Inflation overview – December

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Santander Global Corporate Banking

Summary

- ***Low inflation, for long (provided the agenda of fiscal adjustment and reforms is maintained)***

Long-term

- Foundations: fiscal and monetary credibility enable the low inflation environment. The main risk continues to be on the fiscal side.

Medium-term:

- With anchored inflation expectations, the negative output gap indicates a benign dynamic for inflation

Short-term:

- Short-lived pressure coming from food-at-home and the BRL is already starting to fade. We are envisioning lower inflation numbers for 1Q21

- Recent reports: Macroeconomic Scenario: (Another) Challenging Year Ahead https://bit.ly/2KLeBRf. Revising Inflation Forecasts and Discussing the IGP x IPCA Distortion https://bit.ly/36lKaYN

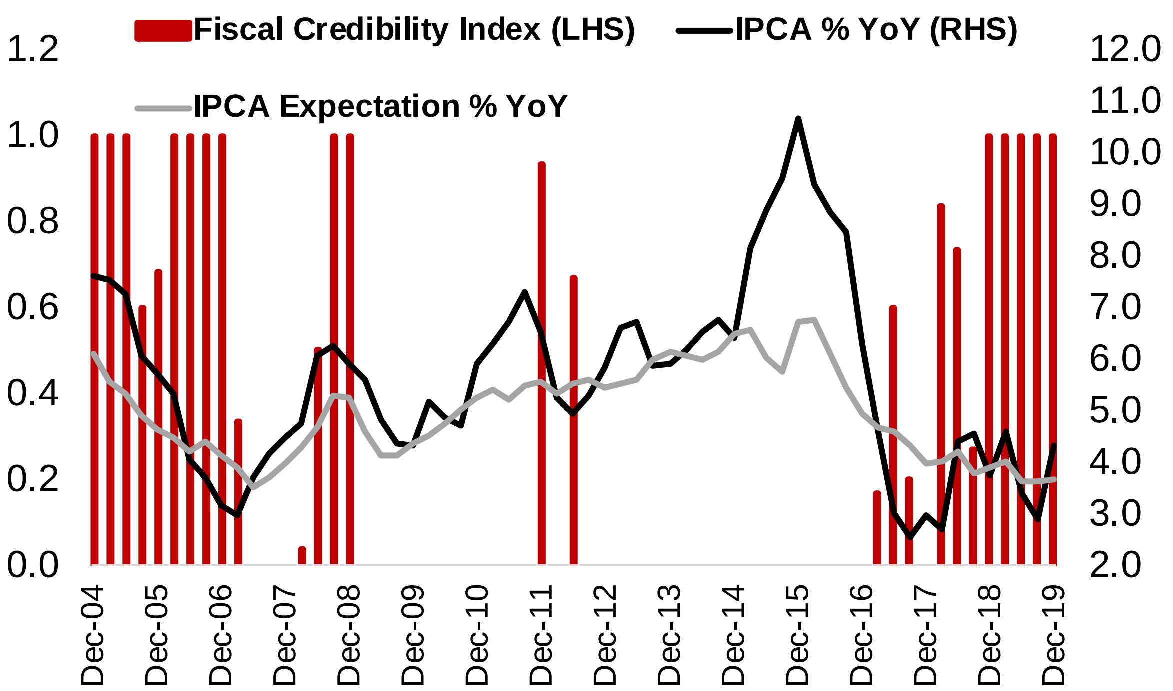
Long-term

Foundations: fiscal and monetary credibility enable the low inflation environment

Foundations of inflation: fiscal and monetary credibility

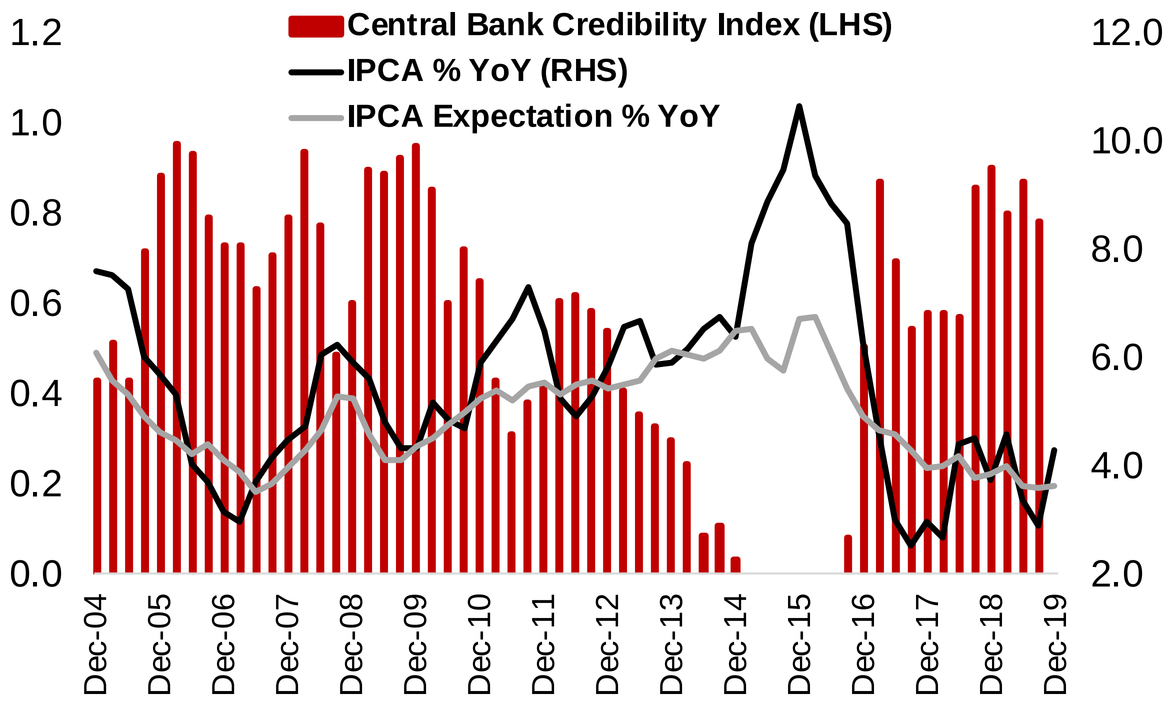
- Fiscal responsibility is essential to allow monetary policy to work effectively. It is a necessary condition for monetary credibility
- The central bank credibility “makes disinflation less costly, helps hold down inflation once it is low, makes it easier to defend the currency when necessary” (Blinder, 1999).
- Credibility also makes the price-formation process more forward-looking, reducing the importance of the backward-looking component (inertia), so shocks are less likely to have long-lasting effects on inflation

Inflation, Inflation Expectations and Fiscal Credibility



Source: IBGE, BCB and De Mendonça and Silva (2016)

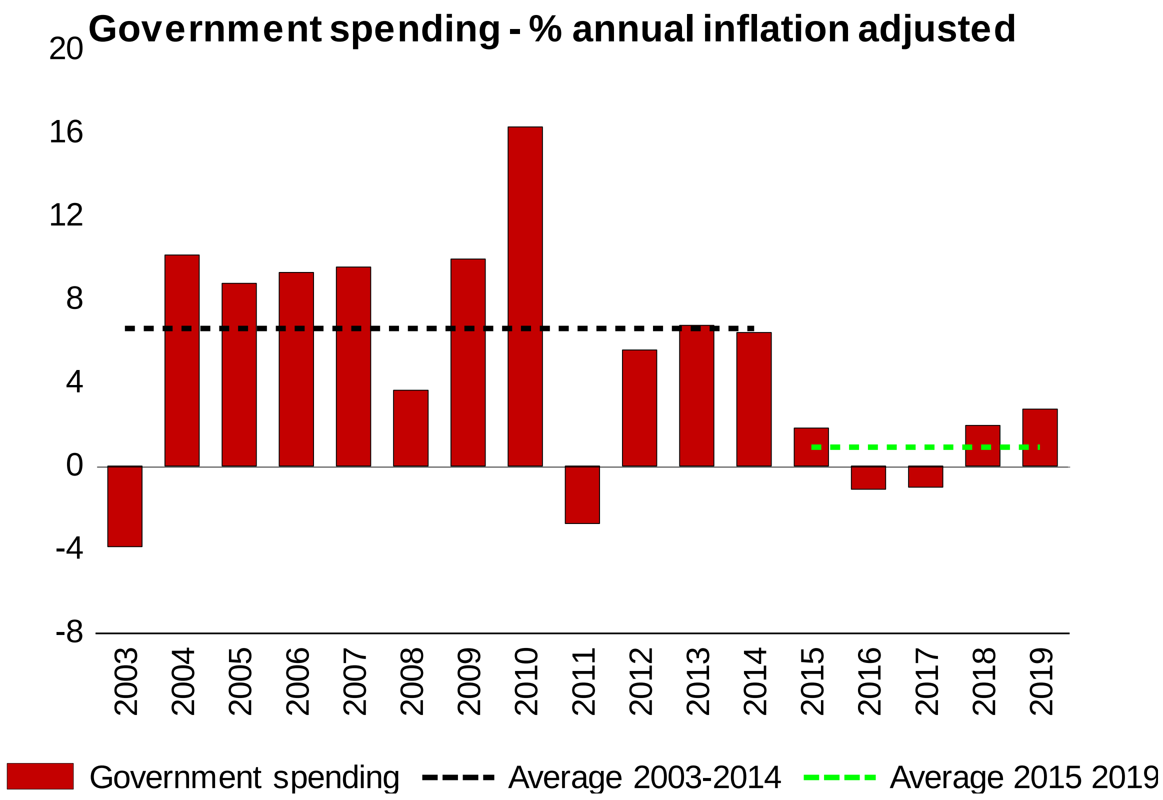
Inflation, Inflation Expectations and Central Bank Credibility



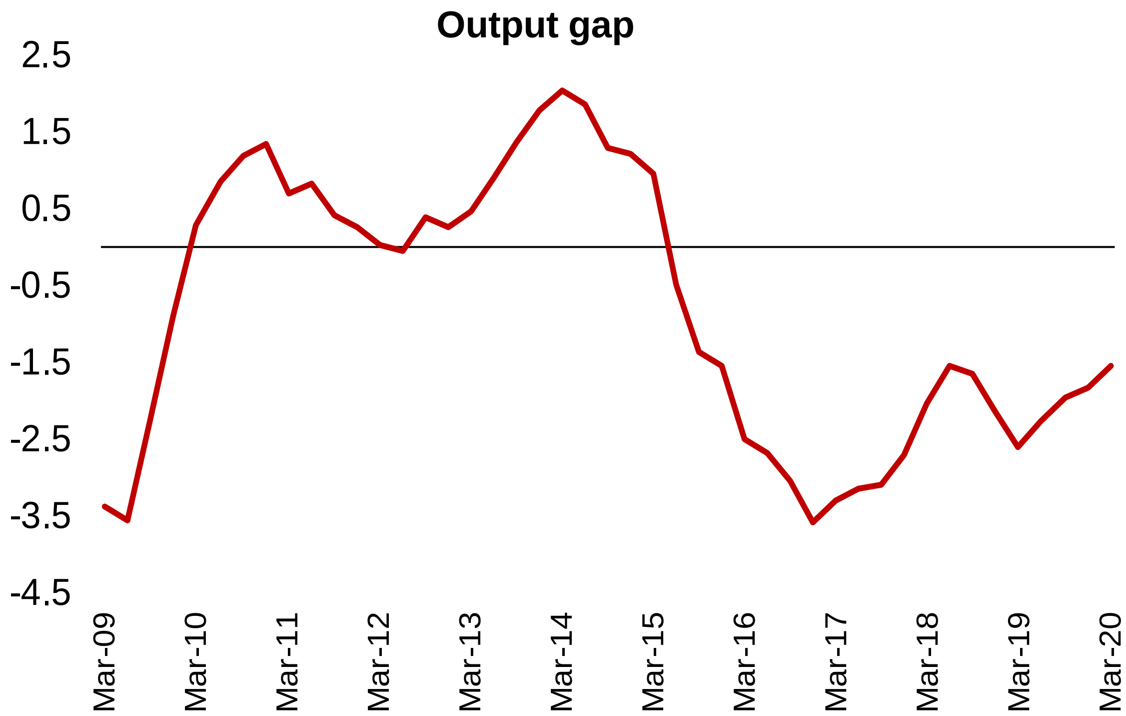
Source: IBGE, BCB and De Mendonça and Souza (2007)

Foundations of inflation: the direct effect of fiscal adjustment

- *As the adjustment is a long-term plan, this will continue to keep a great part of demand depressed for a long time, being a negative pressure on the output gap*
- *As a result, even with the stimulus coming from monetary policy, a great part of demand remains considerably subdued, reducing the chances of inflation to accelerate*



Source: Santander, based on data of IBGE

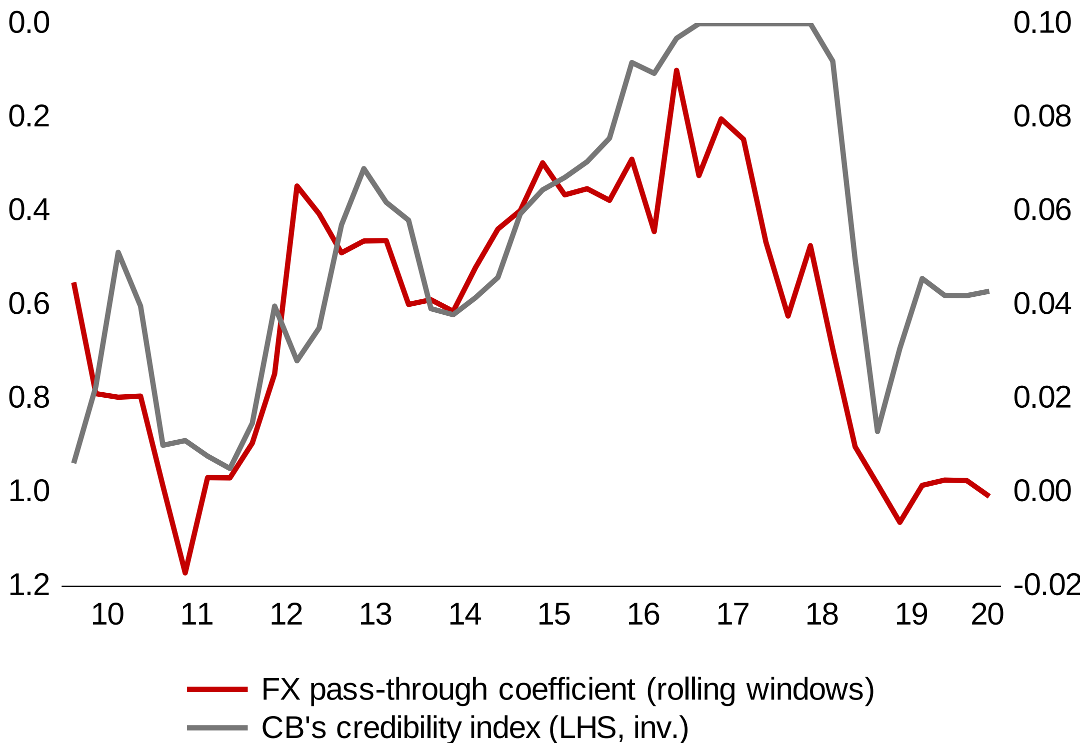


Source: Santander models, based on data of IBGE

Foundations of inflation: monetary credibility reduces exchange rate pass-through

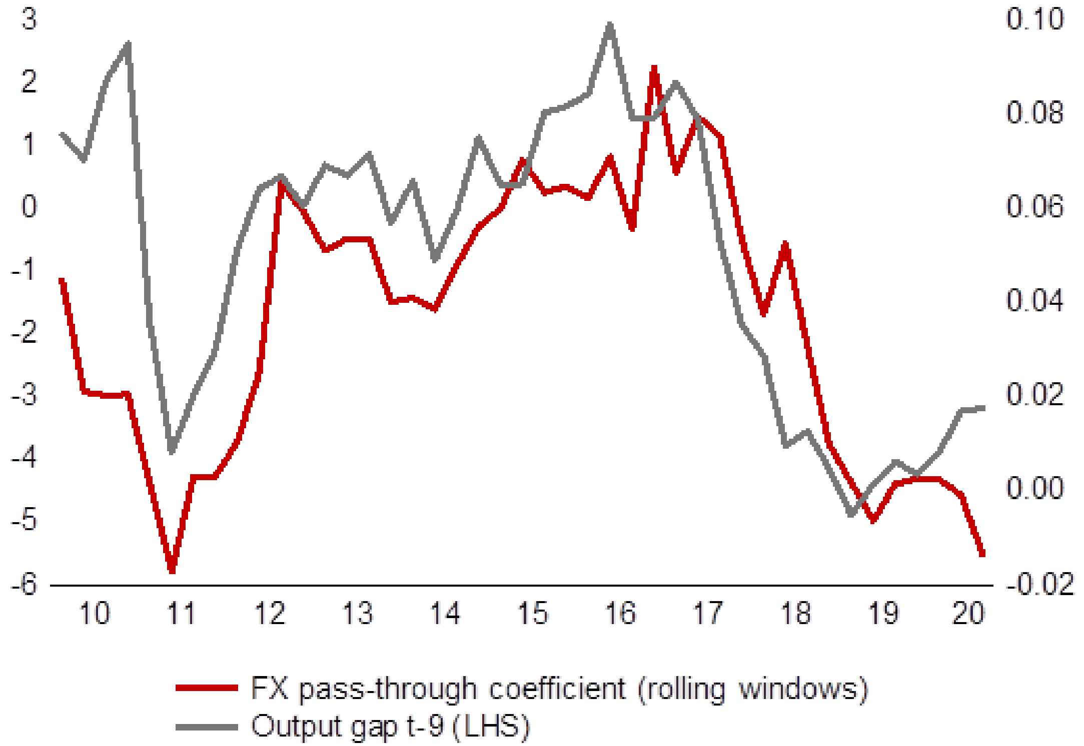
- ***Moreover, the negative output gap (being pressured by the long-term fiscal adjustment) also acts to reduce the pass-through, particularly where elasticity of demand is higher (industrial goods)***

Exchange-Rate Pass-Through and Central Bank Credibility



Source: Santander models and De Mendonça and Souza (2007)

Exchange-Rate Pass-Through and Output Gap



Source: Santander models

Foundations of inflation: institutional improvements reduced inflation structurally

- ***Hence, inflation should continue low, provided the reformist agenda is maintained***

IS (demand equation):

$$\downarrow h_t = \beta_o + \beta_1 h_{t-1} + \beta_2 h_{t-2} + \uparrow \beta_3 r_{t-1} + \beta_4 \downarrow g_{t-1} + \varepsilon_t^h$$

- “Permanent” fall on government expenses is a long-lasting downward pressure on the output gap
- With the shrinkage of government on the economy (specially state-owned banks), monetary policy becomes more important and effective

Phillips Curve (supply equation):

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

- Downward pressure on the output gap brings inflation to low levels
- CB’s credibility makes shocks less persistent, anchors inflation expectations and reduces exchange rate pass-through

Taylor Rule (CB reaction function on nominal interest rate):

$$\downarrow i_t = \downarrow i^* + \phi_1(\downarrow \pi_t - \pi^*) + \phi_2 \downarrow h_t$$

- Low inflation and negative output gap allow for low nominal interest rates (even with the increase in monetary policy power, because state reduction also generated a significant fall of the natural interest rate)

Medium-term

With inflation expectations anchored, the negative output gap indicates a benign dynamic for inflation

