

Inflation Outlook

Quarterly Inflation Report

Carlos Viana de Carvalho

March 2018

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I. Introduction

Banco Central do Brasil – Institutional Mission

- To ensure the stability of the currency's purchasing power and a solid and efficient financial system;
- The mission to ensure price stability is accomplished through the inflation targeting regime, in which the targets are defined by the National Monetary Council (CMN).

Core Principles

- Low, stable and predictable inflation: best contribution of monetary policy for sustainable growth;
- High and volatile inflation:
 - generates distortions, increases risks, shortens planning horizons, depresses investment and economic growth;
 - regressive;
 - in short, reduces potential growth, affects employment and income generation, worsens income distribution.



II. Baseline Scenario

i. Economic Activity:

- consistent recovery of the Brazilian economy
- high level of economic slack.

ii. Global outlook:

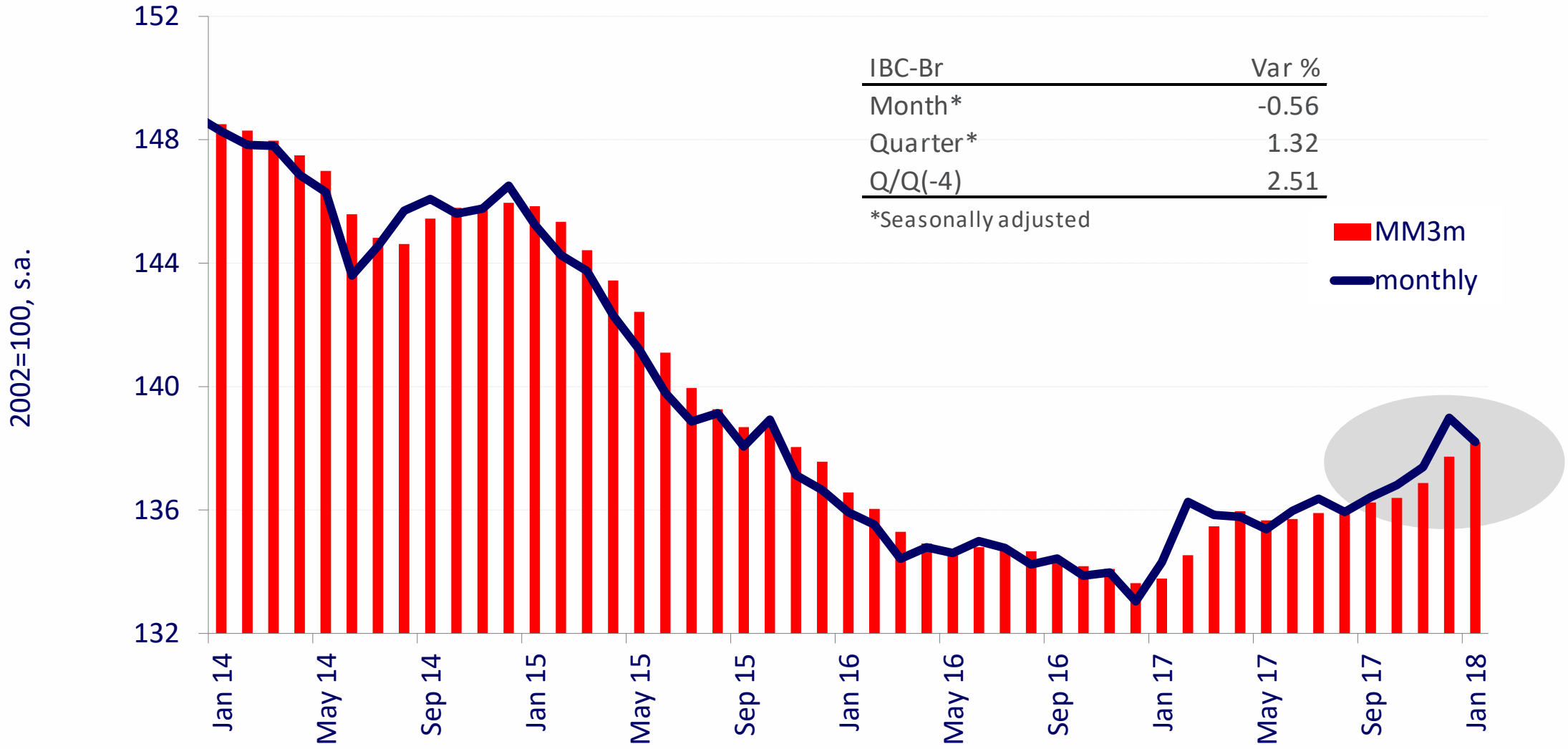
- has been favorable;
- growing global economic activity;
- continued risk appetite towards emerging economies.

iii. Inflation:

- has evolved in a more benign fashion than expected since the turn of the year;
- remains favorable; measures of underlying inflation running at comfortable or low levels, including the components that are most sensitive to the business cycle and monetary policy
- Focus expectations for **2018** and **2019** around **3.6%** and **4.2%**, respectively; for **2020**, around **4.0%**.

