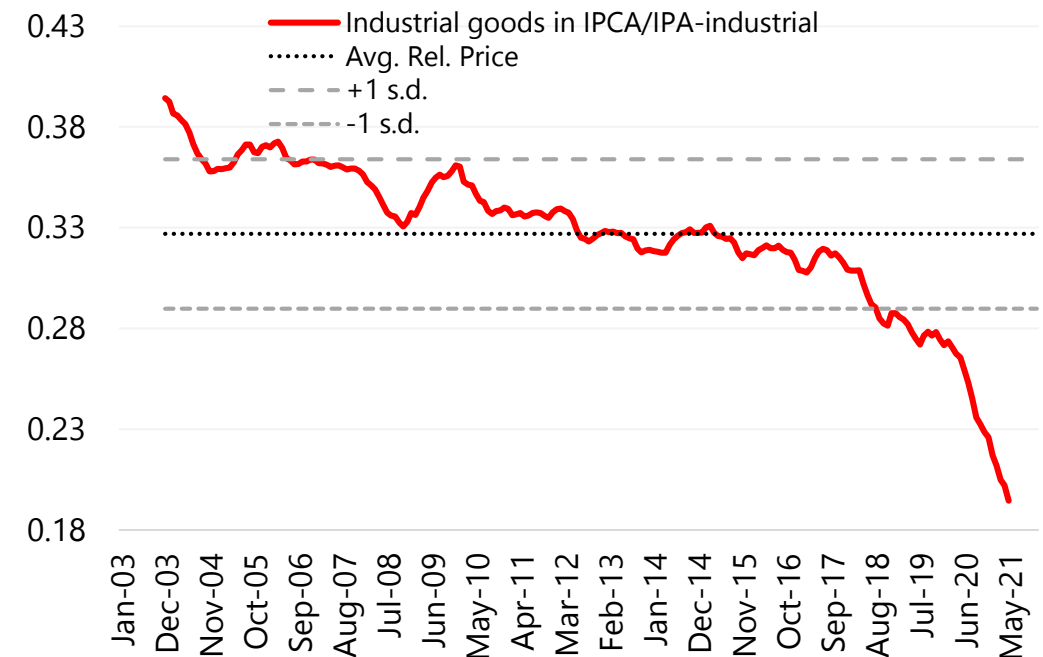
- Although not directly comparable (some items in IPA-industrial do not appear in IPCA), there is a long term relationship between industrial goods on IPCA and on IGP-M (IPA-industrial) and it also got majorly distorted recently
- IPA-industrial had a sharp acceleration and, although industrial goods on IPCA also rose, it is still lagging considerably

Industrial goods in IPCA and wholesale industrial goods (IPA-industrial)



Sources: FGV, IBGE

Relative price level: industrial goods IPCA/wholesale industrial IPA-industrial



Sources: FGV, IBGE

Industrial goods: supply chain disruption

- Part of the explanation for the rise in industrial goods is the pandemic-related supply chain disruption: first there were problems because of a limitation of operations in the manufacturing sector due to social isolation measures, but now the disruption seems to be also impacted by a shortage of inputs given the sharp global V-shaped recovery

Shortage of essential inputs for the manufacturing sector

Global shortage of computer chips could last two years, says IBM boss

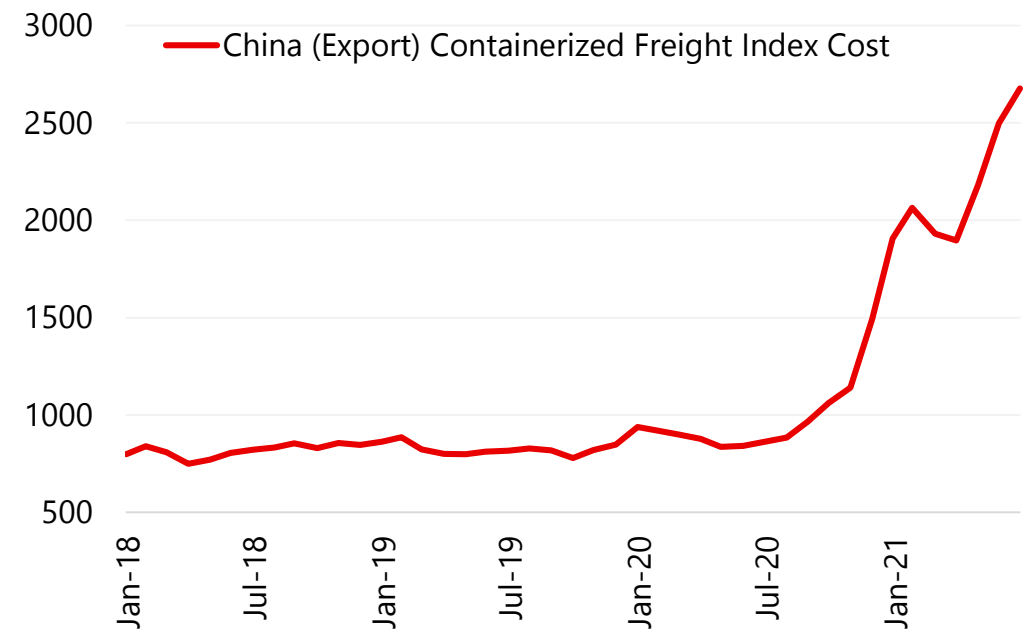
Tech industry struggles to keep up with demand brought on by the reopening of the world economy