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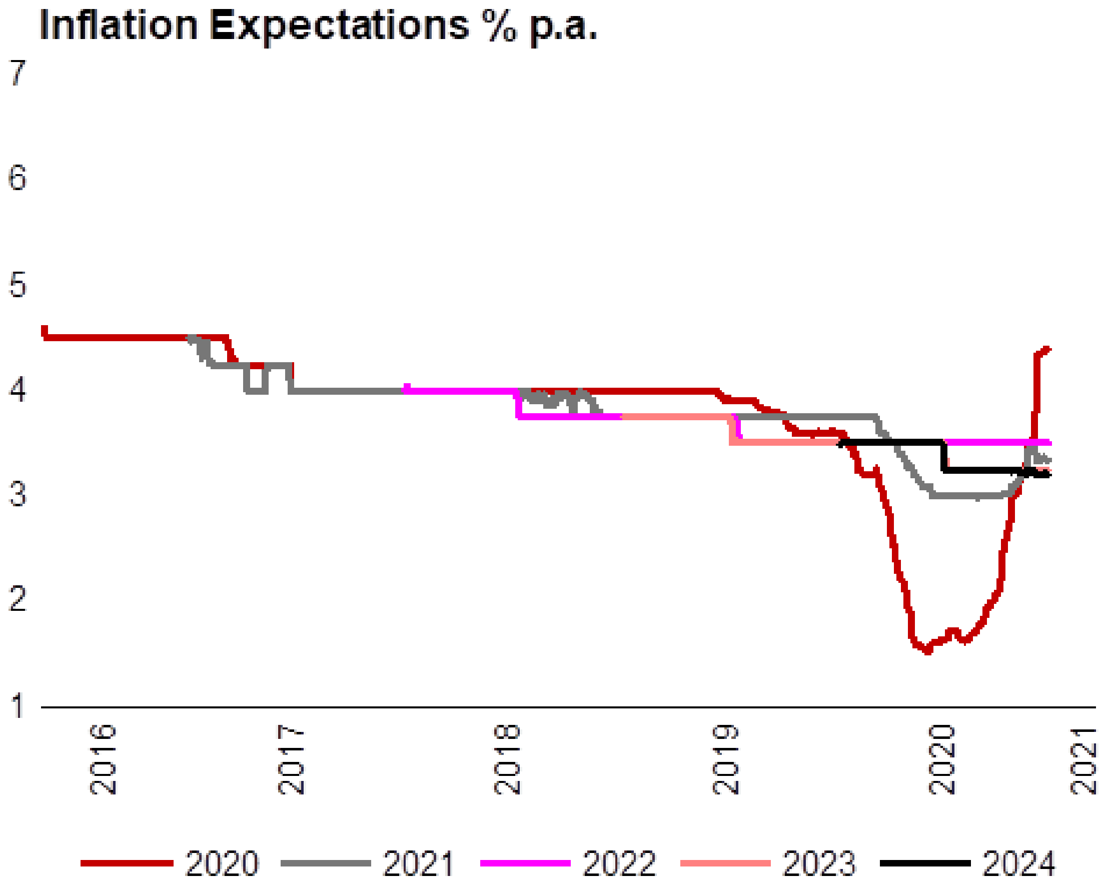
Medium-term: well-anchored expectations and favorable inertia

- *Inflation expectations 18-months-ahead are at 3.4% around the long-run target; evidently, inertia will also help to maintain inflation low in 2021 as it has been low for a while already*

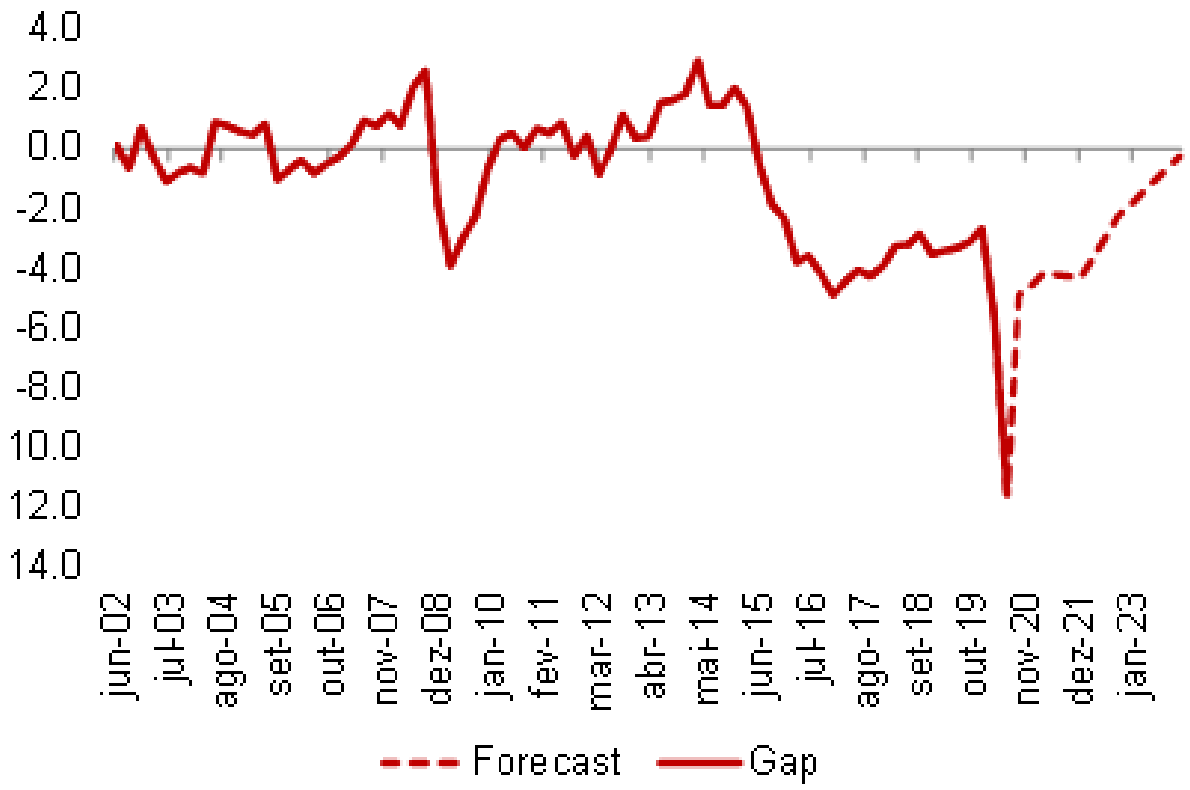


Source: BCB

Medium-term: negative output gap, for long

- ***COVID-19 effects on economic activity is pushing the gap even further to the negative side***
- ***After a partial V-shaped recovery, the trend should become gradual once again – output gap open until 2023***

Output gap forecast

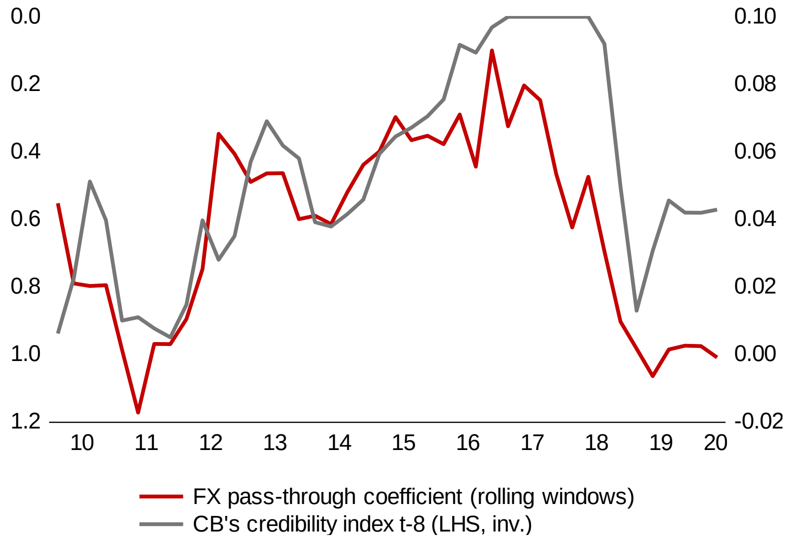


Source: Santander estimates

Medium-term: low pass-through on imported inflation

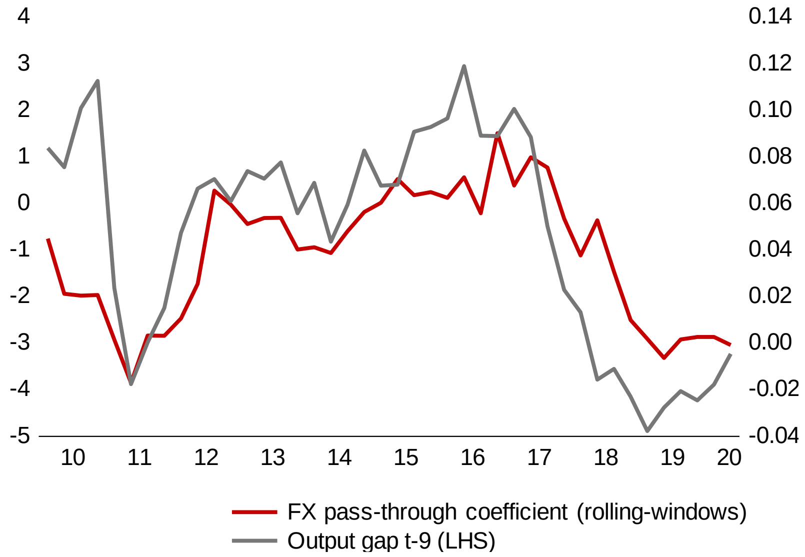
- *CB's Credibility + Negative output gap + BRL strengthening → low tradable's (ex-food and ex-gasoline) inflation*

Exchange Rate Pass-Through and Central Bank Credibility

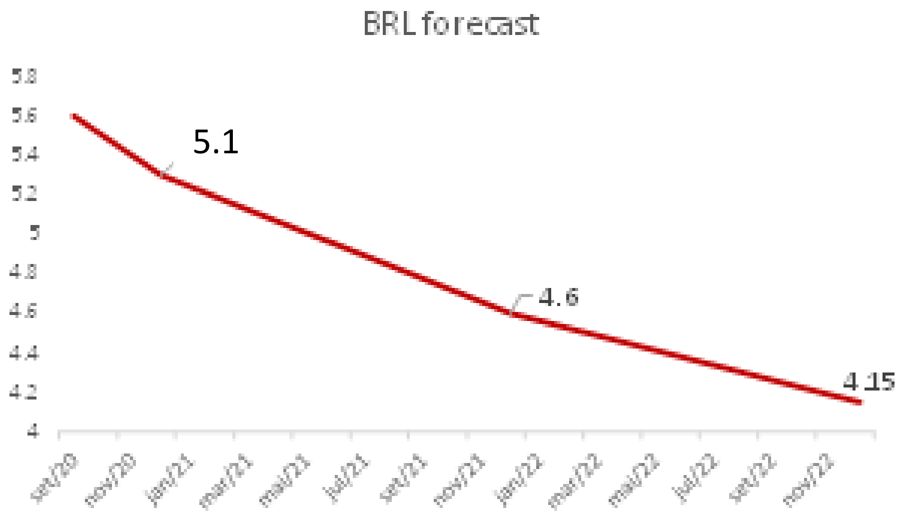


Source: Santander models and De Mendonça and Souza (2007)

Exchange Rate Pass-Through and Output gap



Source: Santander models



Estimates (p.p.) of the Effects of Determinants of Pass-Through – Average Coefficient of Several Different Models*

Negative output gap	De-anchor of inflation expectations
5.60	4.10
Size of the currency depreciation	**Companies operational margin**
0.15	0.95

Source: BCB (Quarterly Inflation Report of sep/18)

Medium-term: bottom-line for core related items

Despite the short-term upward pressures generate an upward bias for core-related items, when holding to the medium-term scenario we believe the balance of risks for our forecast of 2.5% for services and industrial goods is roughly symmetric.

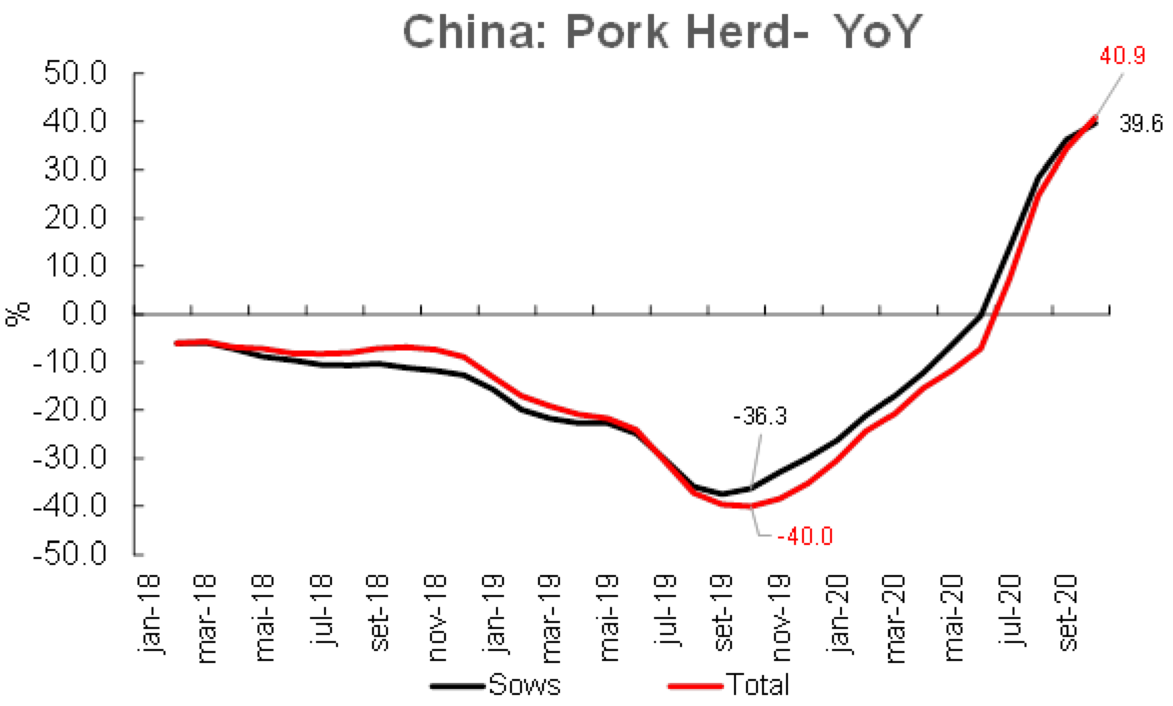
Medium-term: food-at-home should decelerate, but not much

- ***Another record soybean crop and a better ASF scenario act as a downward pressure at the margin***

Grain harvest forecast

Culture		2018/19 (a)	2019/20 Nov	2019/20 Dec (b)	2020/21 (c)	Variation (%) (b/a)	Variation (%) (c/b)
SOYBEAN	Planted Area(millions ha)	35.9	36.9	36.9	38.4	3.0%	4%
	Production (millions ton)	121	125.5	125.5	131.4	3.7%	4.70%
CORN 1	Planted Area(millions ha)	4.9	5.1	5.1	5	3.6%	-1.90%
	Production (millions ton)	26.2	27.3	27.3	25.1	4.4%	-8.20%
CORN 2	Planted Area(millions ha)	12.6	13.3	13.3	14.3	5.4%	7.30%
	Production (millions ton)	76.4	75.7	75.7	83.9	-0.9%	10.80%
COTTON	Planted Area(millions ha)	1.6	1.7	1.7	1.4	1.6%	-14.50%
	Production (millions ton)	2.86	3.02	3.02	2.55	5.5%	-15.60%
WHEAT	Planted Area(millions ha)	2	2	2	2.3	-0.8%	13.70%
	Production (millions ton)	5.4	5.1	5.1	6.2	-6.4%	23%
RICE	Planted Area(millions ha)	1.7	1.6	1.8	1.8	4.6%	1.40%
	Production (millions ton)	10.5	11	11.6	11.8	10.5%	1.40%
SUGAR CANE	Planted Area(millions ha)	8.6	8.4	8.4	8.6	-1.7%	2%
	Milling (millions ton)	621	643	643	657	3.6%	2.20%
COFFE	Planted Area(millions ha)	1.9	1.9	1.9	1.9	-1.4%	1.10%
	Production (millions ton)	63.5	53.4	53.4	64.1	-15.8%	20.10%

Source: Conab and MBAgro



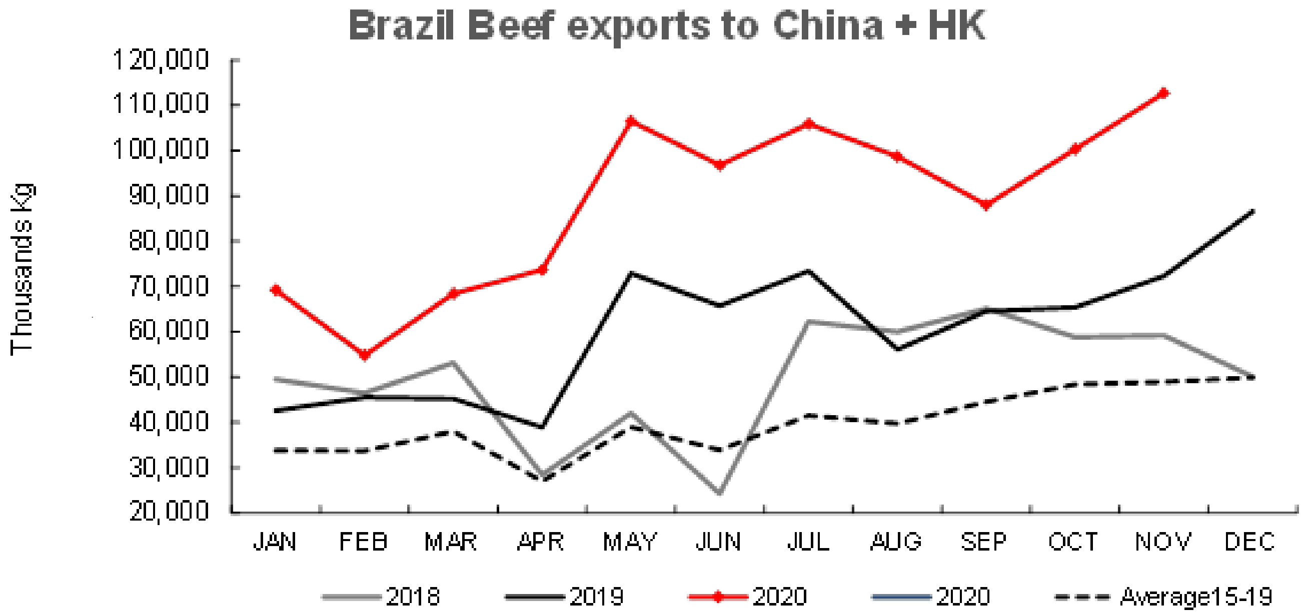
Source: Bloomberg

Medium-term: food-at-home should decelerate, but not much

- *But China's proteins deficit will continue high, so exports will continue as a major upward pressure*