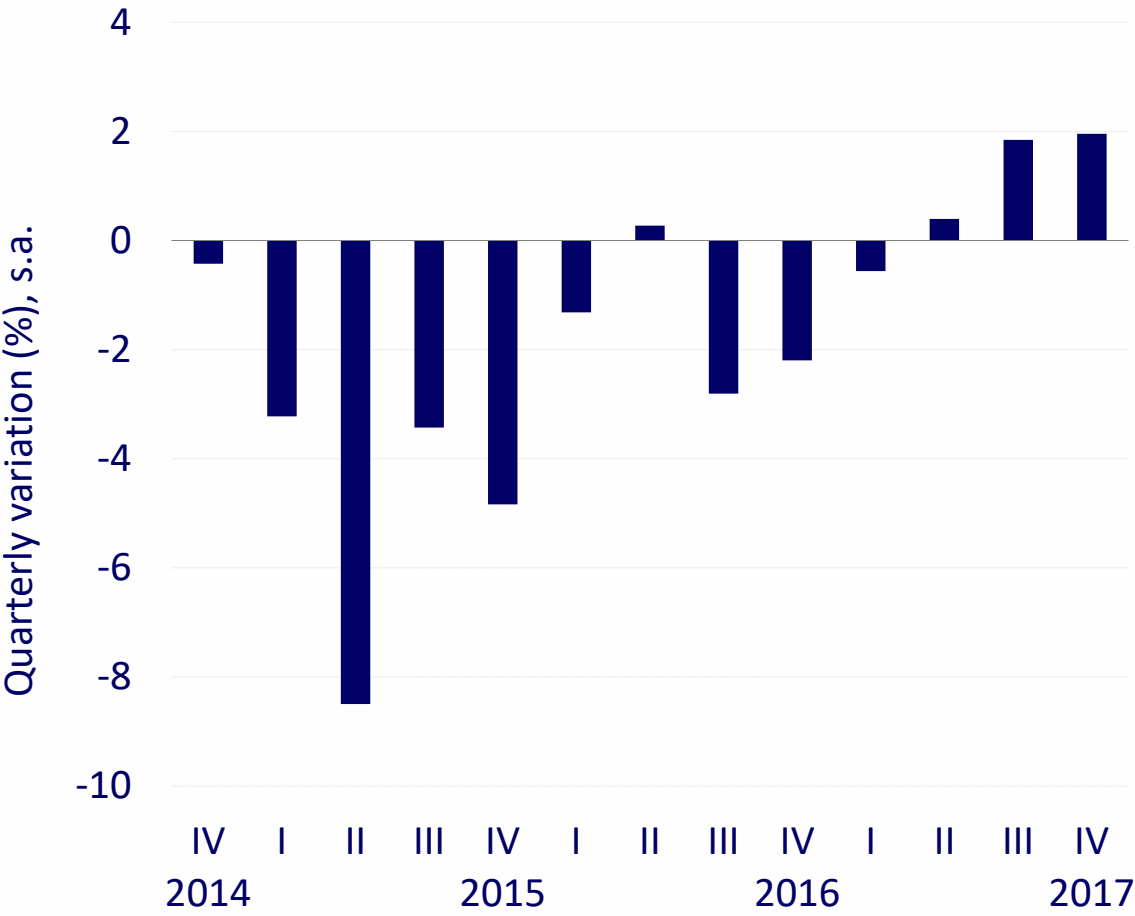
i. Economic Activity

IBC-Br index