Brasil tem 29 fábricas de veículos paradas: 'Crise sem precedentes'

Thais Carrança
Da BBC News Brasil em São Paulo

4 abril 2021
Atualizado 5 abril 2021

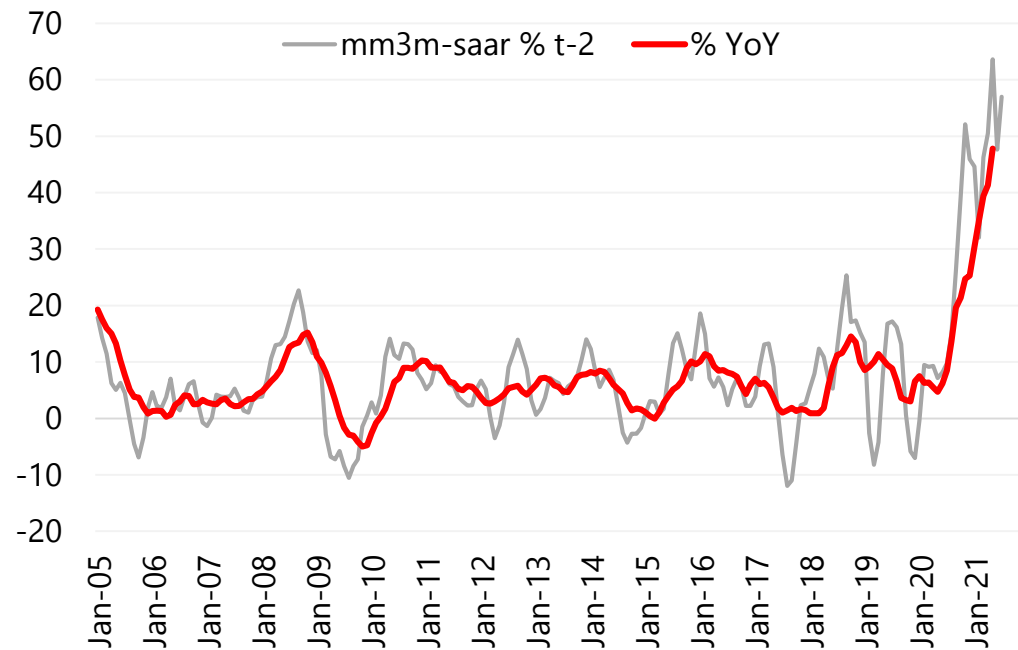
Freight costs skyrocketing: +200% since the beginning of the pandemic



Sources: Bloomberg

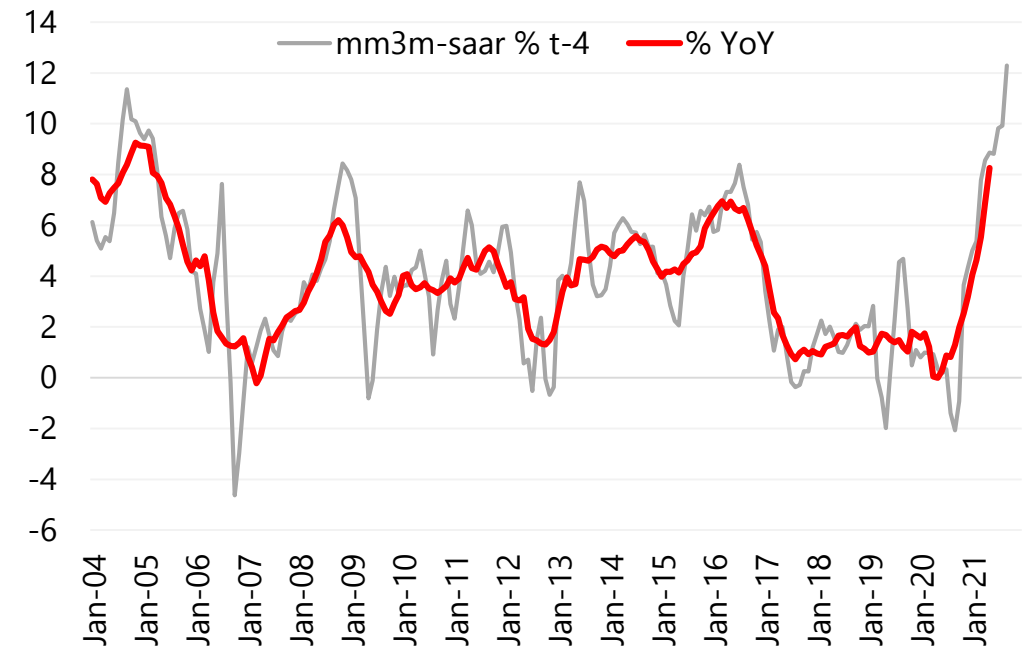
And there is no clear sign of relief for industrial goods yet