Grain harvest forecast

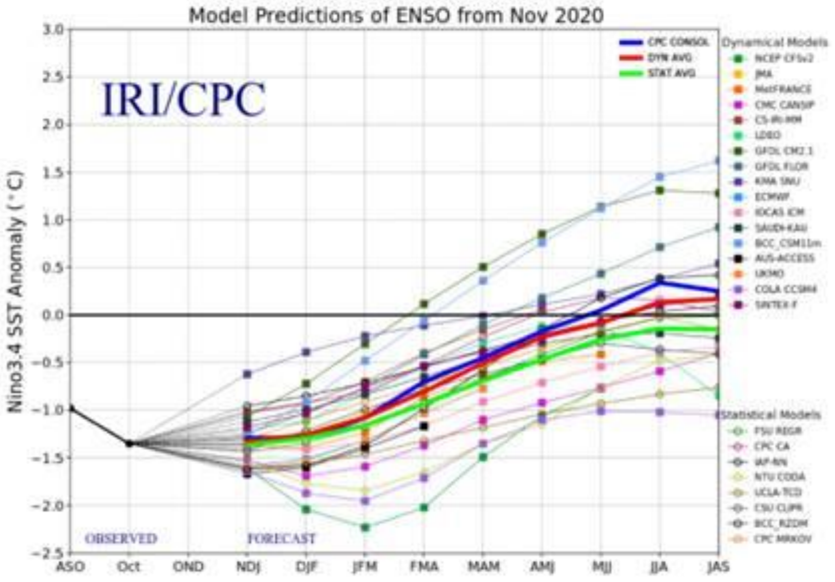
Source: Conab and MBAgro



Source: Bloomberg

La Niña is a risk

- *Soybean harvest can be less productive or even break; soybean prices are rising considerably at the Chicago exchange*



Source: CPC/IRI

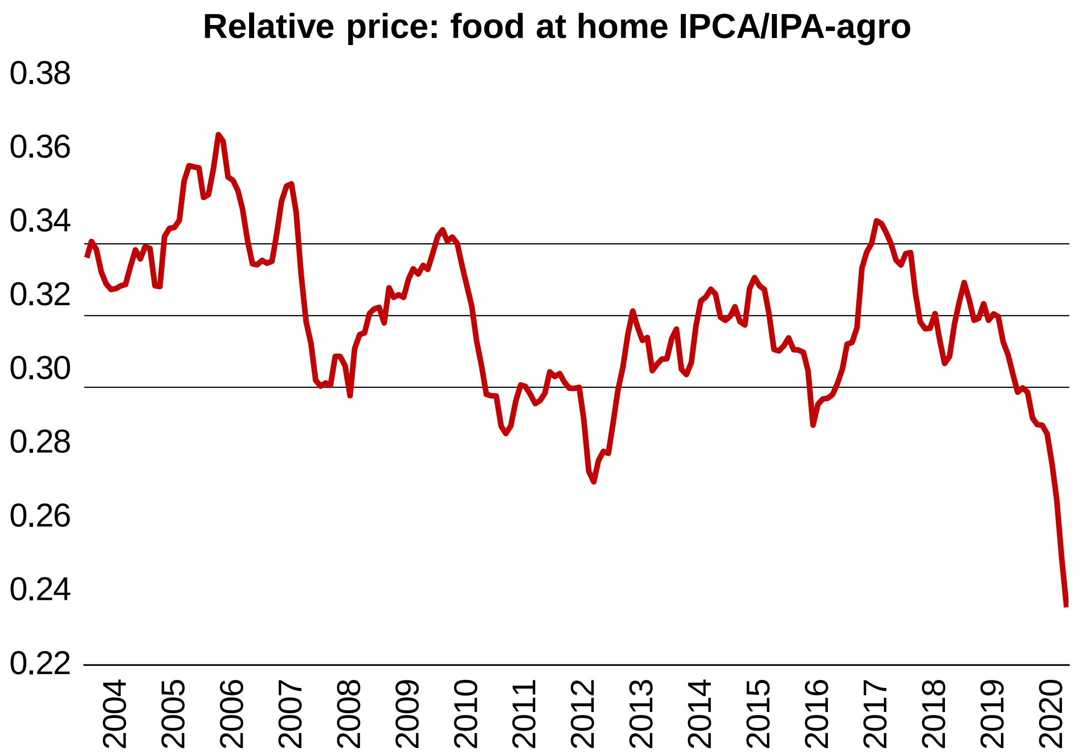
La Nina May Disrupt Global Food Supply, Send Prices Higher

By Ainslie Chandler

10 de setembro de 2020, 13:37 GMT-3 *Updated on 10 de setembro de 2020, 21:06 GMT-3*

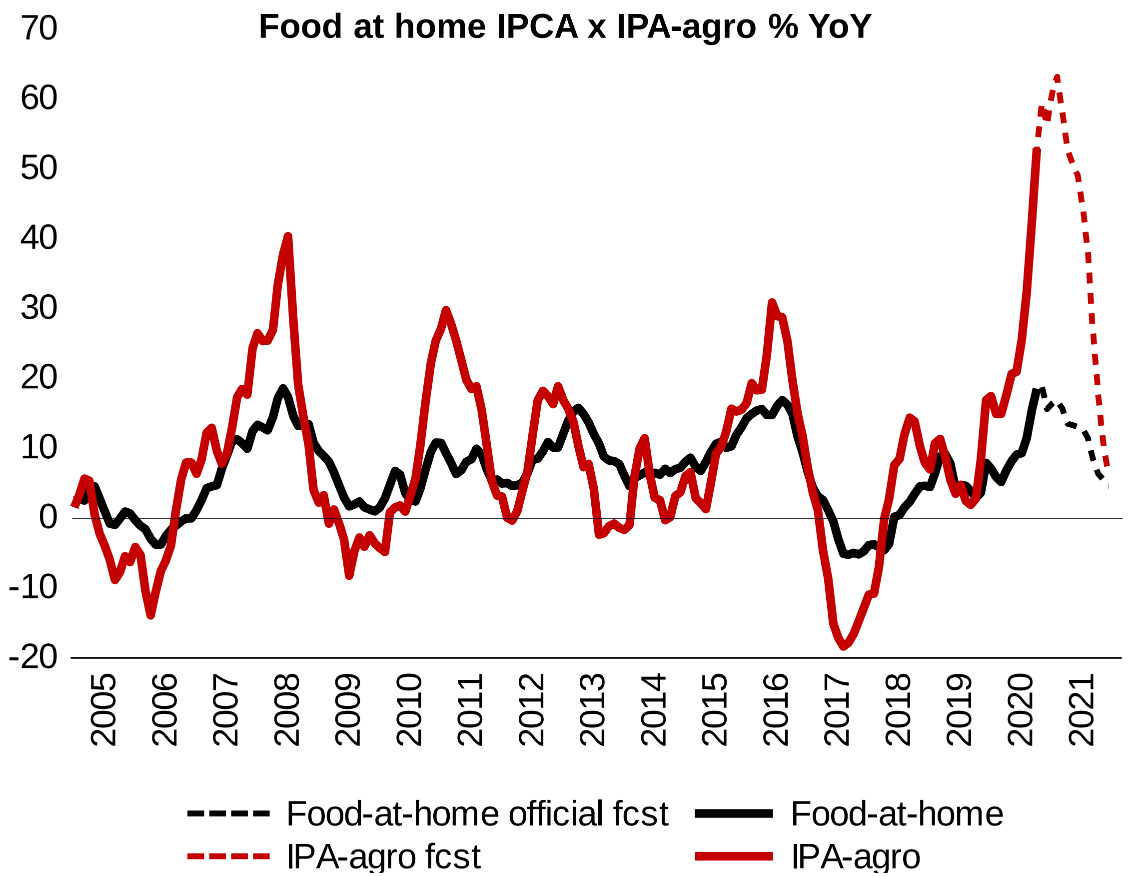
Relative price between food-at-home IPCA and IPA-agro is really distorted

- *Usually a very high food inflation in one year would mean even a deflation in the next year, as this group is mean-reverting*
- *But the relative price is really distorted and we don't believe IPA-agro should fall much, so there should be not much space for food-at-home to decelerate much*



Medium-term: bottom-line food-at-home

Food inflation will decelerate at IPCA, but should not deflate as it would be usual after an year of very high inflation, because external demand (China particularly) will continue strong. We forecast food at IPCA to decelerate from 17.9% to 4.5%. Risks seem roughly balanced



Medium-term: tariff adjustment postponements should be recomposed on 2021

- The reduction of our administered prices inflation forecast for 2021 is due to the one-off effect of the energy tariff flag decision by Aneel. It rose the 2020 forecast, but lowered 2021 because we believe in green flag for Dec-21.
- Despite that reduction, we continue to believe in a considerable upward pressure for administered prices in 2021. Transportation fares, health insurance and other tariffs had their adjustments postponed in 2020 given the COVID-19 crisis, **for 2021 we anticipate those tariffs will be compensate, which should pressure the administered prices group**
- We forecast it at 3.5% for 2021, which can seem low, but it accounts for a -5.9% fall in electrical energy (as we explained before). **Risks are tilted to the upside.**

Administered prices	**8.0**	**6.2**	**5.5**	**2.7**	**3.5**	**4.0**
Gasoline	10.3	7.3	4.0	-0.7	5.0	4.0
Energy	10.4	8.7	5.0	10.6	-5.9	4.0
Health insurance	13.5	11.2	8.2	2.5	13.1	4.0
Bus fares	4.0	6.3	6.6	1.4	6.0	4.0

Medium-term: gasoline is a risk

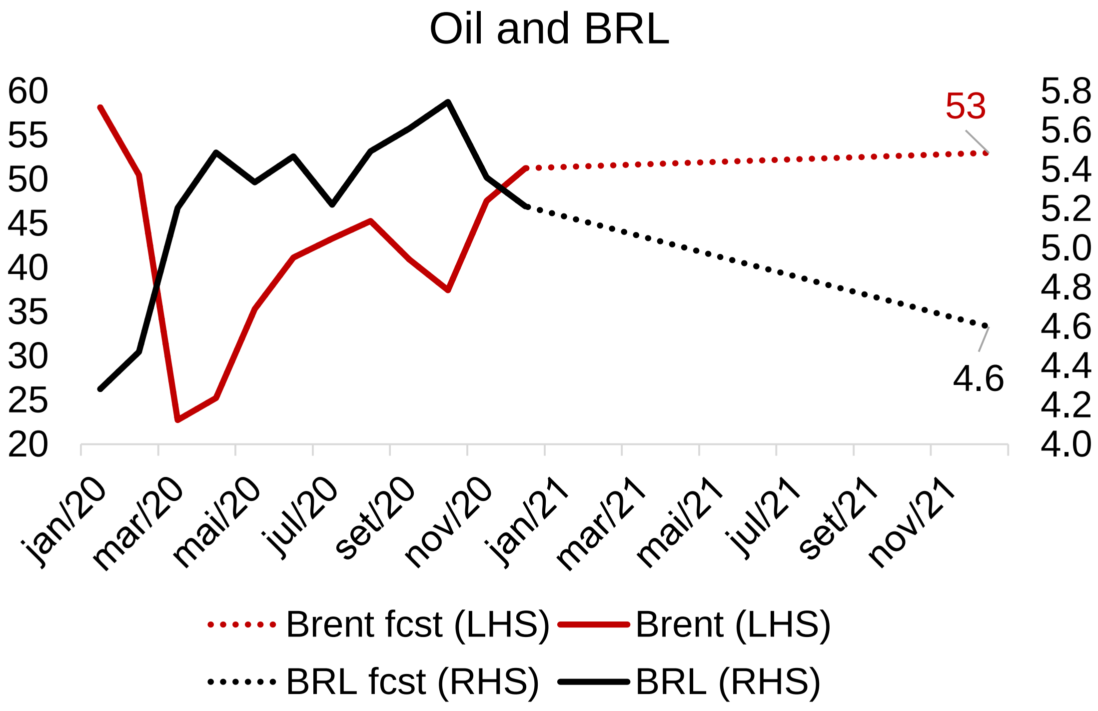
- ***Global growth can push oil further upwards, while BZ fiscal risk can prevent a bigger appreciation of the BRL***

- We consider oil gradually recovering until it reach USD 53/bbl at the end of 2021, which would mean a 25% rise in average terms if compared to 2020.

- For the BRL we consider it appreciating until it reach 4.60 in Dec-21, which would mean a 6.9% average appreciation if compared to 2020.

- This would mean a 18% rise in Brent price in BRL, but considering the usual pass-through for the whole supply chain this would mean around 5% gasoline inflation in IPCA, which is our official forecast

- We see upside risks as global growth can push oil further upwards, while the fiscal risk can prevent the BRL to appreciate much



Source: Bloomberg and Santander

Medium-term: bottom-line administered prices

Administered prices will be pressured and there is an upside risk, as public services can suffer higher than expected tariff adjustments and oil can rise more than we anticipate

Forecast for 2021 and 2022

- ***2021: minor adjustment from 2.9% to 3.0% → risks tilted to the upside, but not to the point to jeopardize BCB's target considerably***
- ***2022: kept in 3.2%, because the output gap will continue open until then***

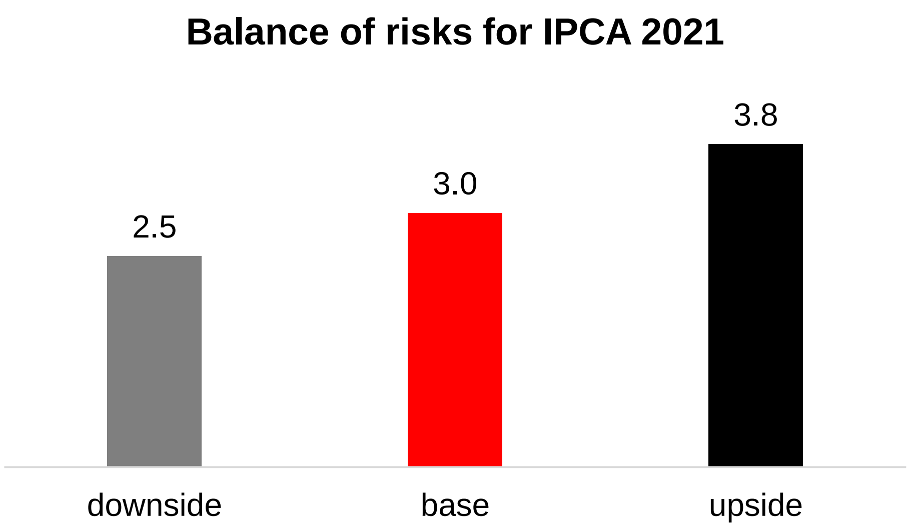
Downside

- -13bps administered prices (electrical energy "tariff bonus" and BRL helping gasoline)
- -23bps weaker economic activity, with high uncertainty
- -15bps food-at-home if proteins exports weaken

Upside

- +40bps stronger economic activity pushing cyclical prices (including more pass-through)
- +20bps food-at-home pressuring more (strong exports)
- +20bps stronger administered prices

These are the upside risks assuming the agenda of fiscal reforms continues next year. If not, then the upside risk would be much higher and we could see inflation above target already in 2021.



Forecast for 2021 and 2022

- ***2021: minor adjustment from 2.9% to 3.0% → risks tilted to the upside, but not to the point to jeopardize BCB's target considerably***
- ***2022: kept in 3.2%, because the output gap will continue open until then***

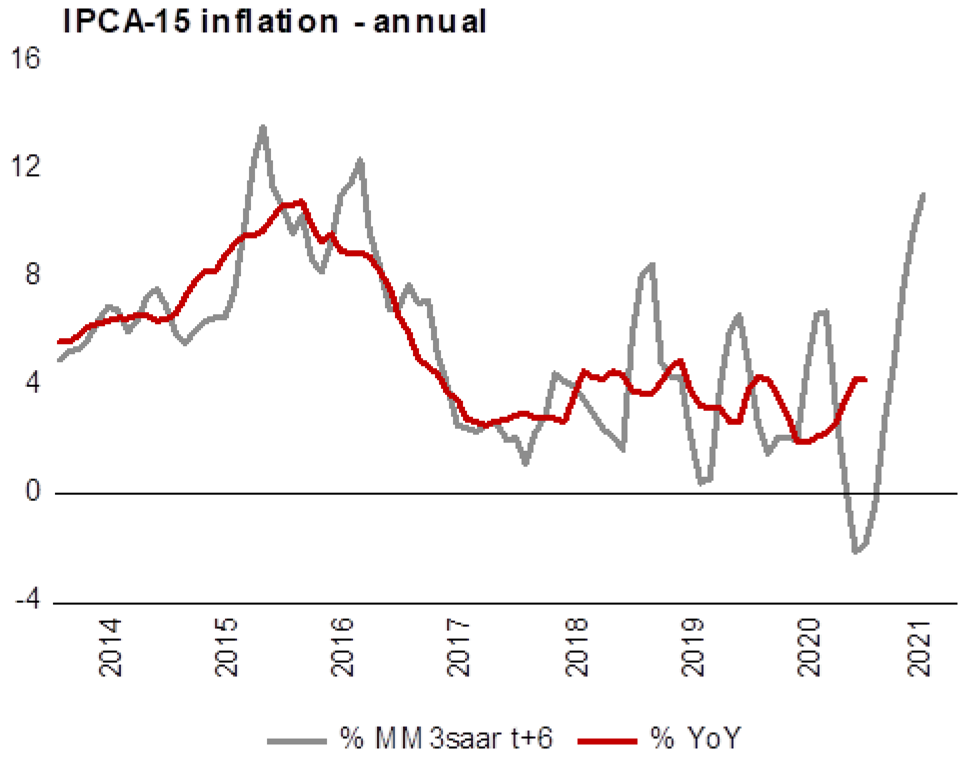
	2017	2018	2019	2020e	2021e	2022e
IPCA	**3.0**	**3.8**	**4.3**	**4.4**	**3.0**	**3.2**
Free prices	**1.3**	**2.9**	**3.9**	**4.9**	**2.9**	**2.8**
Food-at-home	**-4.9**	**4.5**	**7.8**	**17.9**	**4.5**	**2.0**
Industrial goods	**1.1**	**1.1**	**1.7**	**2.6**	**2.5**	**2.7**
Tradables	1.0	1.0	1.7	2.7	2.5	2.7
Non-Tradables	1.5	1.9	1.8	2.3	2.5	2.6
Services	**4.5**	**3.4**	**3.5**	**1.6**	**2.5**	**3.2**
Food-service	3.8	3.2	3.8	4.6	3.5	4.0
Airline tickets	3.1	16.9	2.3	-17.0	15.0	12.0
Economic activity	4.2	1.7	2.9	0.5	0.7	2.5
Education	7.6	5.5	5.0	1.1	4.5	6.0
Inertial	2.6	2.8	3.4	2.7	3.0	2.0
Salaries	6.3	3.7	3.2	1.8	2.0	2.5
Administered prices	**8.0**	**6.2**	**5.5**	**2.80**	**3.5**	**4.0**
Gasoline	10.3	7.3	4.0	0.3	5.0	4.0
Energy	10.4	8.7	5.0	9.6	-5.9	4.0
Health insurance	13.5	11.2	8.2	2.5	13.1	4.0
Bus fares	4.0	6.3	6.6	1.4	6.0	4.0
Cores	3.6	3.3	3.5	2.5	3.0	3.2