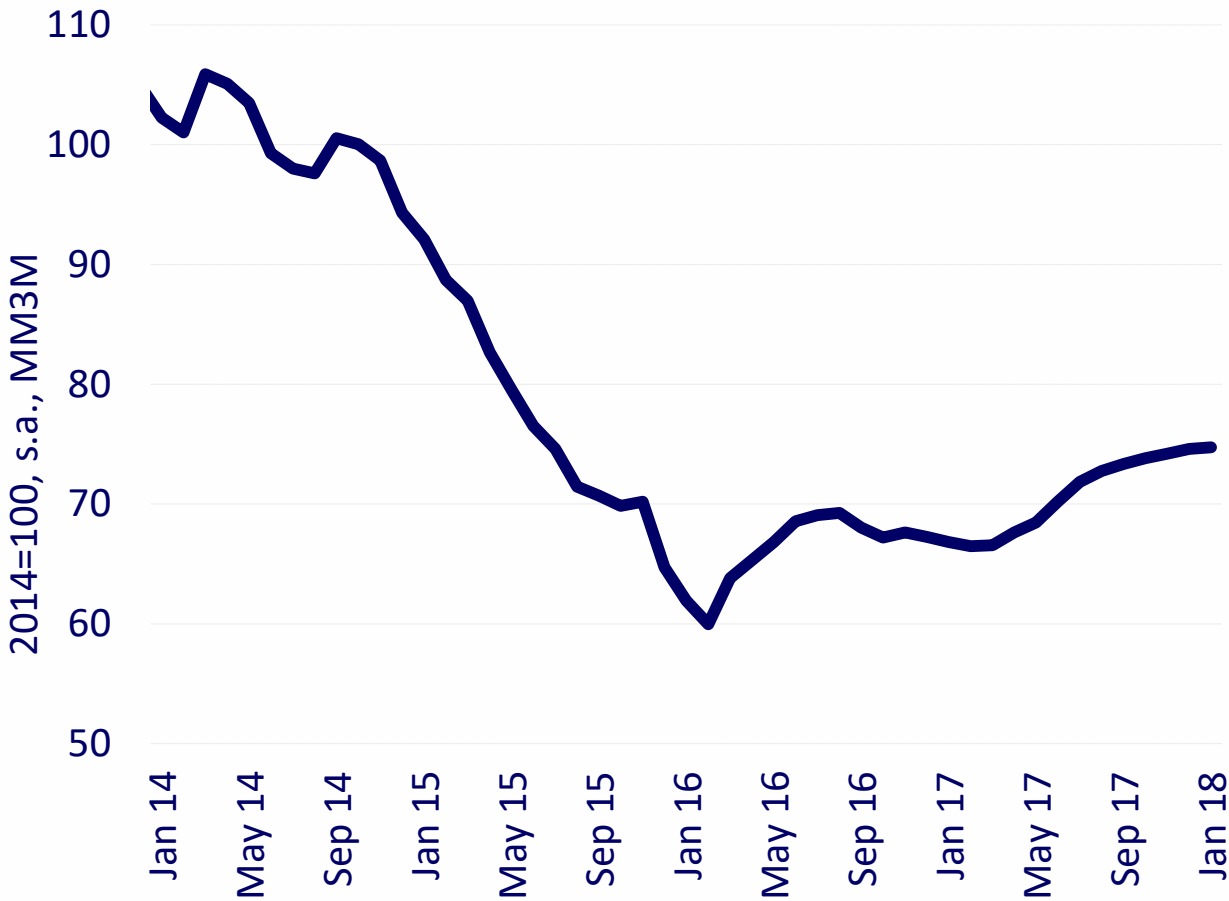


Investment

Gross Fixed Capital Formation (FBCF) - GDP