IPA-industrial: the 3mma-saar remain sustained at an incredibly high level



Sources: FGV, Santander

Industrial goods IPCA: 3mma-saar still accelerating and is at 12%

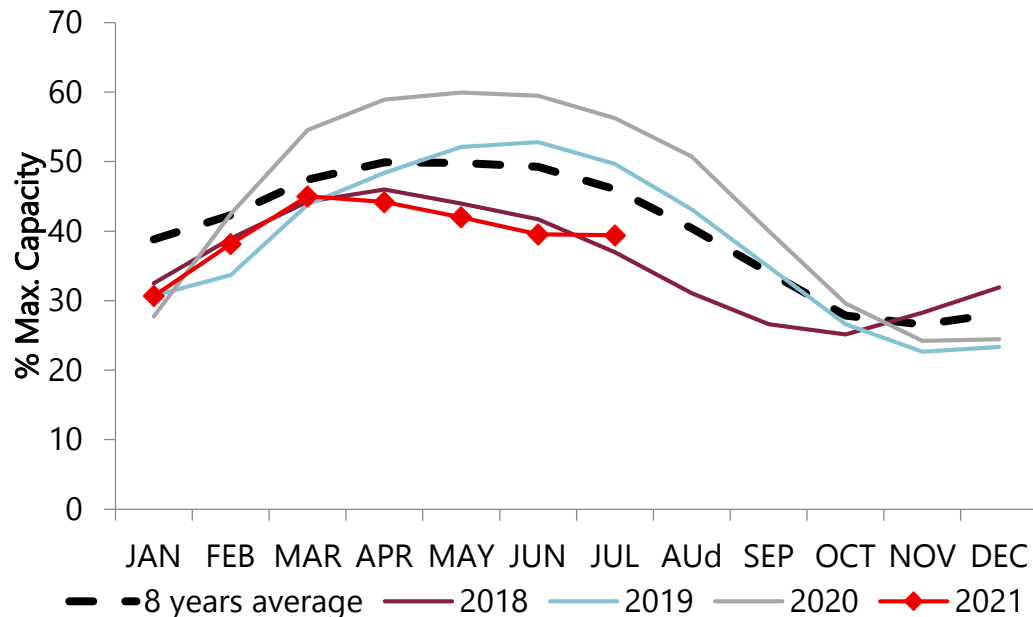


Sources: IBGE, Santander

Electricity: a weather shock is generating a rise in tariffs

- Besides defining the highest level of tariff flag (Red 2), Aneel (the sector regulator) rose the cost of KWh of this flag, putting additional pressure in electricity costs
- Assuming no change to Dec-22 tariff flag forecast, IPCA 2022 should payback the increase of IPCA 2021, but we assume that the tariff adjustments will also pressure in 2022, compensating part of that effect

Reservoir Levels are way below the average



Sources: Santander, ONS, MCM

Water Crisis Is Compounding an Inflation Time Bomb in Brazil

- Electricity prices jumping as costlier thermo plants deployed

By Martha Beck

(Bloomberg) -- Brazil's worst water crisis in nearly a century is fueling inflation that's reverberating through the economy, posing an additional challenge for the central bank

Sources: Bloomberg

Health insurance: lower tariff for 2021, higher for 2022

- The tariff adjustment for 2021 came in just a bit below our forecast (-8.2% vs. -6.5%), but for 2022 we forecast a sharp rebound of +17%, with risks of being even higher (see table below)

Figure 4. ANS Price Cap 2019-2022E

Component		Formula	2019	2020	2021	2022E
VDA (Variation of Medical Expenses)	a		11.1%	11.9%	-9.2%	36.9%
FGE (Efficiency Gain Factor)	b		8.9%	8.9%	8.9%	8.9%
Efficiency Adjustment	c = a * b		1.0%	1.1%	0.8%	3.3%
VFE (Revenue Variation by Age Group)	d		1.6%	1.6%	1.6%	1.6%
IVDA (Medical Expenses Value Index)	e = (1 + a - c) / (1 + d) - 1		8.4%	9.2%	-11.4%	31.6%
Adjusted IPCA (ex. medical plans)	f		3.4%	4.1%	4.6%	6.9%
Prince increase	g = e * 80% + f * 20%		7.4%	8.1%	-8.2%	26.7%

Sources: ANS and Santander.

Services inflation: the brightside, but for how long?

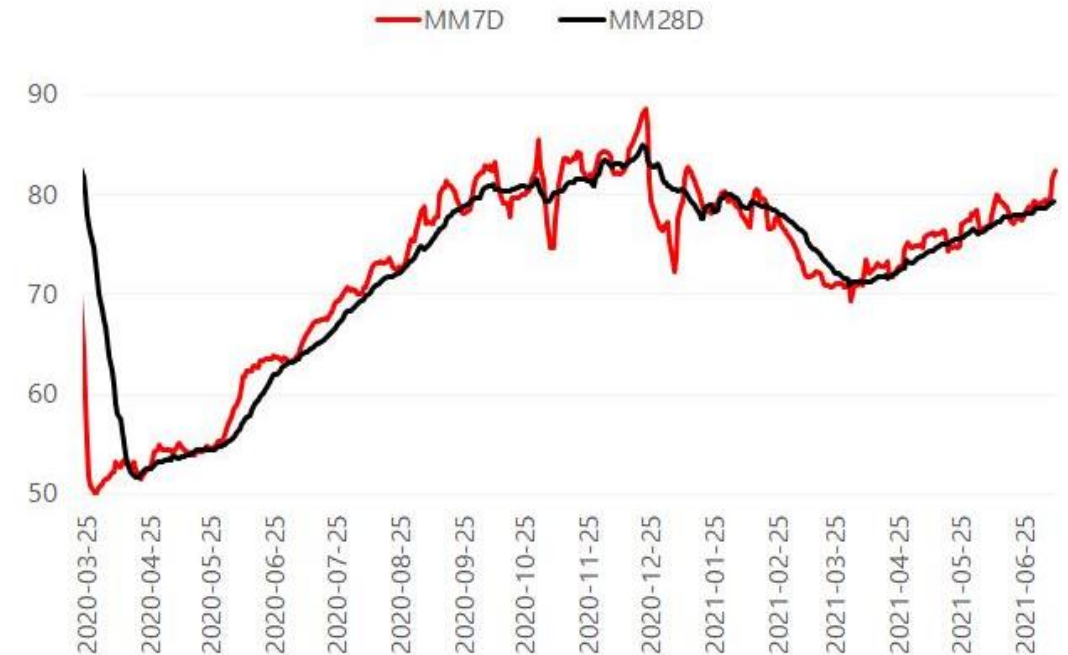
- The economy is reopening and it should put pressures on some services prices that are indirectly suffering the impact of primary shocks