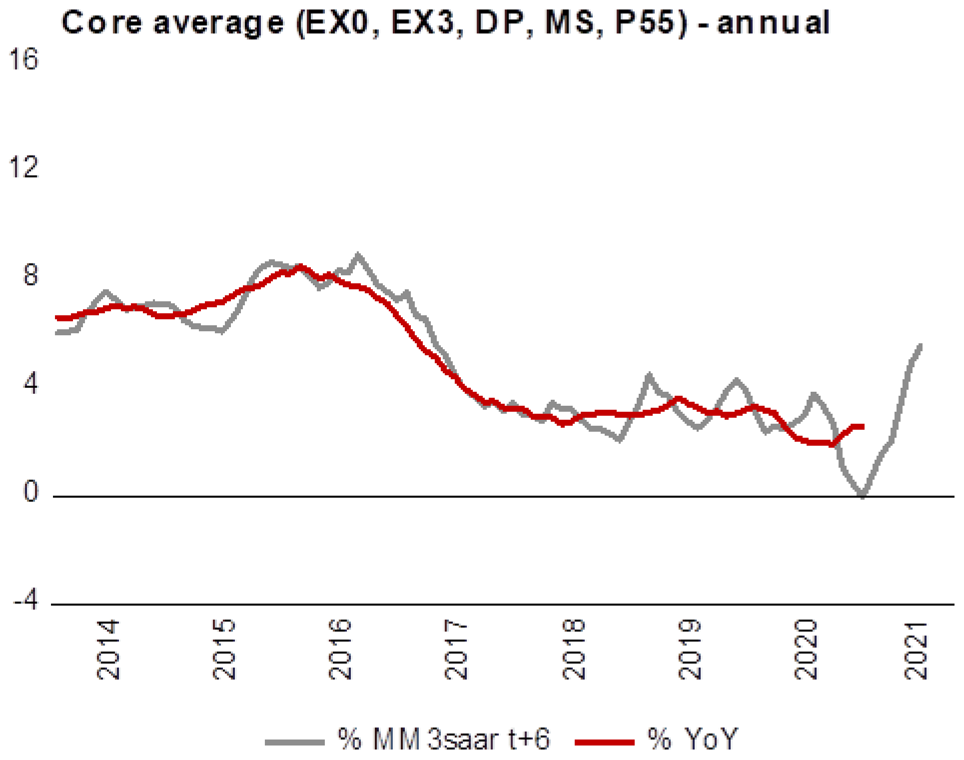
Short-term

Short-lived pressure coming from food-at-home and the BRL is already starting to fade. We are envisioning lower inflation numbers for 1Q21

Short-term: a rebound after a considerable disinflation

- ***COVID-19 was really disinflationary, but now we see a rebound***

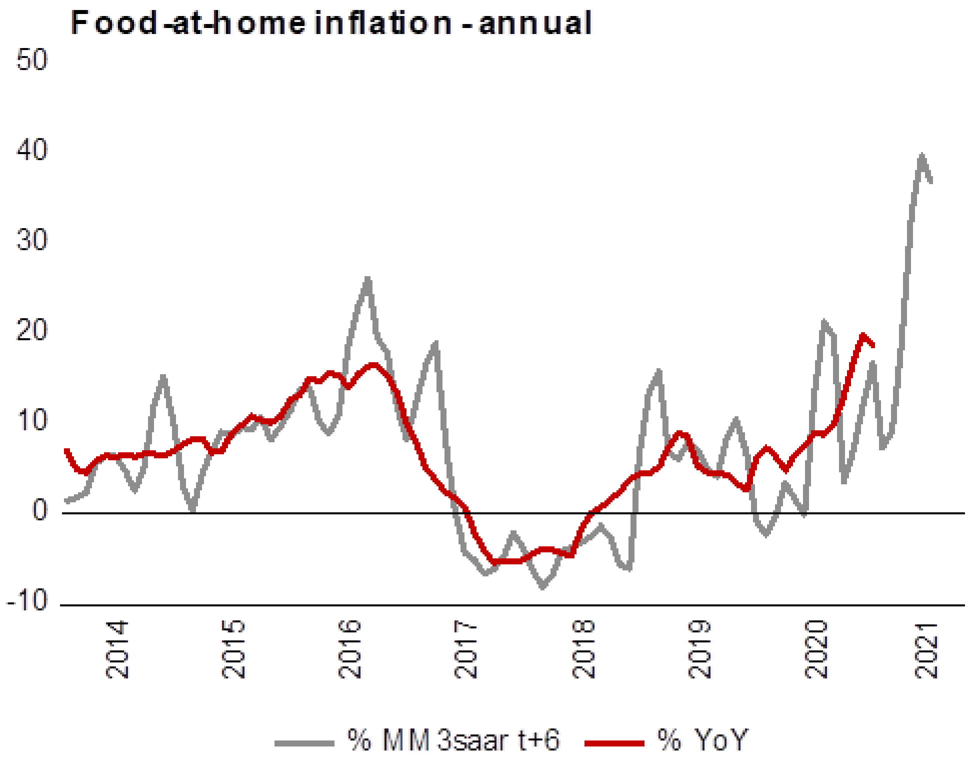


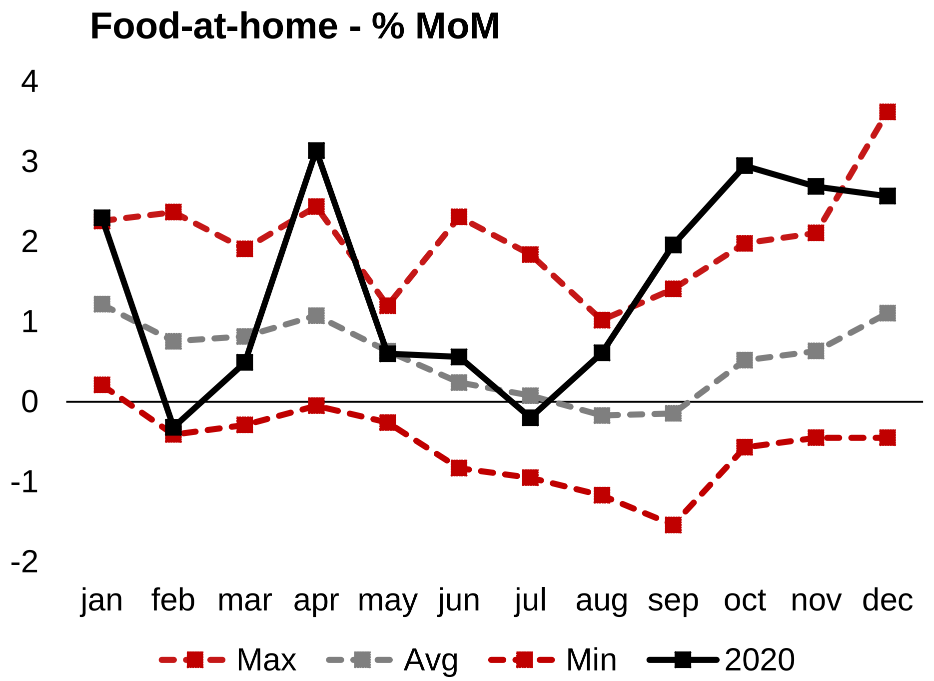


Source: Santander, with data from IBGE and BCB

Food-at-home: is being a major upward pressure

- *Increase in external (particularly from China) and domestic demand (change in consumers basket)*
- *Income support (government emergency aid – "coronavoucher")*
- *BRL depreciation*

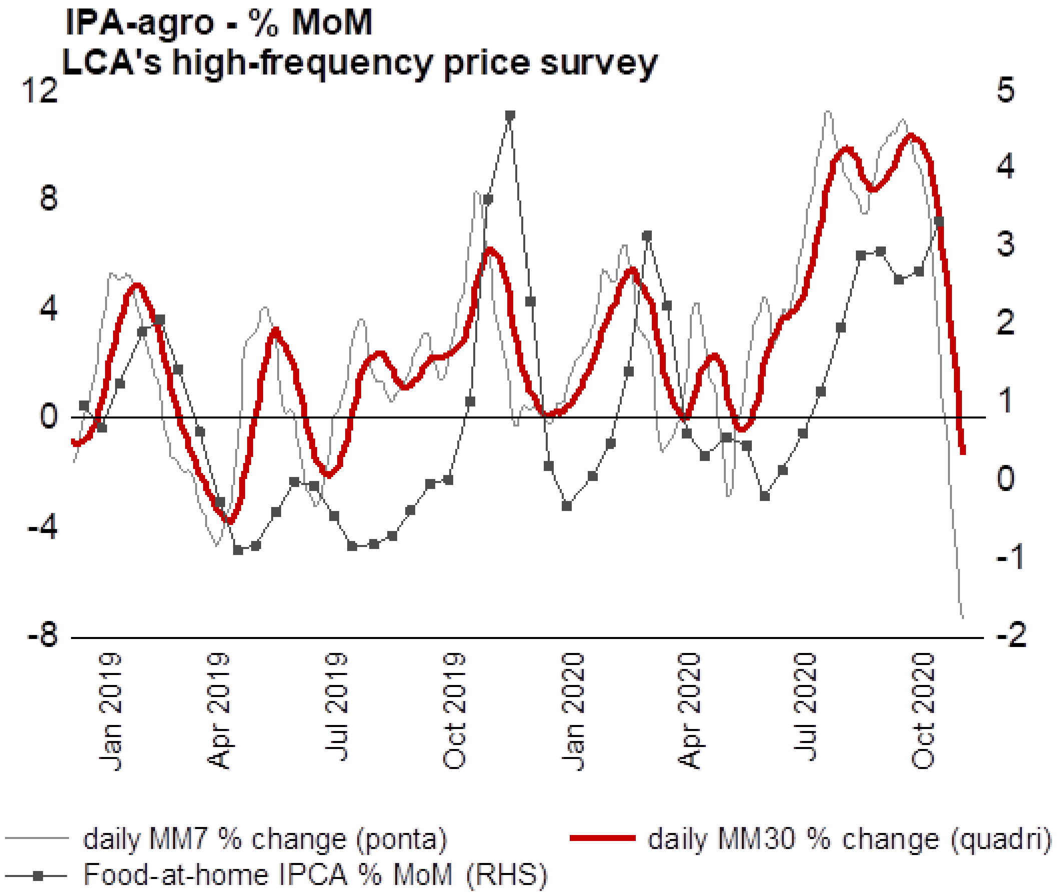


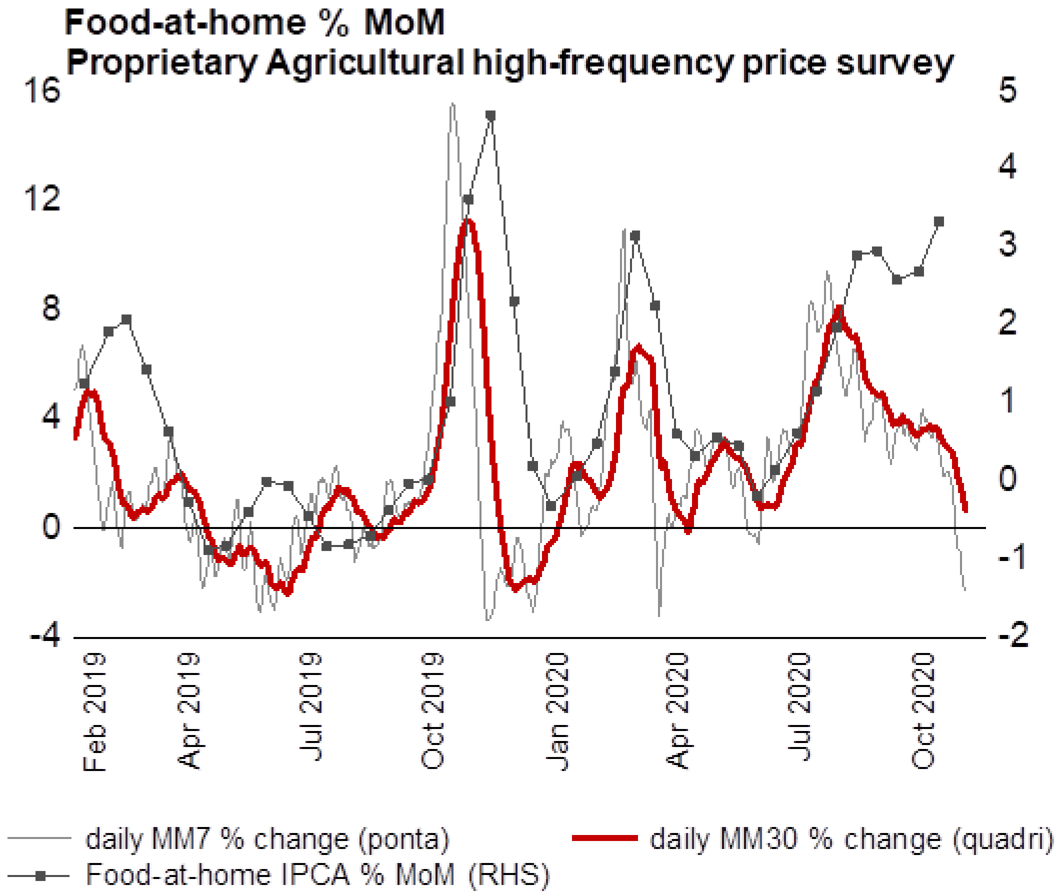


Source: Santander, with data from IBGE

Food-at-home: but deceleration is coming and at a rapid pace

- ***High-frequency price surveys at the wholesale level are already hovering at the negative camp***
- ***This means price for consumers should decelerate (or even fall) shortly***





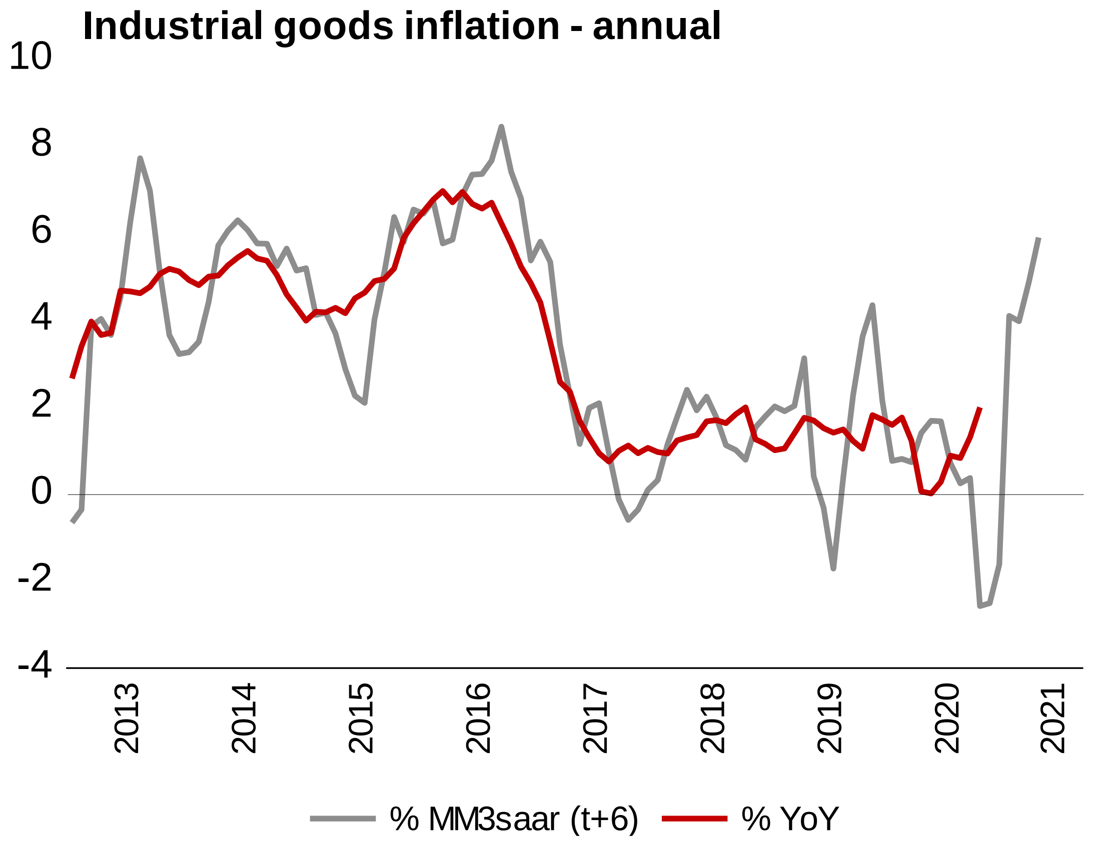
Source: Santander and LCA, with data from Cepa, IEA, Ceagesp

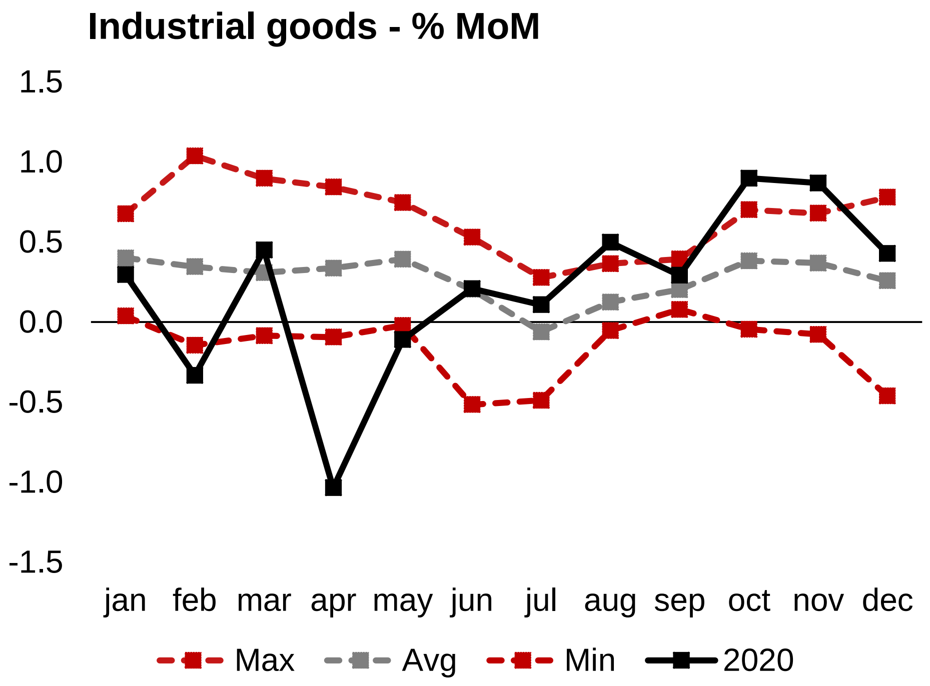
Short-term: bottom-line food-at-home

The group is at a turning point and should decelerate considerably during the next few months (or even deflate at some monthly reading)

Industrial goods: first deflation, then a recovery backed by some pass-through

- ***Our hypothesis of industrial goods prices falling because of the weak demand worked well for the first months of the pandemic***
- ***Then, the change in consumers basket alongside the income support and the BRL depreciation allowed for a recovery***