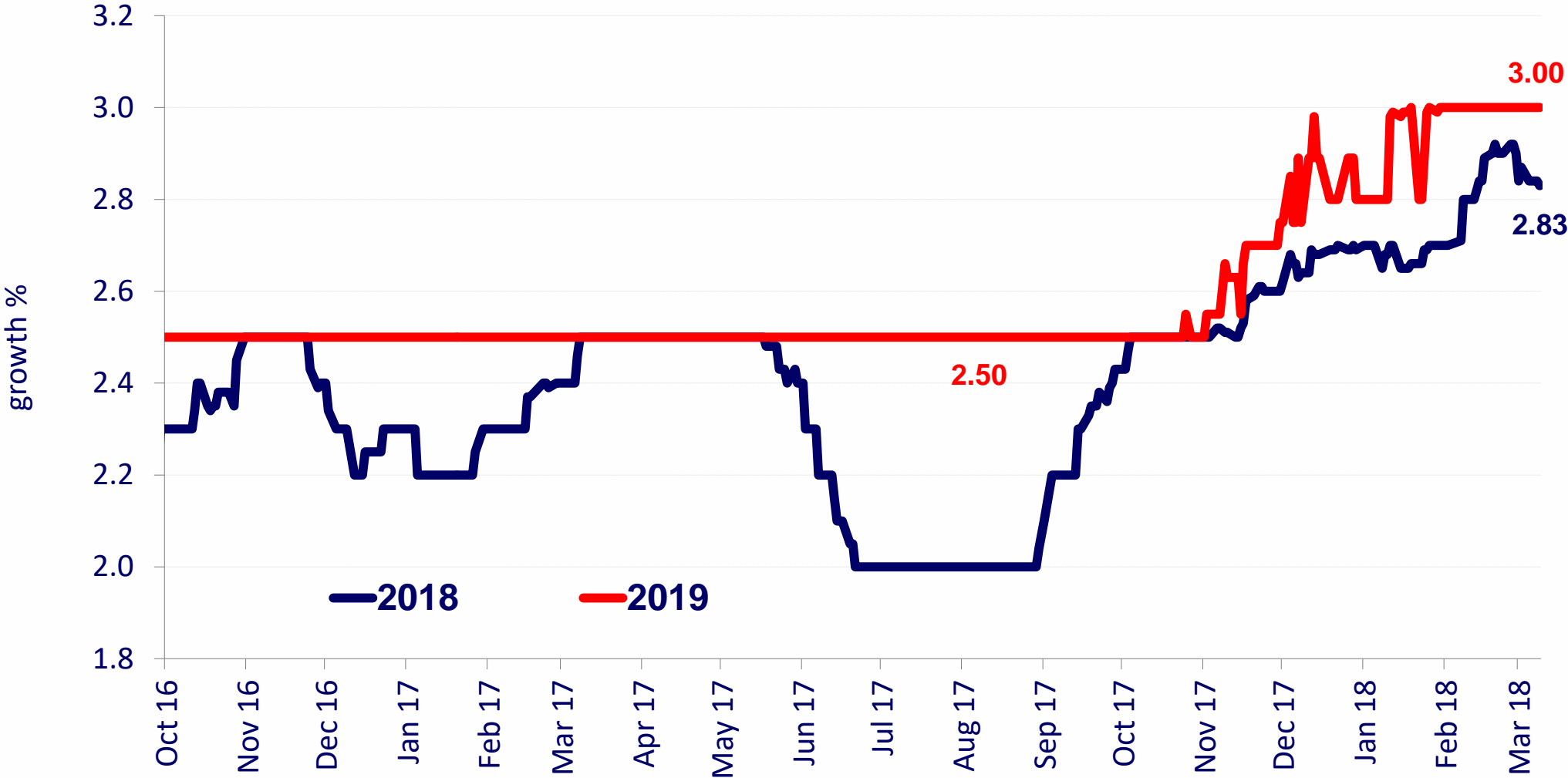


Capital Goods Production