Mobility is recovery rapidly



Sources: Google, Santander

The high-frequency economic activity index is also recovering at the margin

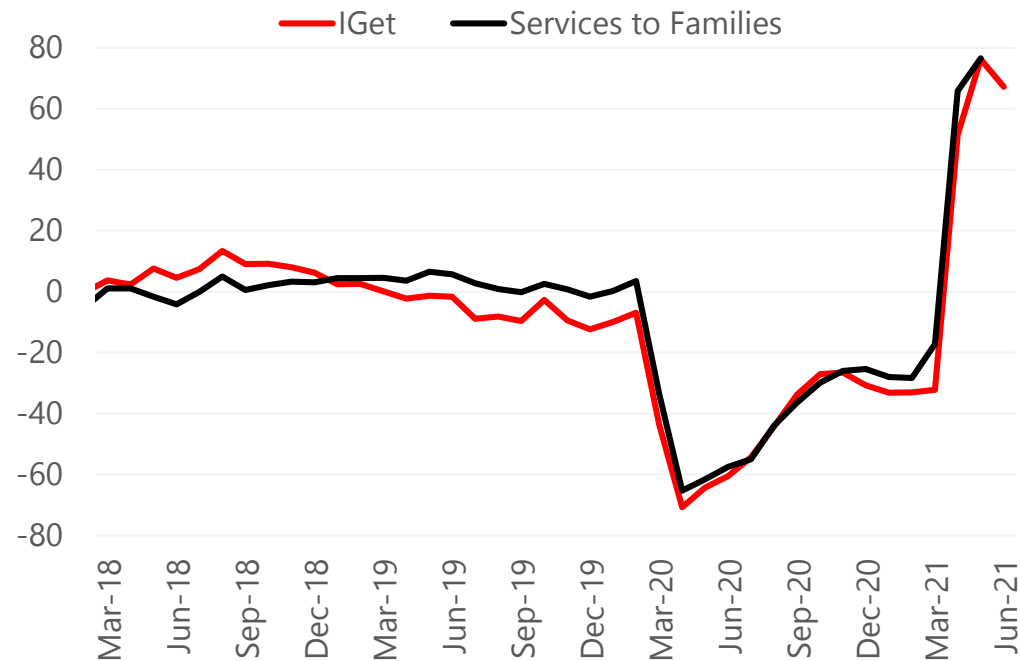


Sources: Santander, Google

Core services inflation is already back to pre-pandemic levels

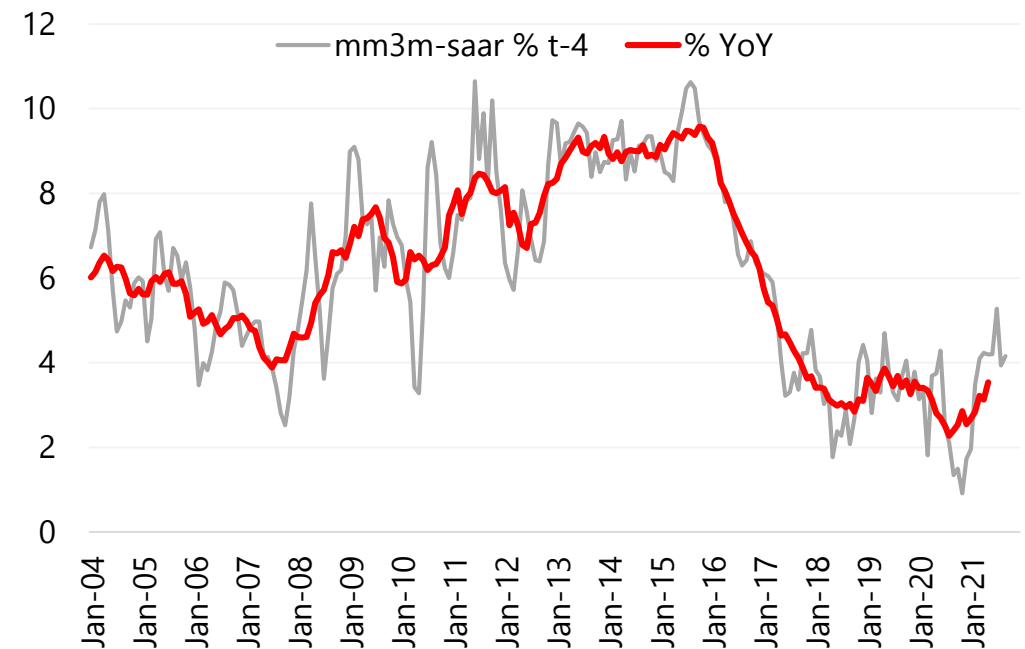
- And proprietary high frequency data shows services to households are accelerating