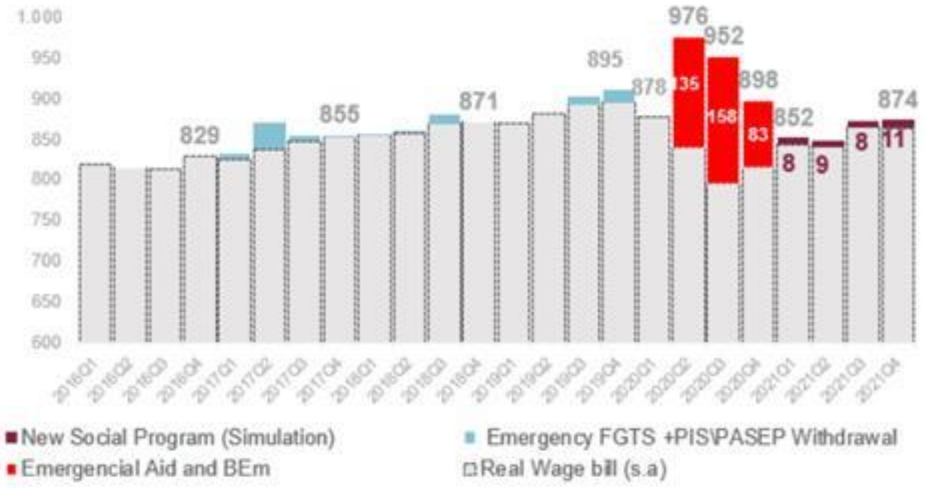


Source: Santander, with data from IBGE

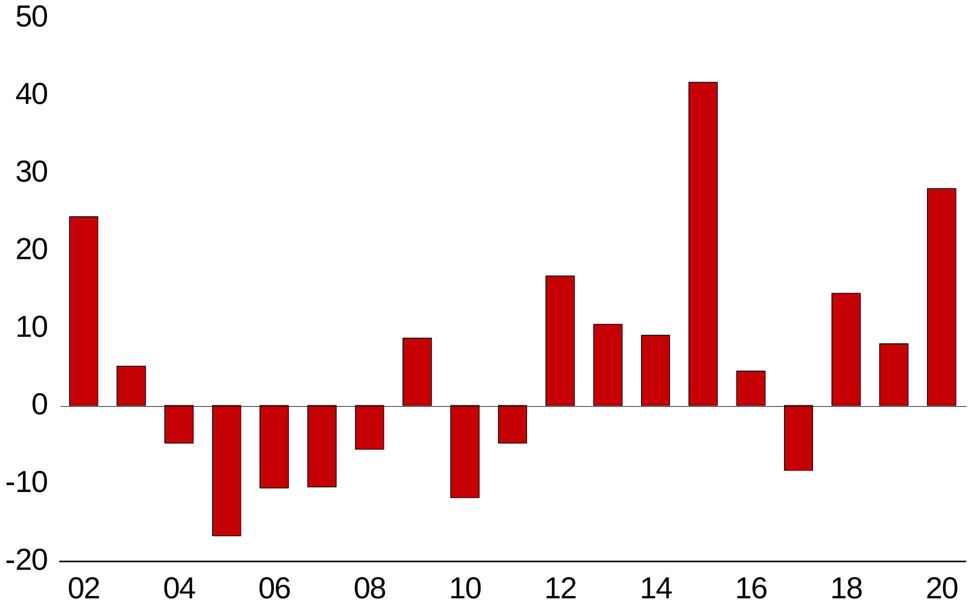
Real wage bill became bigger then pre-pandemic; BRL depreciated 60% since 2017

- *This allowed for a slight recovery of industrial goods*

Figure 2. "Expanded" Real Wage Bill and Social Benefits (in real terms, BRL billion)



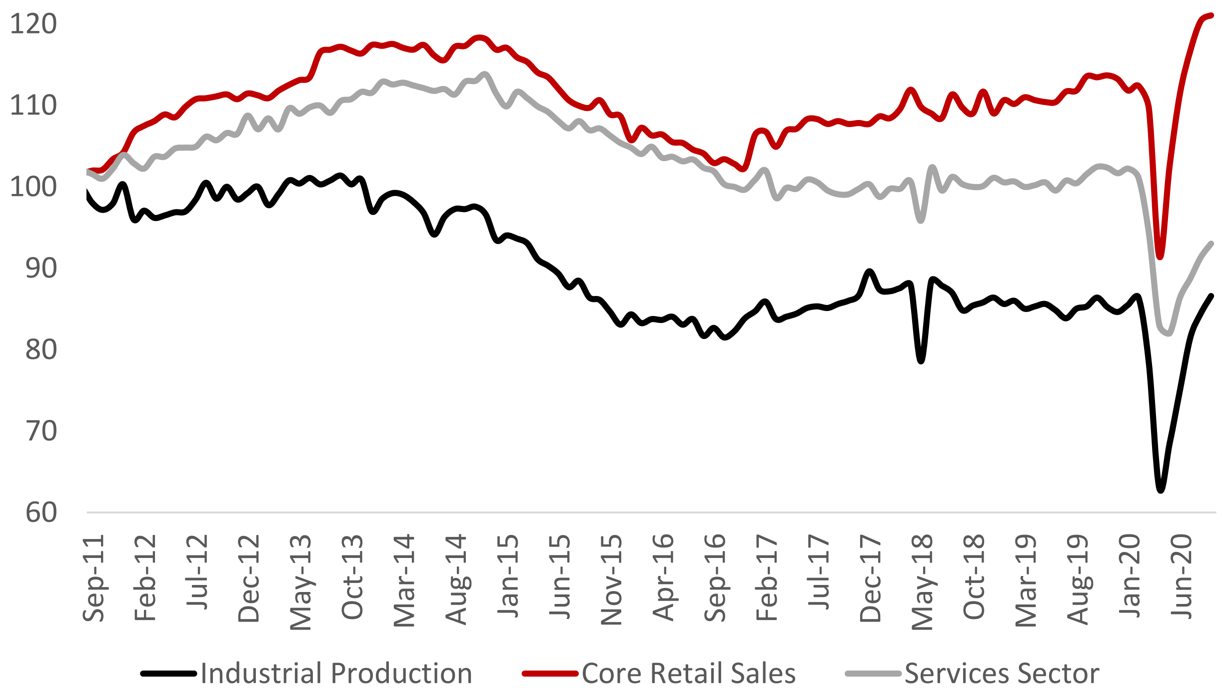
BRL year % avg. chg.



Source: Santander, with data from IBGE

Retail recovered sharply, while industrial production was still lagging

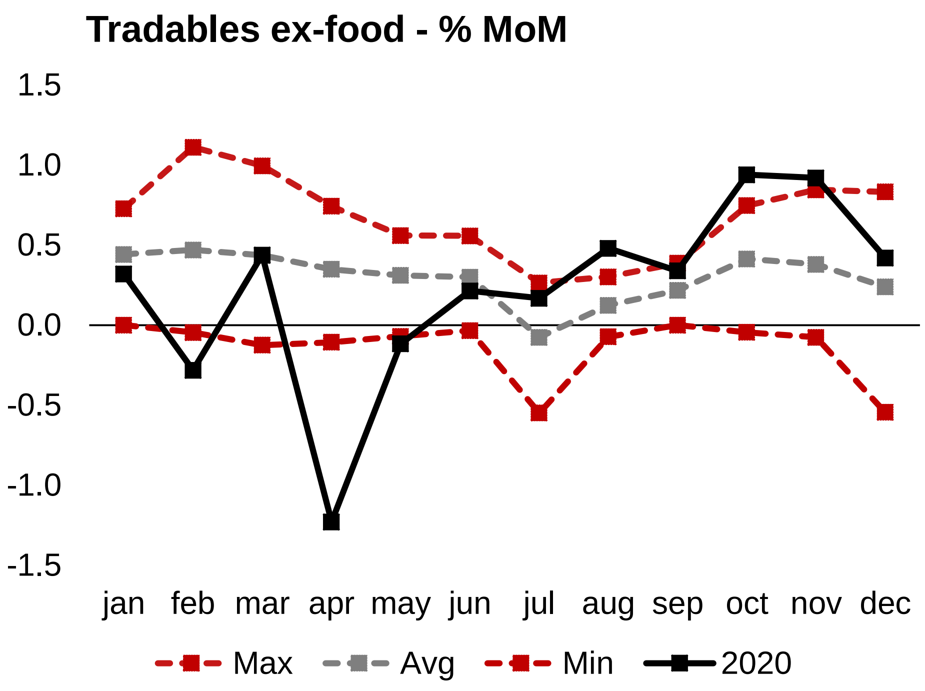
- *There is a short-term mismatch between supply and demand, which is helping the increase of industrial goods prices*
- *Retails sales are booming backed by the income support and the impossibility of consumption of services, while industrial production has still some pandemic-related issues*

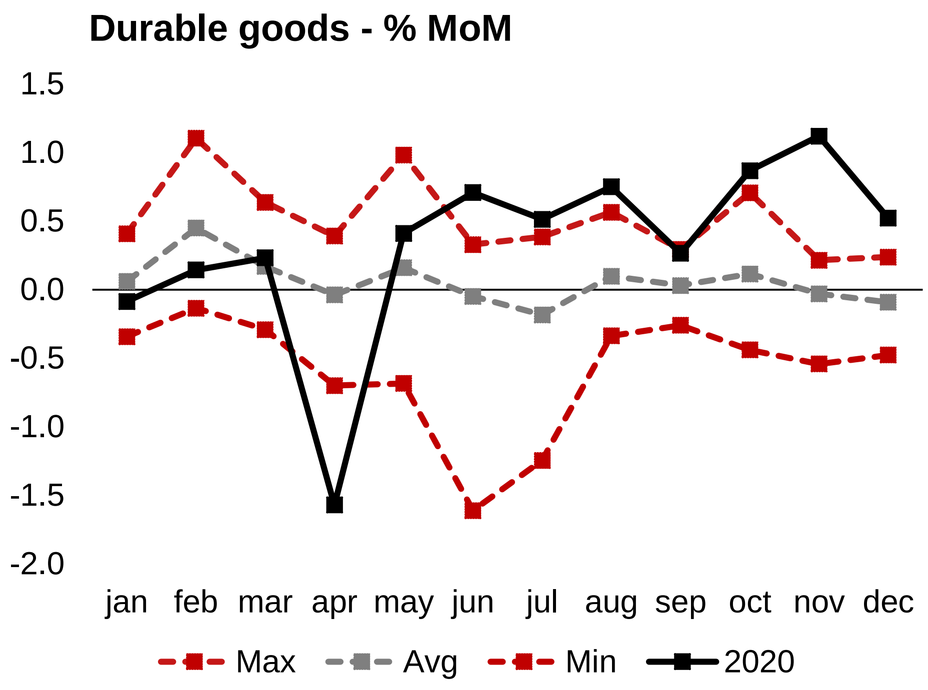


Source: Santander, with data from IBGE

Recovery on tradable goods, particularly durable goods

- *The pressure was mainly focused on items where the hypothesis of negative output gap reducing pass-through did not work well*
- *In other words, on items where demand increased (computers and some home appliances) retailers could make some pass-through*

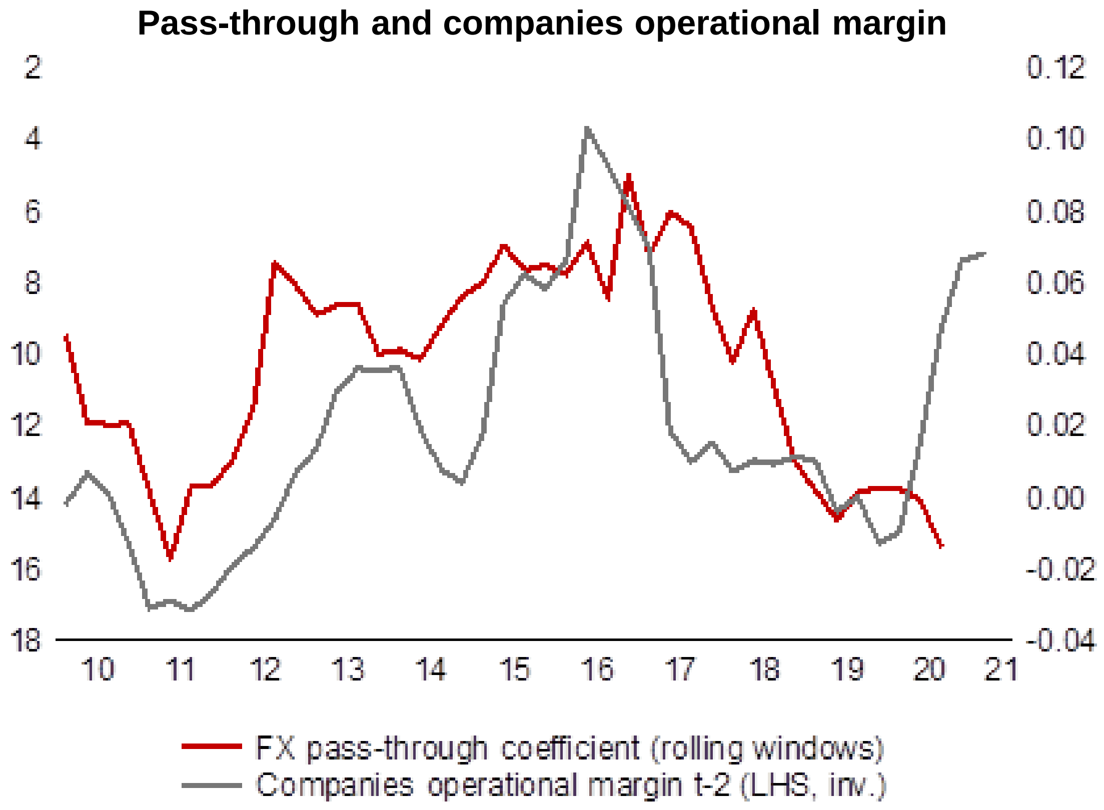


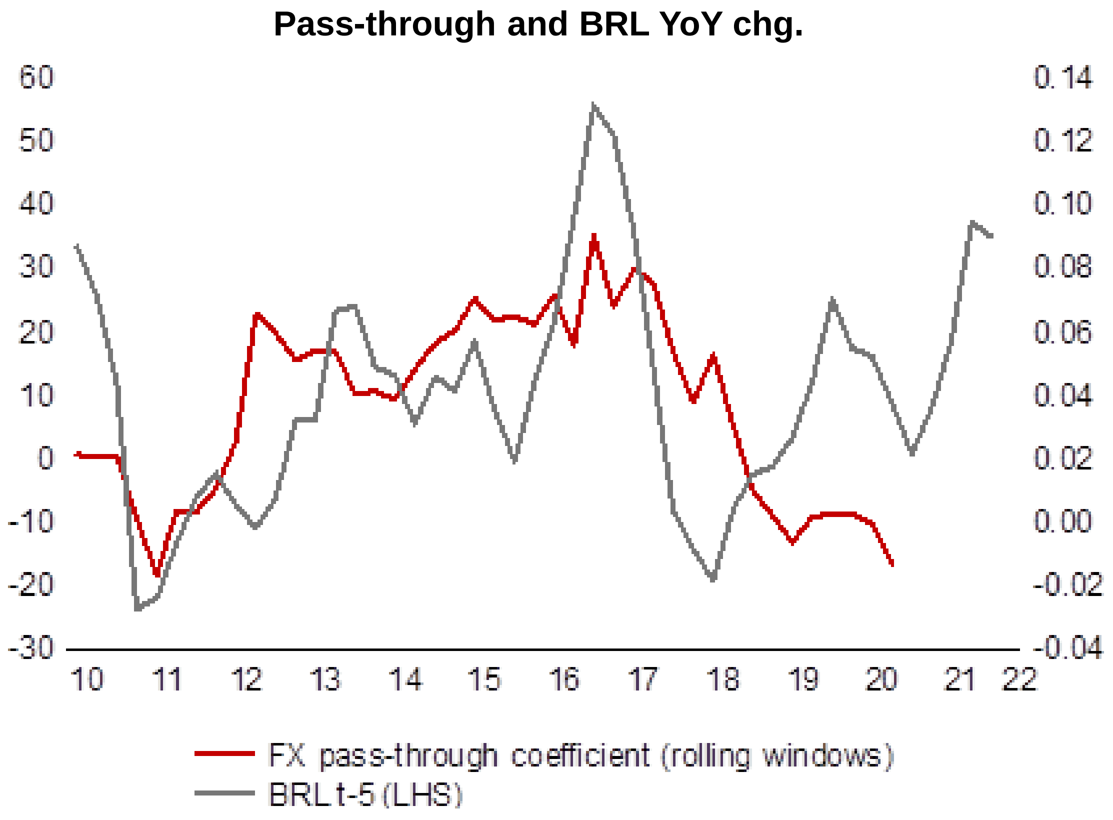


Source: Santander, with data from IBGE

Short-term upside risk: margins too compressed and BRL devaluation was big

- *Pass-through can increase*



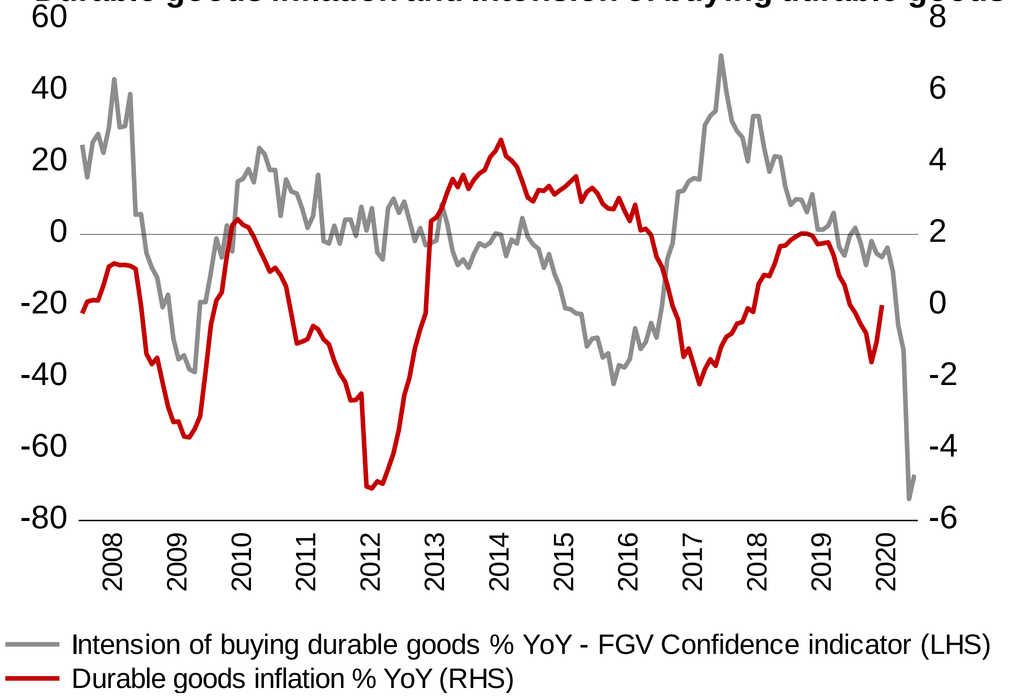


Source: Santander, with data from IBGE

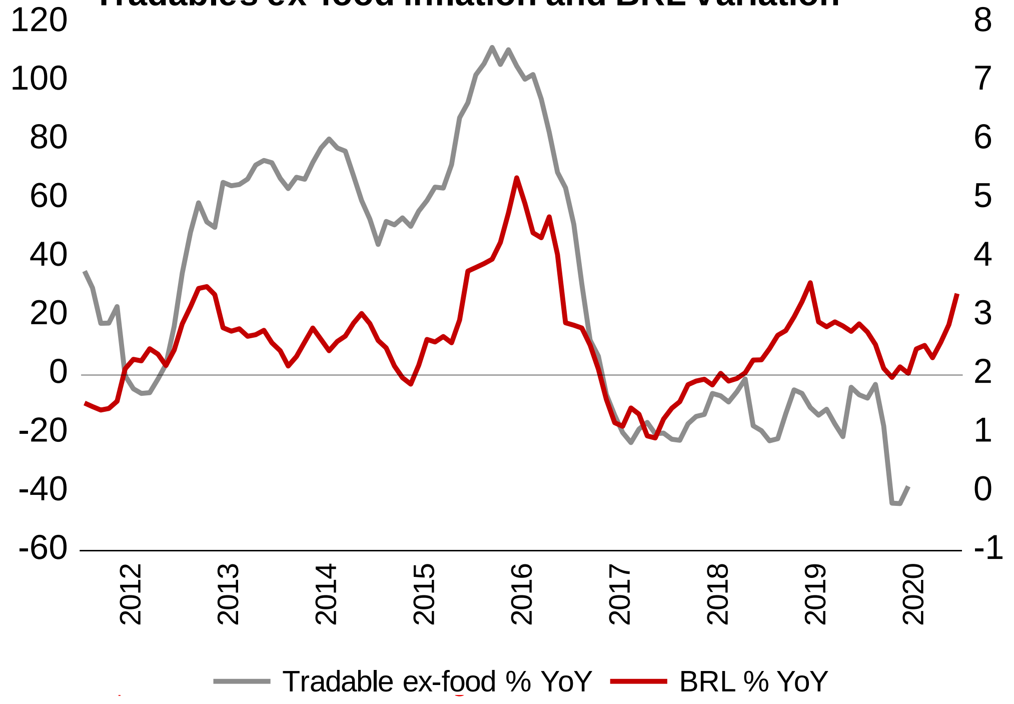
There is an upside risk for the short-term, but the widening of the negative output gap tends to prevail on the medium-term