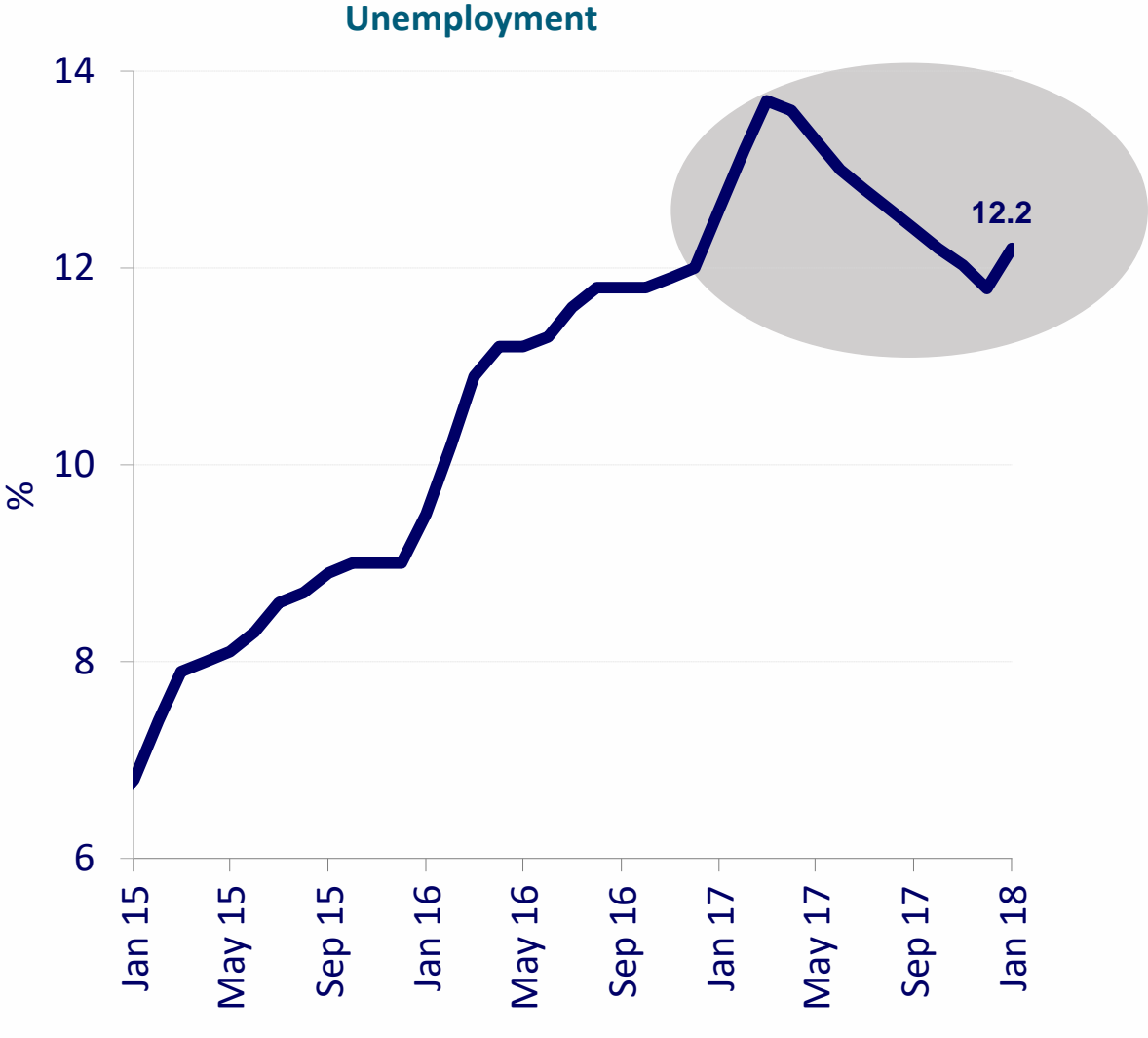
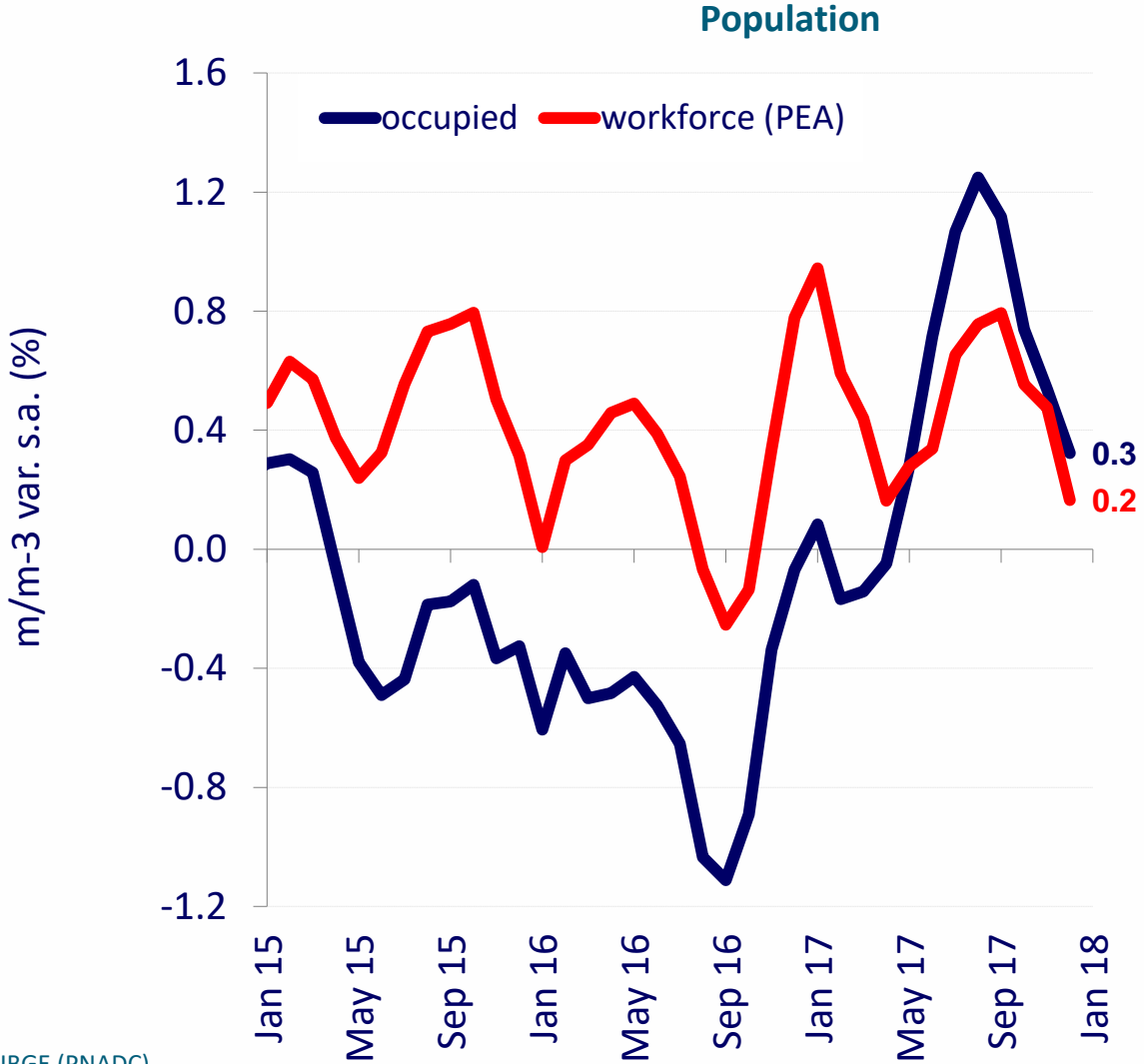
Source: IBGE