Our proprietary index for services to households show sharp rise at the margin



Sources: Santander

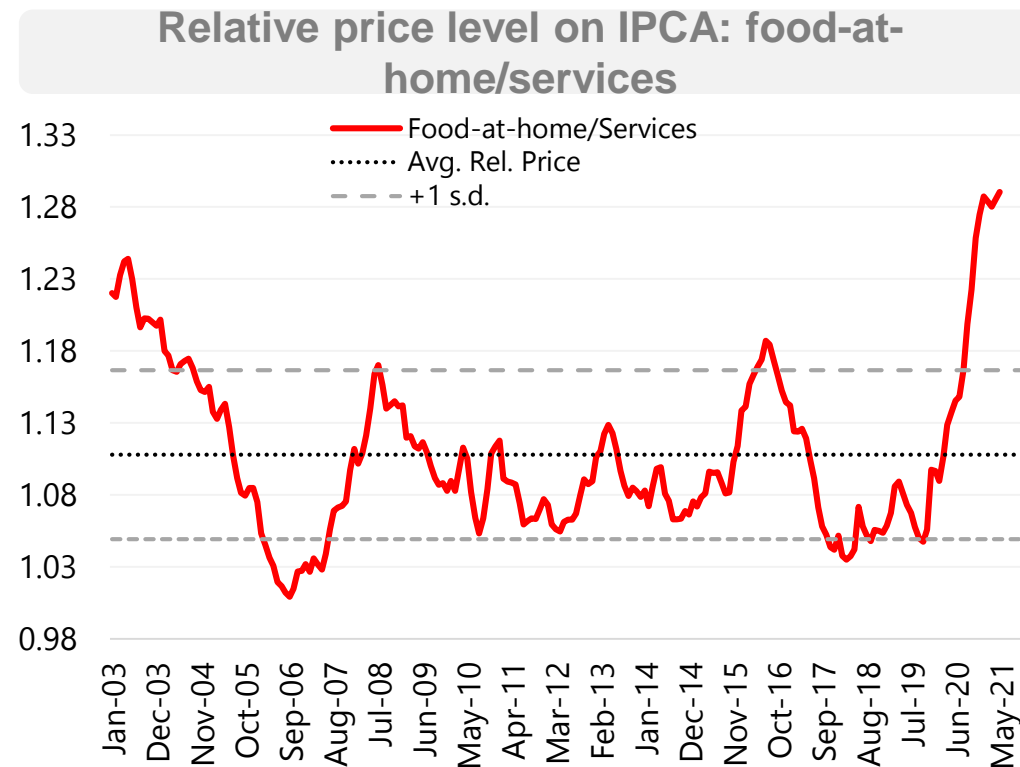
Core services inflation is already hovering above 4% for seven months now



Sources: IBGE, Santander

The relative price between food-at-home and services is distorted

- This intra-IPCA relative price also tends to be stable around a mean but food-at-home rose sharply, while services are at a very low level
- As we do not believe food-at-home will deflate soon, then services should accelerate to correct the relative price