- The combination of economy reopening, income support still in place and BRL still depreciated might allow for some upward surprise this year
- Particularly, some repressed demand can find a some (temporary) supply shortage on a few industries, which can also contribute to that upward surprise
- **But on the medium-term we see the fading out of pandemic-related noises, no income support, BRL appreciating and no supply shortages. So the wide negative output gap should play its role to keep inflation low**

Durable goods inflation and Intension of buying durable goods



Tradables ex-food inflation and BRL variation



Source: Santander, with data from IBGE and BCB

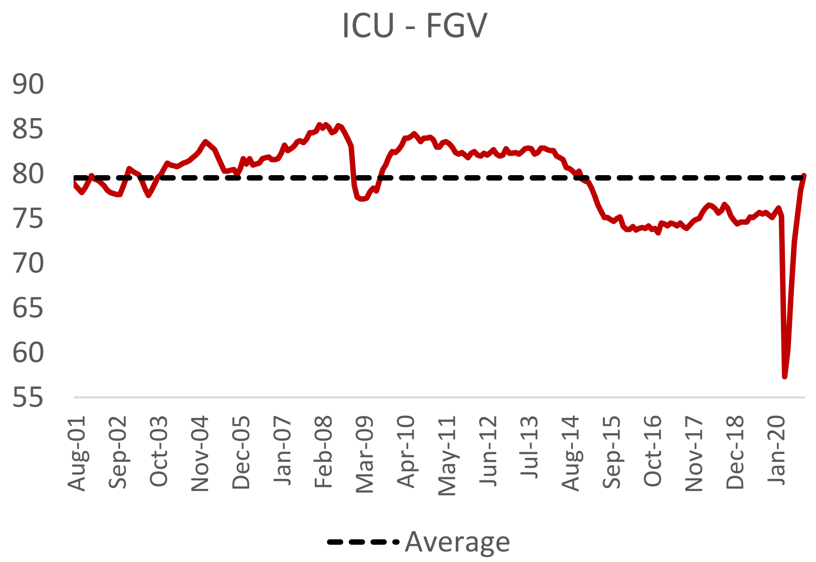
Estimates (p.p.) of the Effects of Determinants of Pass-Through – Average Coefficient of Several Different Models*

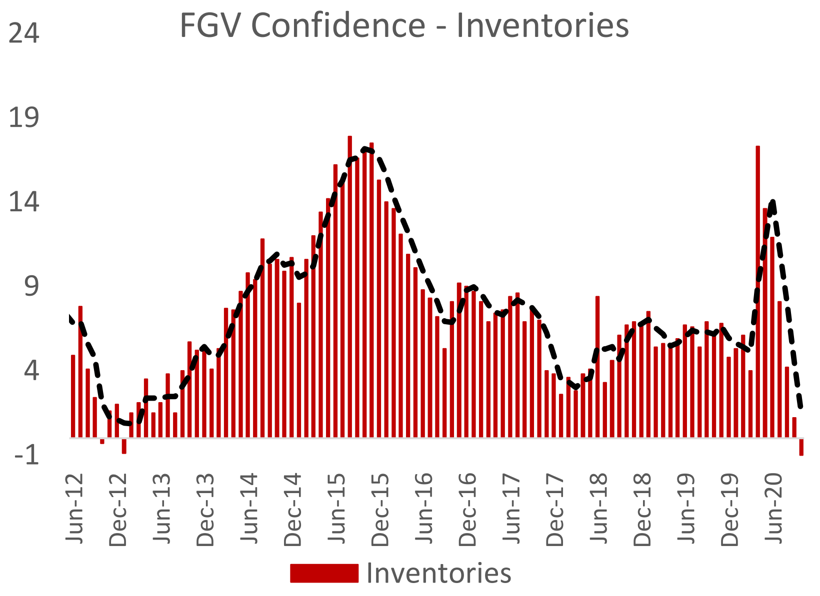
Negative output gap	De-anchor of inflation expectations
5.60	4.10
Size of the currency depreciation	**Companies operational margin**
0.15	0.95

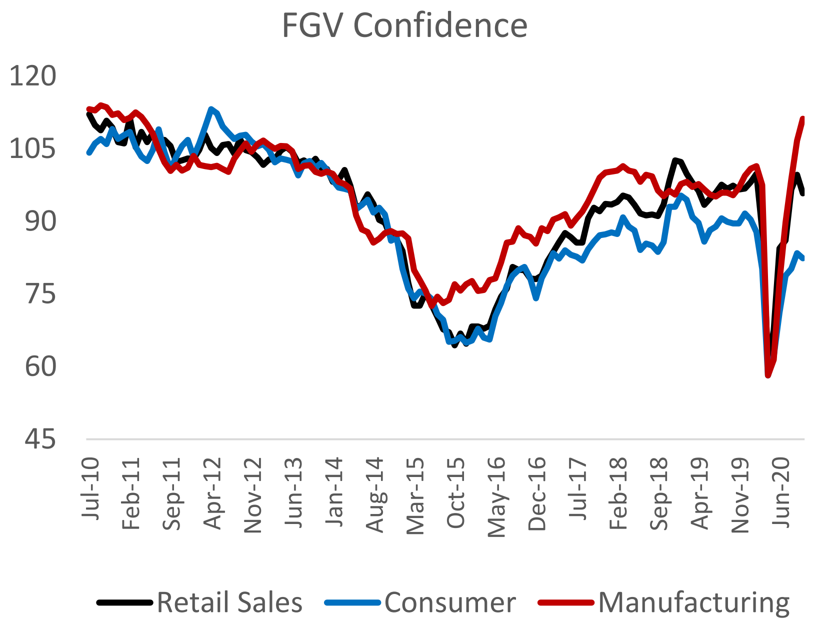
Source: BCB (Quarterly Inflation Report of sep/18)

Moreover, the mismatch between supply and demand should end shortly

- ***Industry capacity utilization is already above pre-pandemic levels and inventories are already pretty low (need to be recomposed)***
- ***Meanwhile, consumer and retail confidence fell, while manufacturing rose***



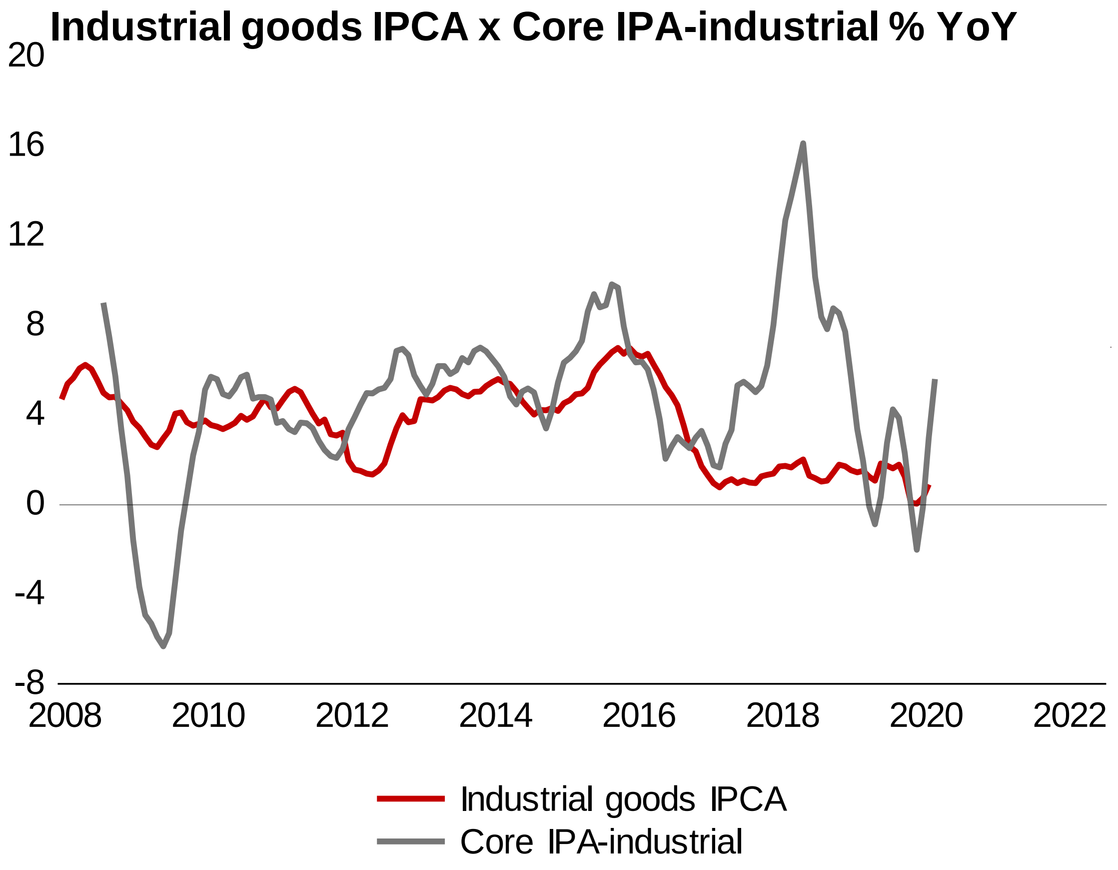


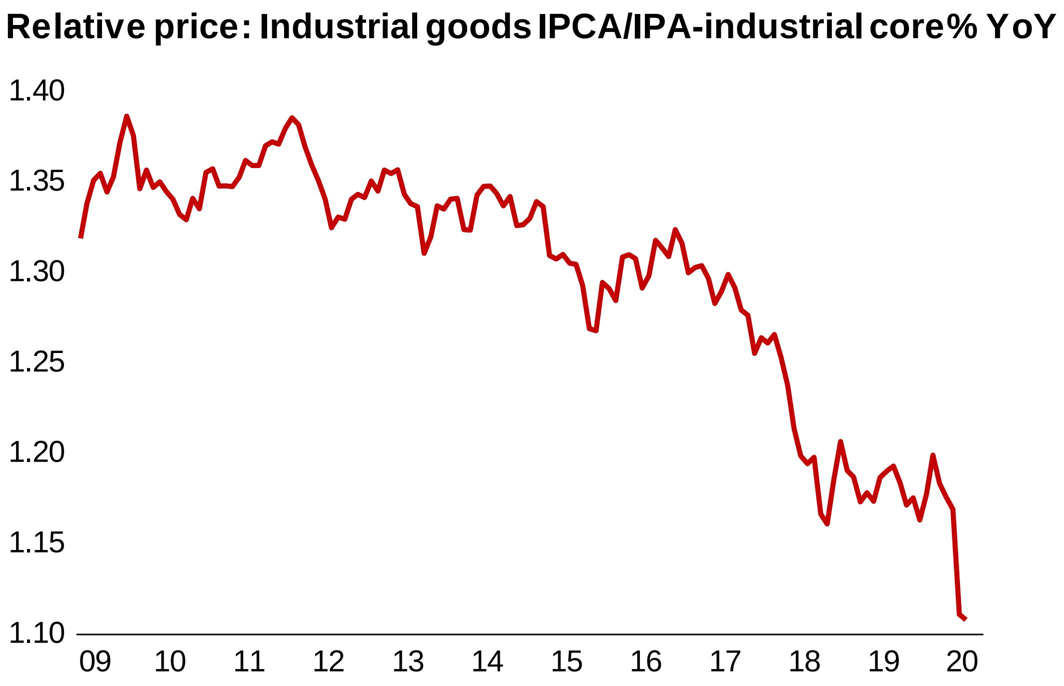


Source: Santander, with data from IBGE

Relative price of industrial goods between wholesale and consumer should not be a problem

- *The relation is not stationary, meaning it does not tend hover around a mean (even after adjusting for the items more related to IPCA)*
- *In other words, the recent increase in Industrial-PPI (IPA-industrial) do not pose a relevant risk for industrial goods on IPCA*



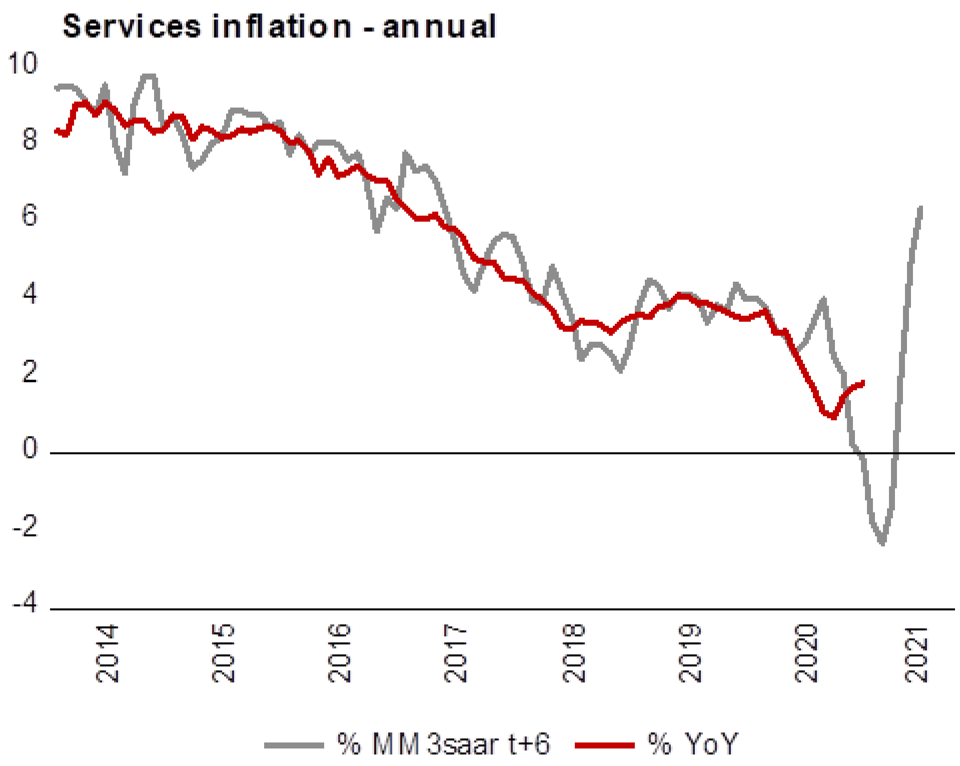


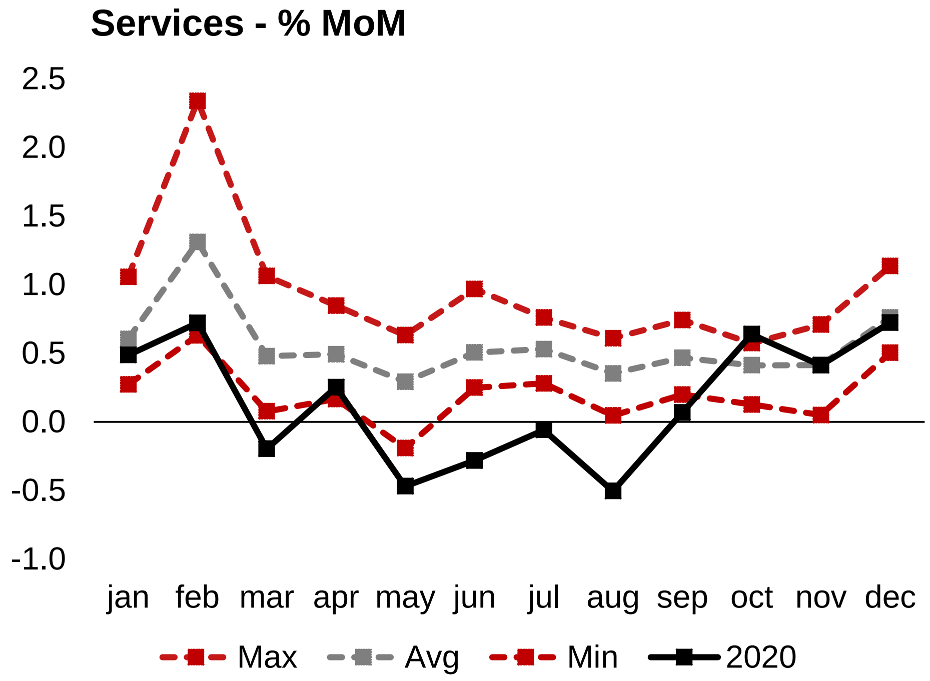
Short-term: bottom-line industrial goods

There is still a risk of higher pass-through as companies' margins are too compressed, but as the BRL appreciates and the income's emergency aid ends, this risk should reduce and the balance of risks should turn more tilted to the downside

Services took a deep dive

- ***The disinflation process seems to be reaching a maximum, though***
- ***The MM3saar shows a sign of recovery, but monthly readings just came back to the usual pattern, they are not overshooting***