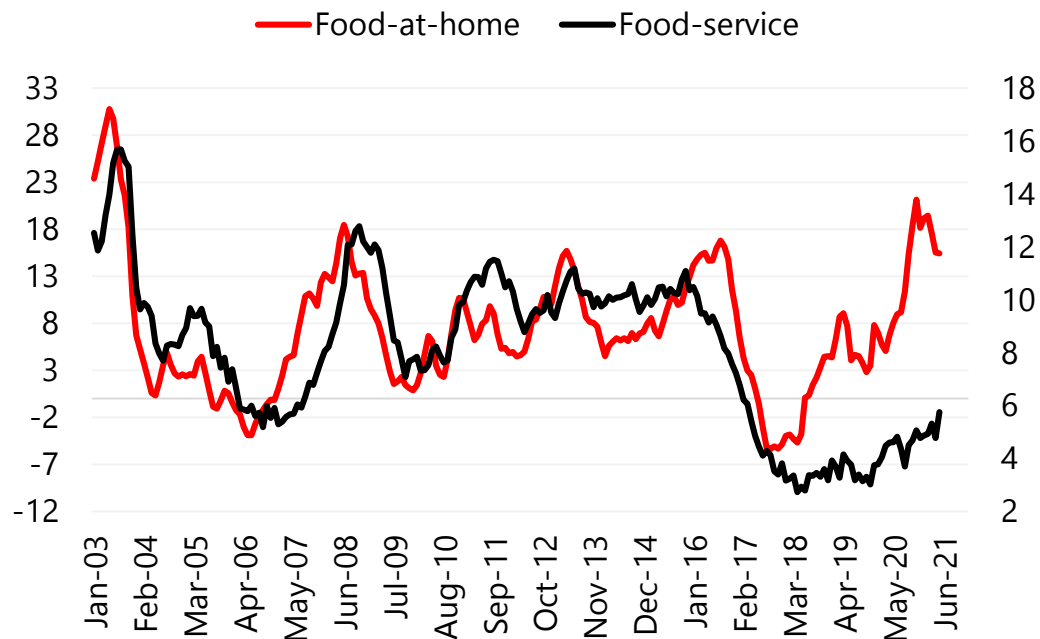


Sources: IBGE, Santander

We are particularly concerned with food-service

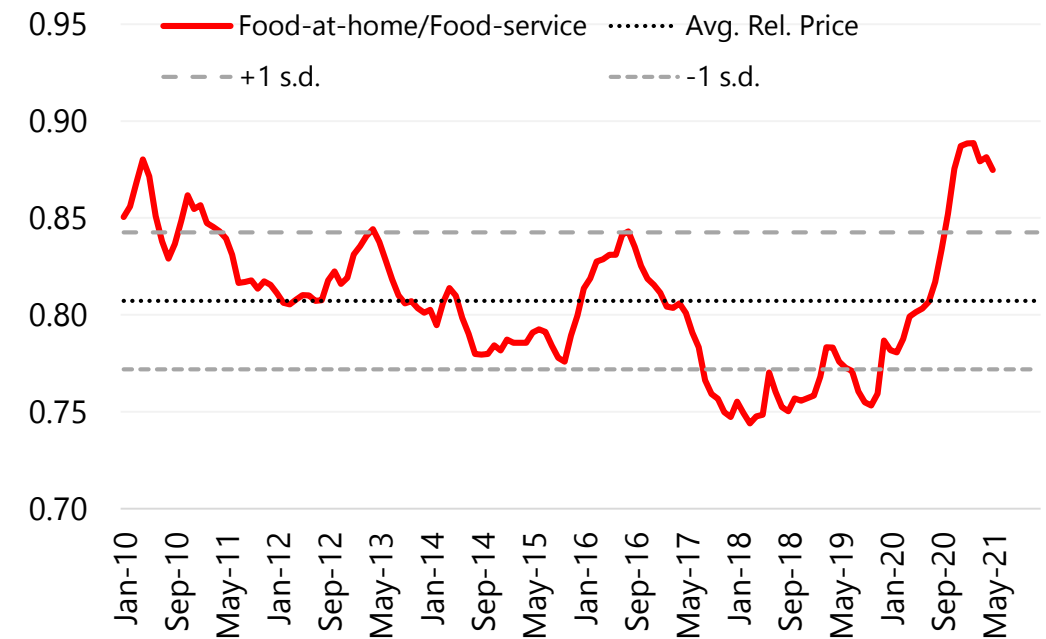
- This sector is the one more directly linked to the food shock and the relative price between food-at-home and food-service is also distorted
- As we do not expect food-at-home to deflate soon, then food-service should accelerate

Food-at-home and food-service % YoY



Sources: IBGE, Santander

Relative price level on IPCA: food-at-home/food-service



Sources: IBGE, Santander

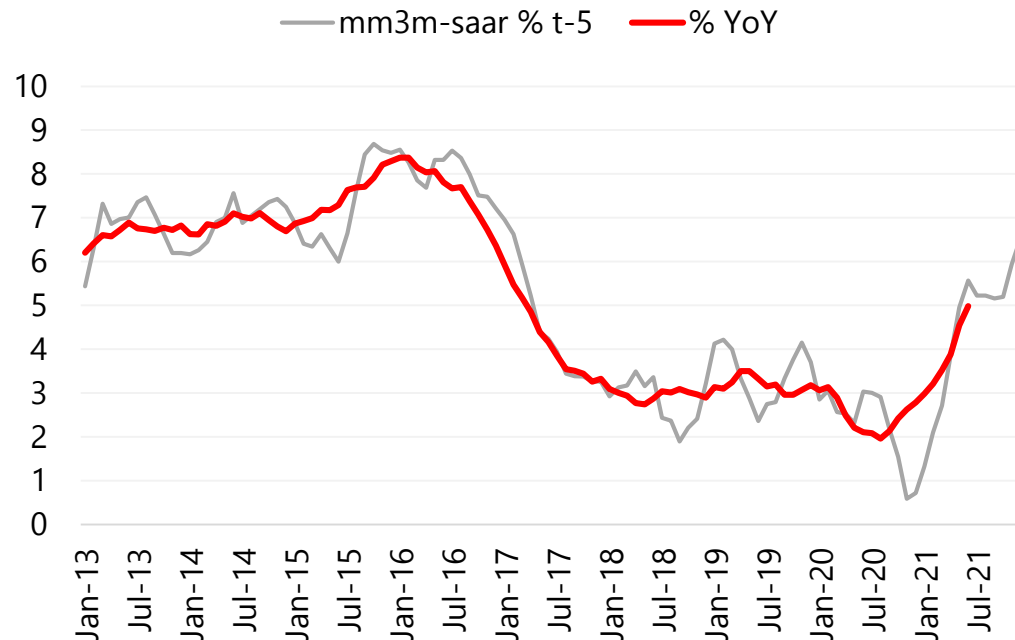
Risks

05

Risks are tilted to the upside: signs of spreading of primary shocks to general prices

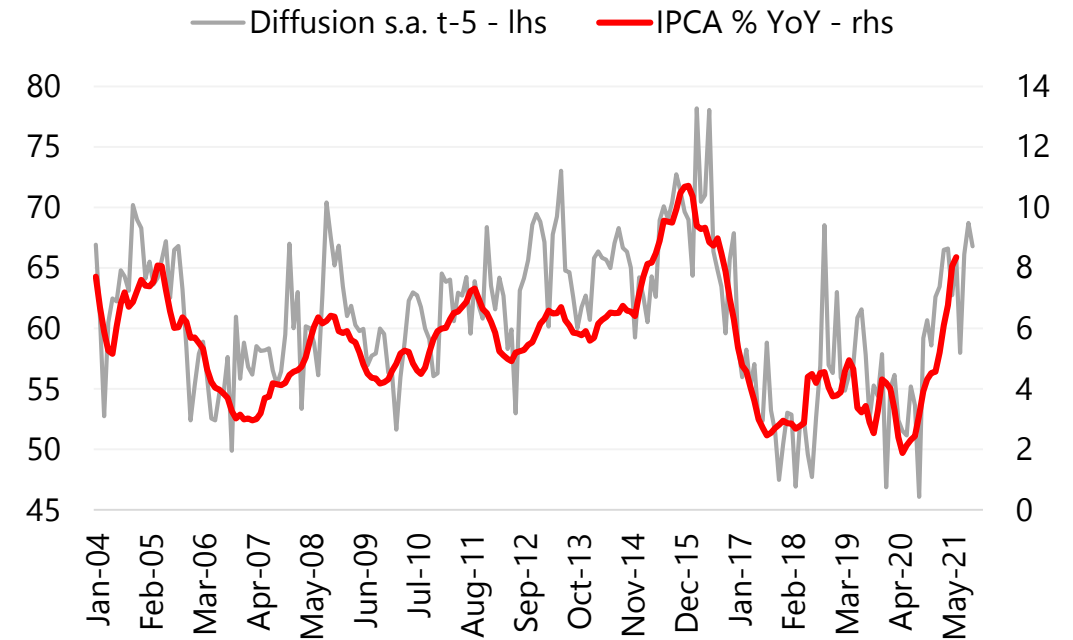
- We are more biased towards 4.5% than to 3.5% for IPCA 2022
- Core measures are running at persistently high levels and the diffusion is rising further, both showing signs of a spreading of shocks
- The recovery of the economy could worsen that scenario, with services and industrial goods rising further

Average of cores is hovering above 5% for eight months



Sources: IBGE, Santander

Diffusion is rising, pointing to higher inflation further ahead

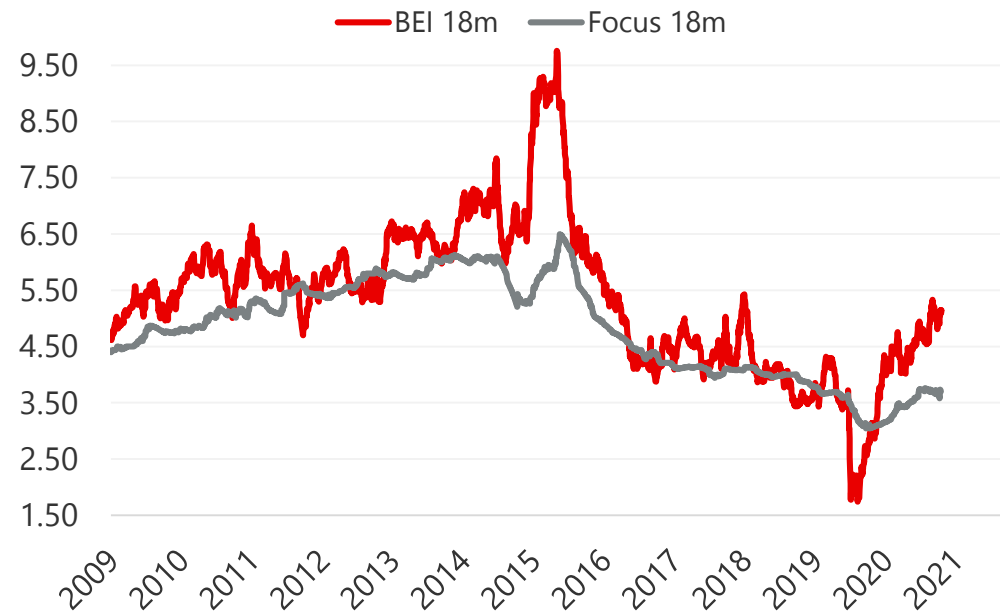


Sources: IBGE, Santander

Market-based expectations are much above the BCB's target already

- Survey-based expectations (Focus) are also rising a bit
- The risk of a de-anchoring of expectations has risen