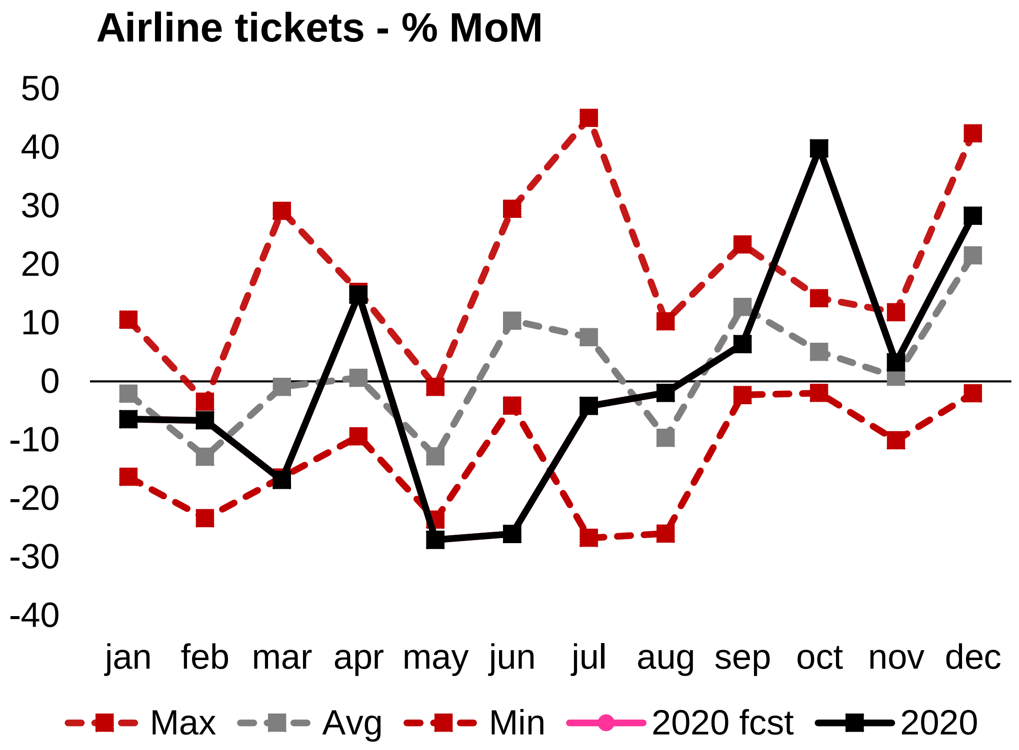


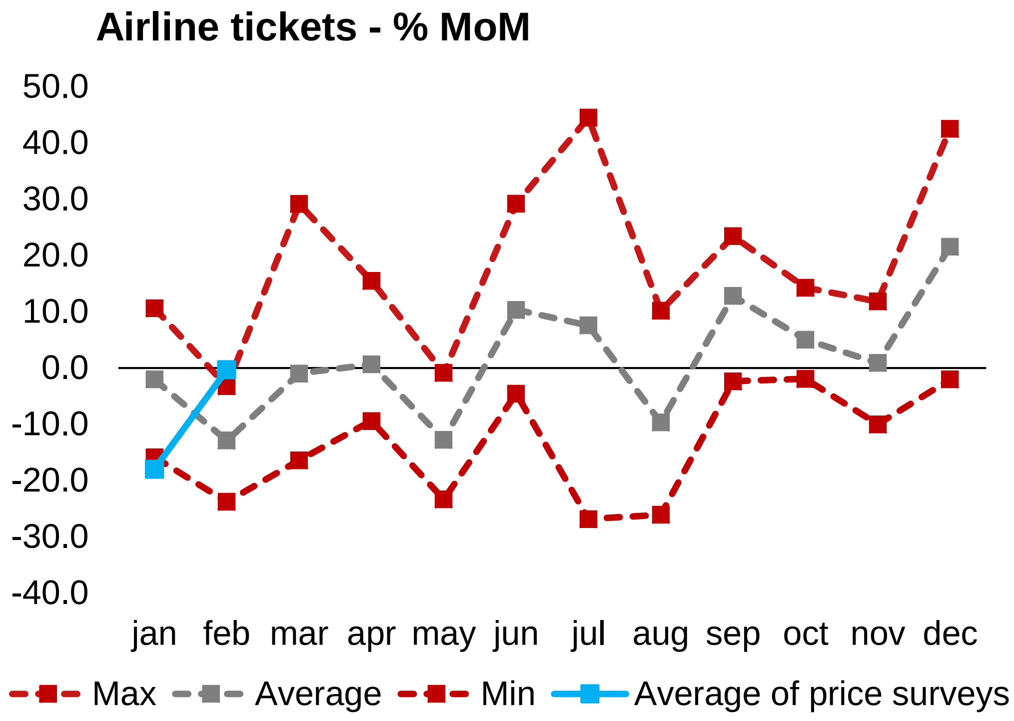


Source: Santander, with data from IBGE

The recent recovery was very concentrated in a volatile item

- ***Airline tickets rose 70% (+30bps), after the falls from may-sep***
- ***For January and February, high-frequency surveys show the item should fall more than the usual seasonal pattern***

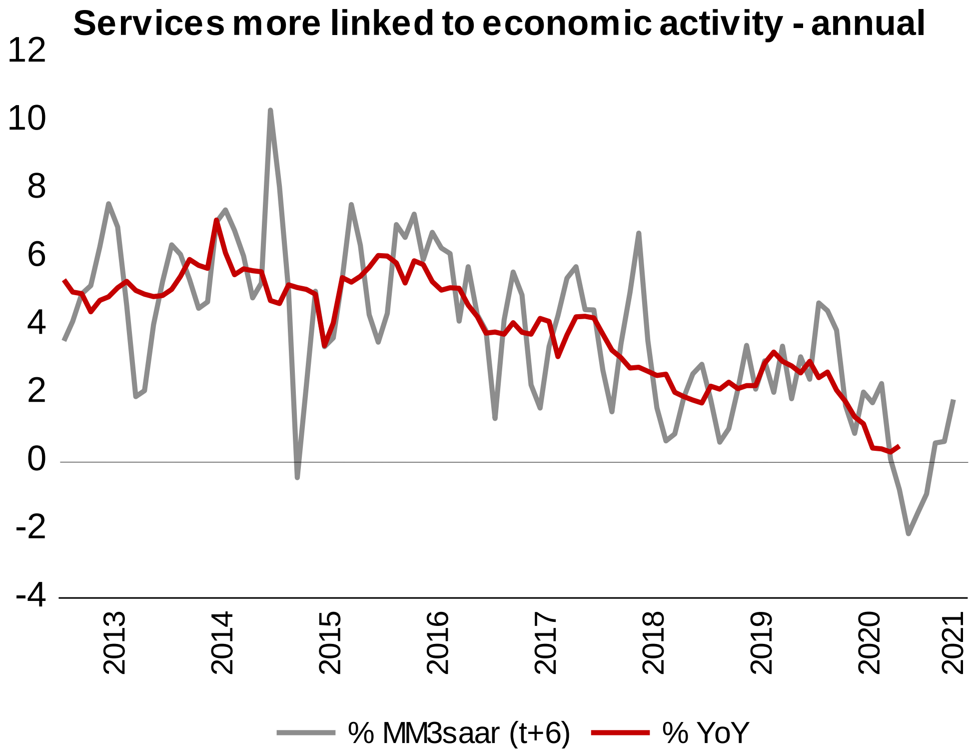


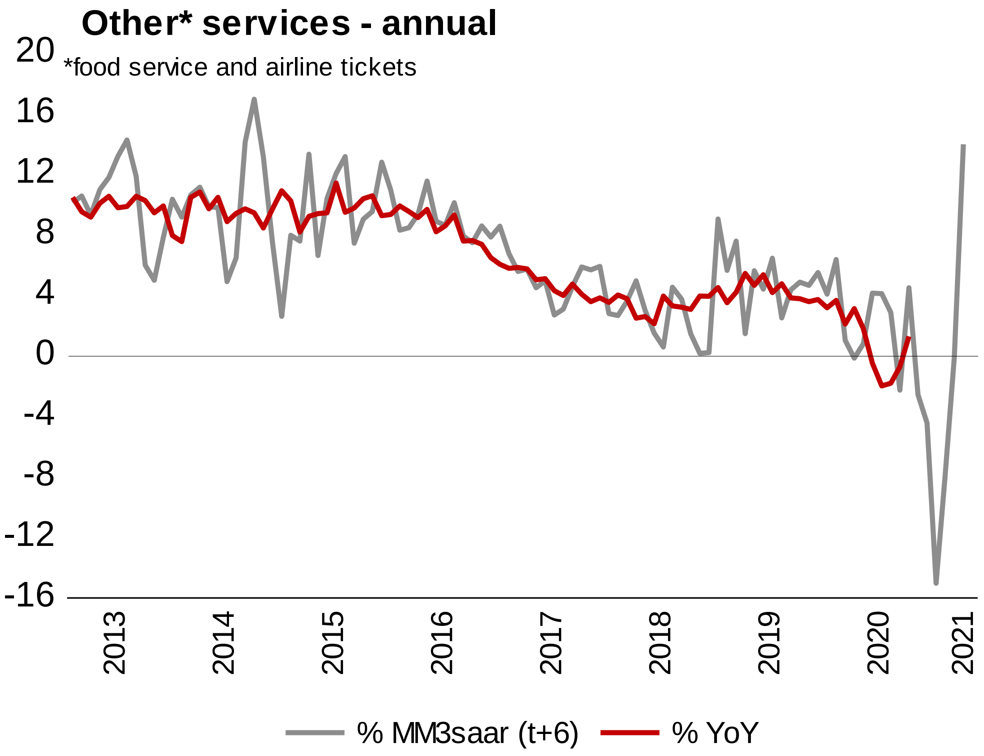


Source: Santander, with data from IBGE

Upside risks are less relevant for services

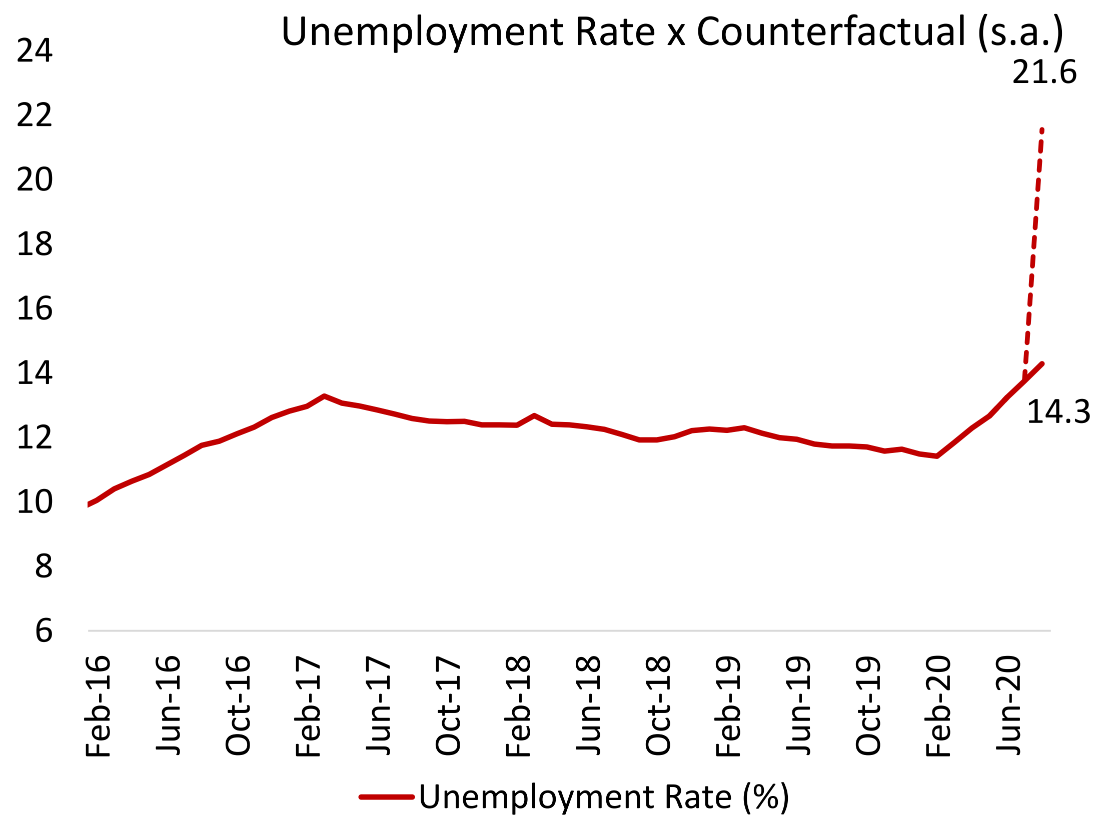
- ***Repressed demand is more difficult to occur given the nature of the sector***
- ***However, there seems to be a wider space for a rebound on the short-term than for further deepen of the disinflation process → cyclical services have started to rebound (from very low levels), particularly airline tickets and food service, which are very volatile***

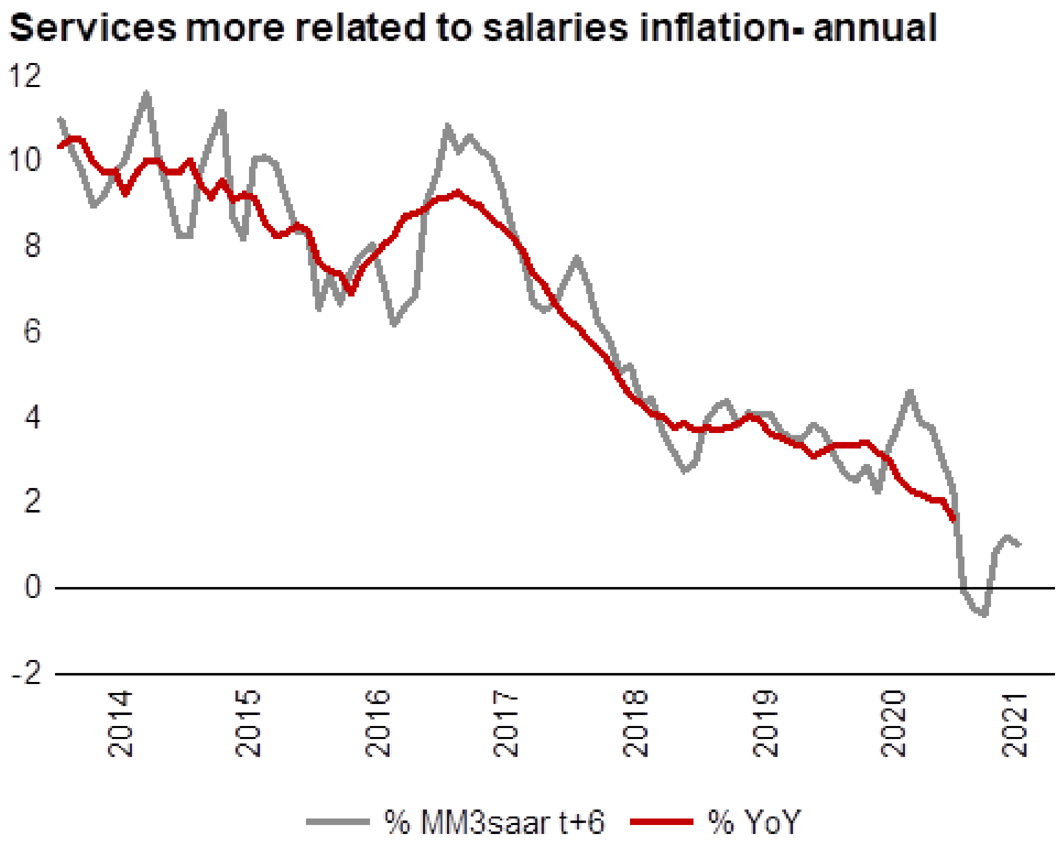




On the medium-term, the weakness of the job market should prevail

- *Unemployment counterfactual rate (keeping participation rate stable at the level of February) would be 20%*

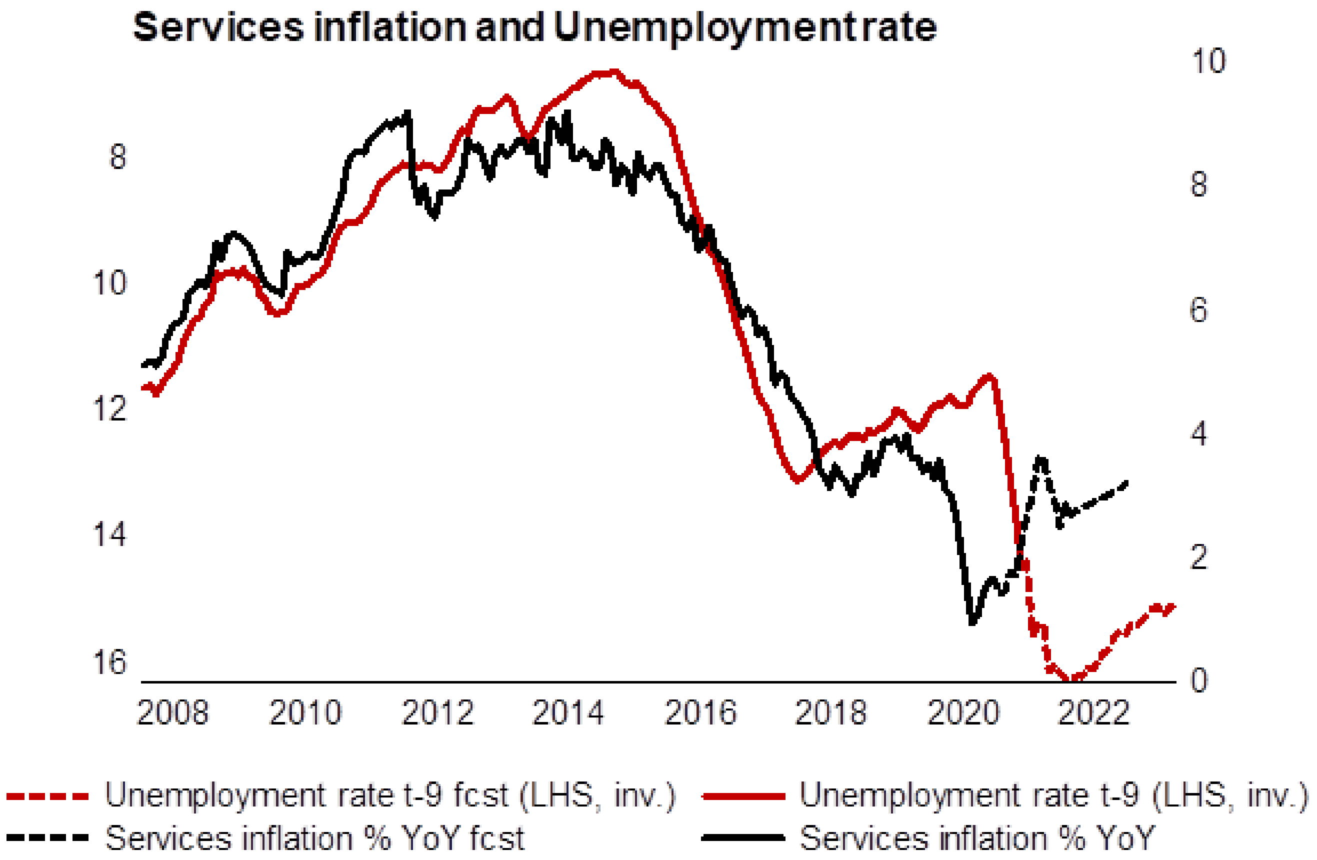




On the medium-term, the weakness of the job market should prevail

- ***Services are closely linked to unemployment rate, which we forecast as weaker than pre-pandemic***

- Models based solely on unemployment rate point to services inflation around 1.0-2.0% until 2022, although we adopt a more conservative forecast, believing it will gradually return to the levels seen pre-pandemic