Markets are pricing a high risk of a de-anchoring of expectations

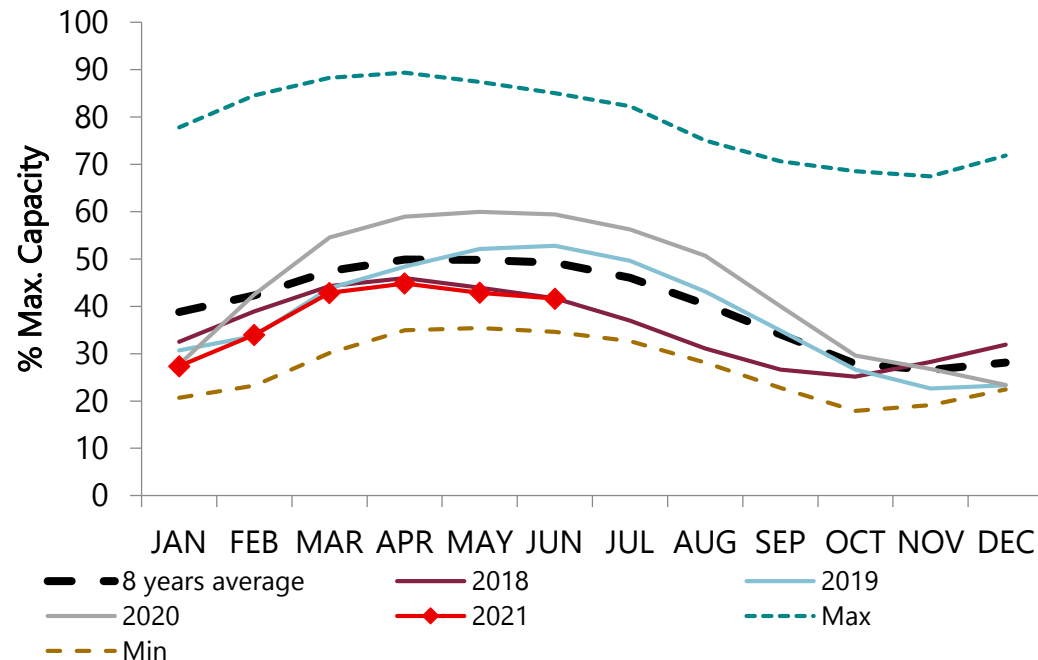


Sources: Anbima, BCB, Santander

Electricity: downside risk for 2021 and upside risk for 2022

- We are already assuming the highest level of tariff flag for Dec-21, as a result the asymmetry tends to a lower flag
- However, if that happens, then the pressure to IPCA 2022 would increase

Reservoir Levels are way below the average



Sources: ONS, Santander

Tariff flag's change impacts on IPCA

Flag	Additional cost (R\$/KWh)	Change in bill	Impact on IPCA (bps)
Green	0.00	-	-
Yellow	1.87	3.31%	14
Red 1	3.97	3.58%	15
Red 2	9.49	9.10%	39
Possbl. New Red2*	11.50	3.03%	13

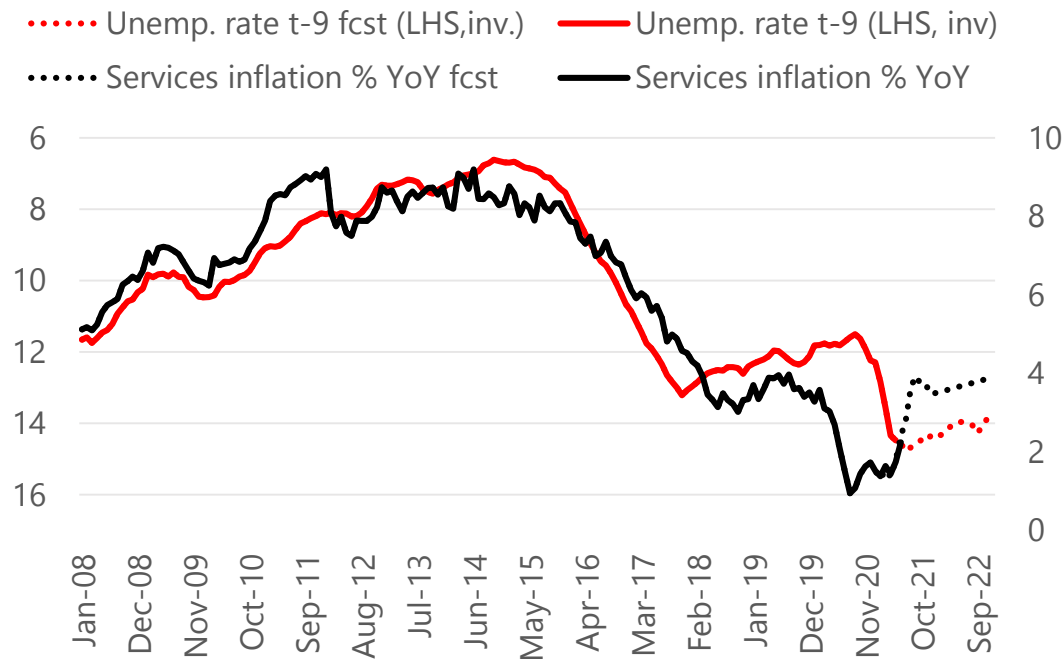
Sources: Aneel, Santander

*We are already assuming this new value, that will be discussed by Aneel during July

Services: although we firmly believe that the trend from now on is upwards, the pace of the job market recovery suggests services inflation can accelerate a bit slower

- This is one of the very few downside risks we can see for inflation (despite the, by definition, unforecastable ones, such as shocks)
- In any case, we see this as a less probable and less quantitatively important risk, so the full **balance of risks for IPCA is definitely tilted to the upside**

Services inflation vs. Unemployment rate



Sources: IBGE, Santander

Thank you.

Our purpose is to help people and businesses prosper.

Our culture is based on believing that everything we do should be:

Simple Personal Fair



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