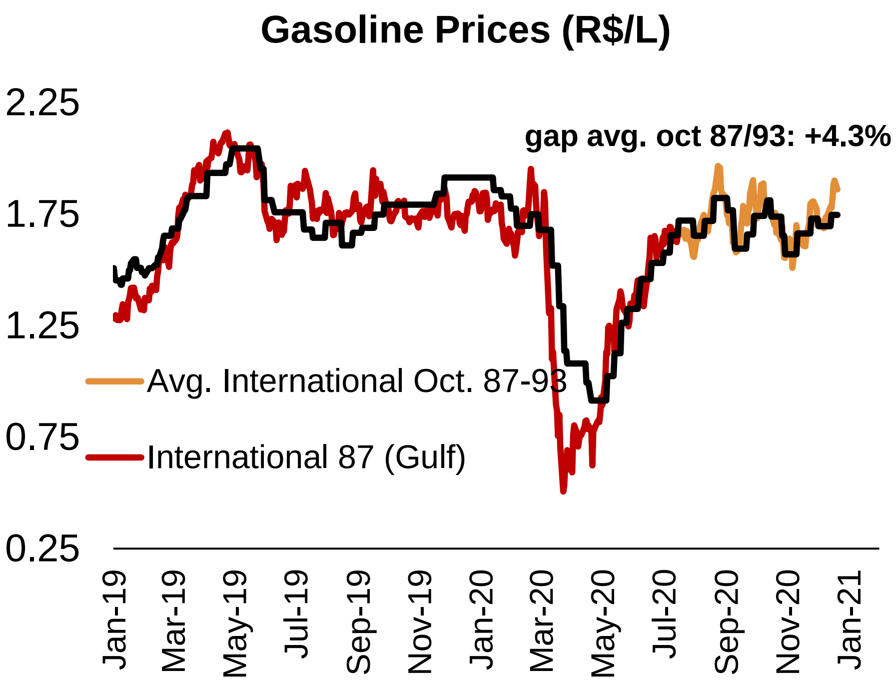


Short-term: bottom-line services

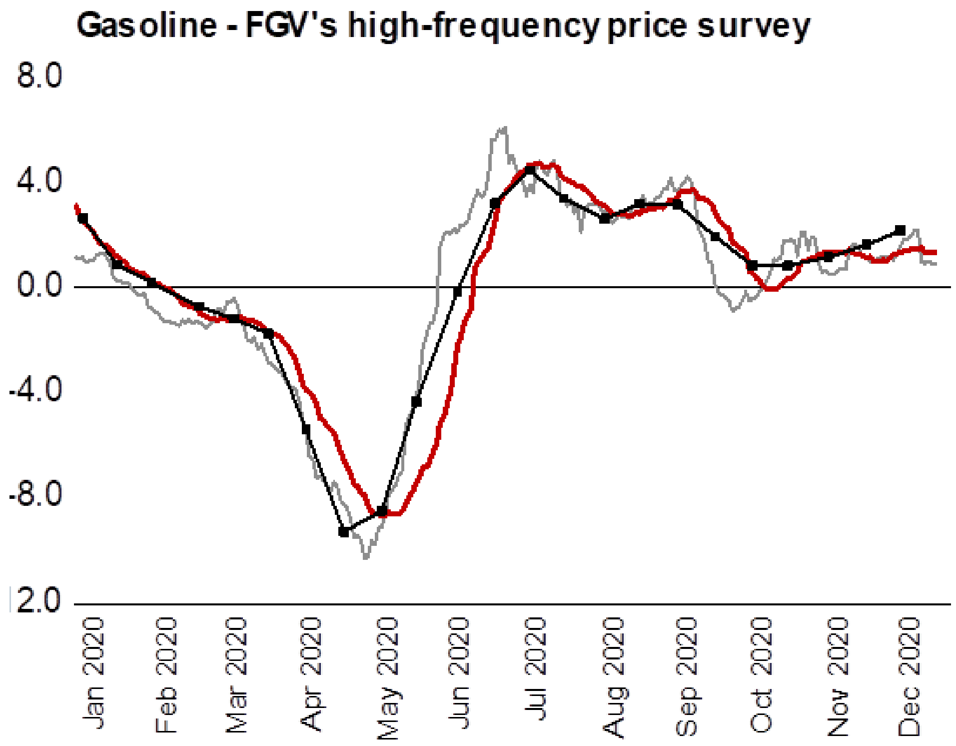
The group should recover as the economy reopens, but at a very gradual pace, because the job market is weak and its recovery should also be slow. Risks seem balanced for the short-term

Administered prices: gasoline is an upside risk

- *Oil is at an upward trend, while the appreciation of the BRL has stopped*
- *We believe BRL should resume the appreciation trend, but as it depends of the fiscal talks, there is a risk it takes longer to resume the path*



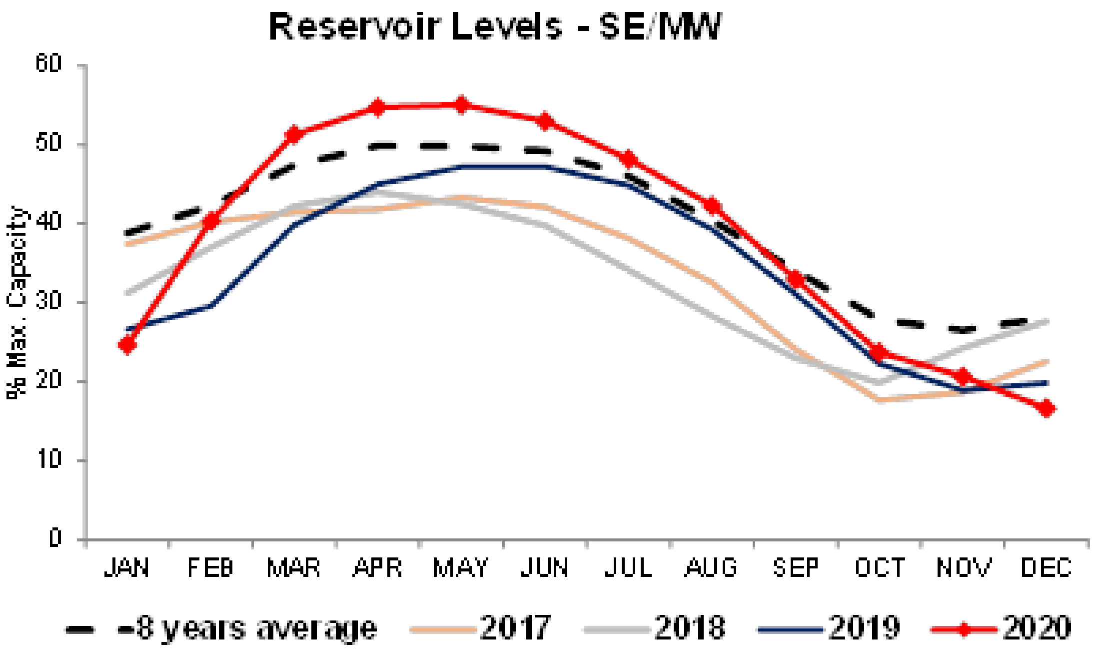
*last update Dec 28th

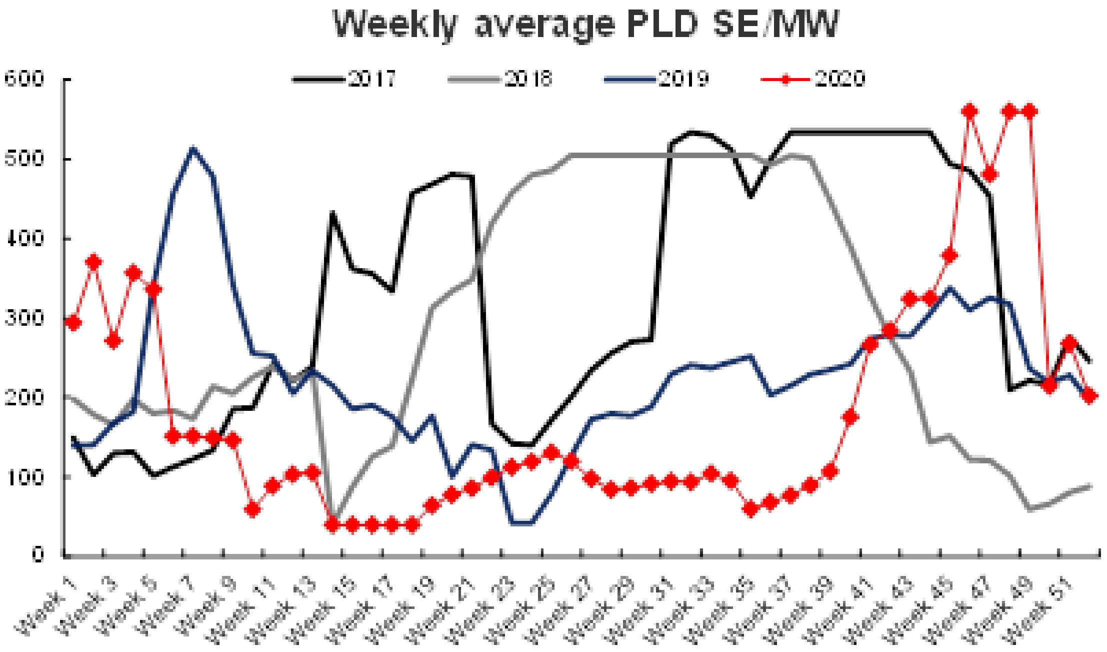


Source: Santander, with data from Bloomberg, IBGE and FGV

Administered prices: the tariff flag risk on energy for 1q21

- *Tariff flag for Jan-21 was defined as yellow, as we expected. We believe it should be green for Feb-21 and stay like that until Apr-21,*
- *However, as reservoir levels are very low, there is a risk of being a higher flag*





Source: ONS, MCM

Short-term: bottom-line administered

Gasoline and energy are upside risks for administered prices on the short-run.

Forecast for the short-term (Dec-Apr)

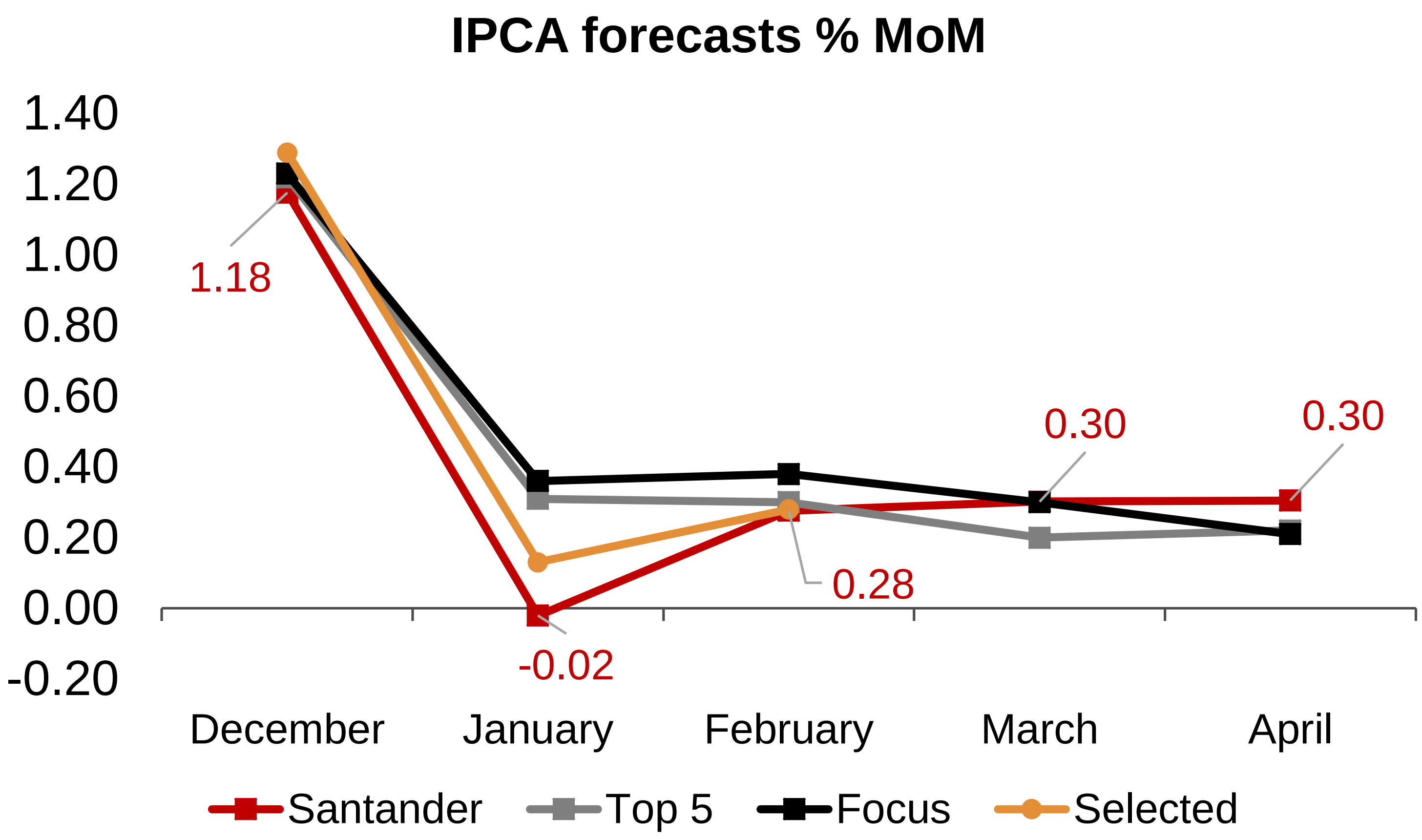
- ***We've recently revised our short-term forecasts downwards and we believe the risks more balanced now***

	dez/20	jan/21	fev/21	2020e
IPCA	1.18	-0.02	0.28	4.4
Food and beverage	1.54	0.45	0.01	13.9
Food-at-home	1.92	0.46	-0.15	17.9
Food service	0.60	0.40	0.40	4.6
Housing	3.06	-1.89	-0.33	5.5
Electrical energy	9.86	-8.28	-2.37	9.6
Household articles	1.17	0.28	0.29	5.4
Apparel	-0.30	-0.27	-0.10	-2.0
Transportation	1.25	0.57	0.36	0.9
Airline tickets	28.31	-18.00	0.00	-17.0
Gasoline	2.00	1.60	0.50	0.3
Health and personal care	0.11	0.33	0.35	1.2
Personal spending	0.43	0.15	0.17	0.8
Education	0.38	0.03	2.98	1.0
Communication	0.35	0.12	0.05	3.4

Administered prices	2.19	-0.60	-0.03	2.8
Free prices	0.83	0.18	0.38	4.9
Food-at-home	1.92	0.46	-0.15	17.9
Industrial goods	0.38	0.17	0.17	2.6
Services	0.67	0.07	0.73	1.6
EX3 core	0.30	0.29	0.26	2.1

	jan/21	fev/21	mar/21	abr/21	2021e
	-0.02	**0.27**	**0.30**	**0.30**	**3.0**
Food-at-home	0.46	-0.15	0.25	0.35	4.5
Industrial goods	0.17	0.17	0.30	0.27	2.5
Services	0.07	0.73	0.17	0.17	2.5
Administered	-0.60	-0.03	0.52	0.50	3.4

Comparisons



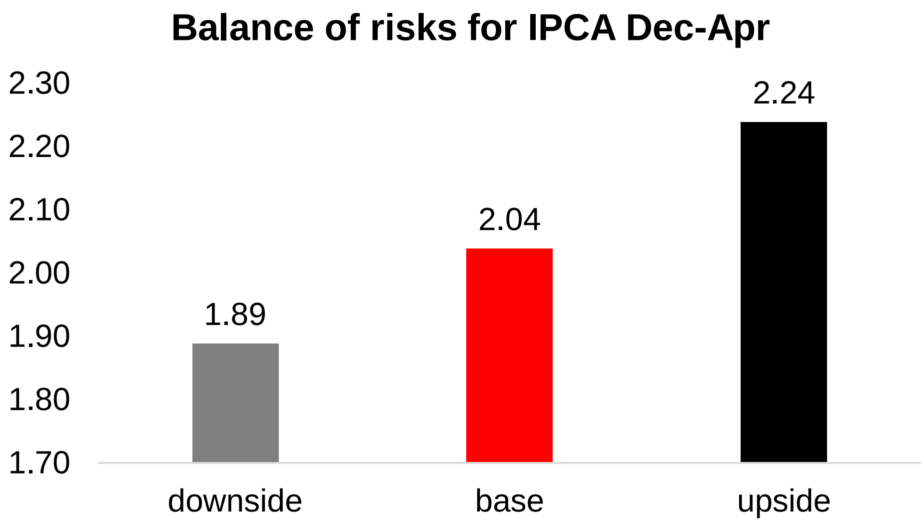
Risks for the short-term (Dec-Apr): roughly balanced

Upside risks

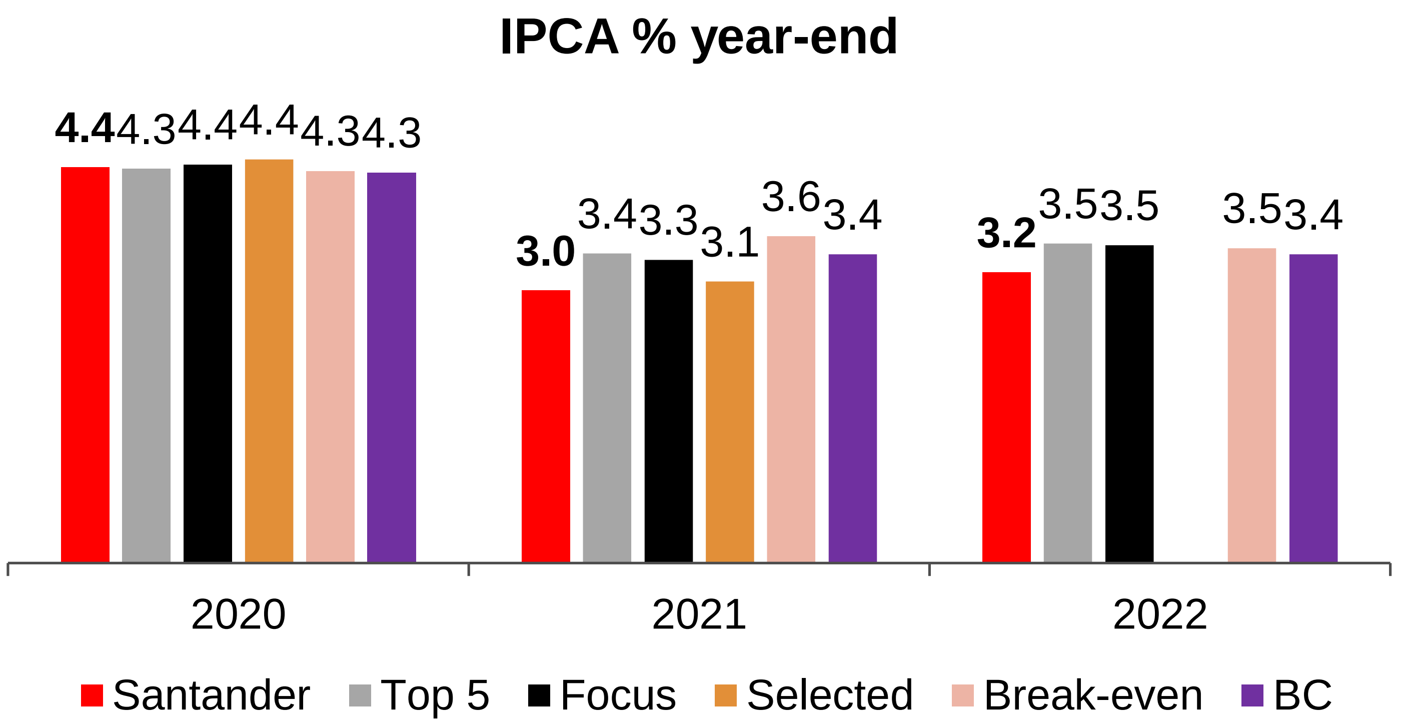
- +10bps of gasoline, if BRL does not appreciate much and oil keeps rising
- +10bps of energy, if the flag continues yellow until Apr

Downside risks

- -10bps on food, if wholesale prices continue to fall
- -15bps on services/industrial goods if economy continues with a very high slack, reopening very slowly



Yearly comparisons



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