GDP Market Expectations



Up to Mar/16

Labor market



Source: IBGE (PNADC)

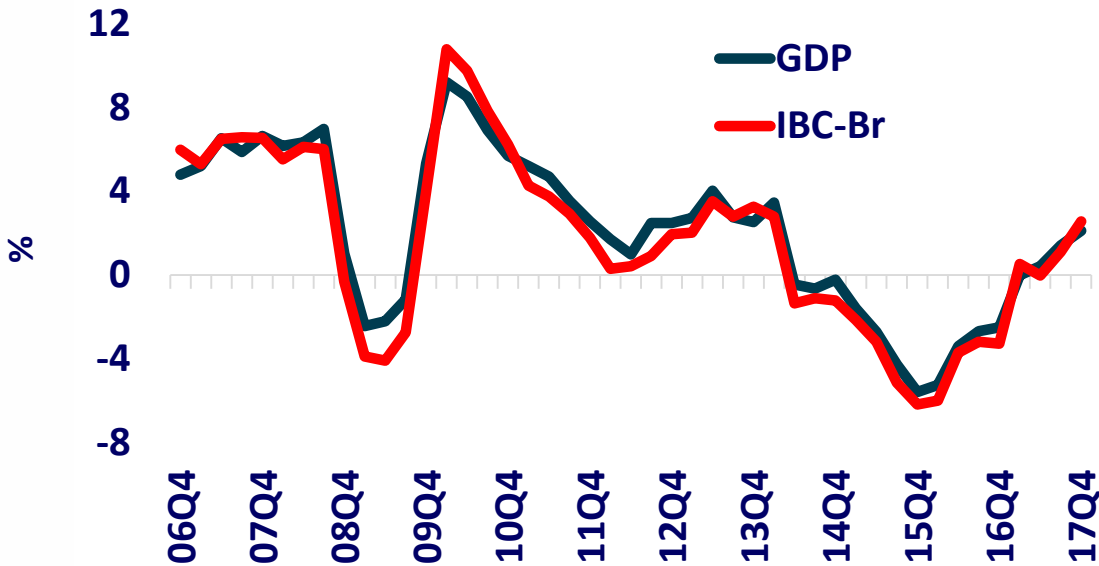
Box: Projections for 2018 GDP

- Growth of 2.6% in 2018
 - Supply:
 - Agriculture & Livestock: -0.3% in 2018 (13% in 2017)
 - Industry: 3.1% in 2018 (0.0% in 2017)
 - Services: 2.4% in 2018 (0.3% in 2017)
 - Demand:
 - Investments: 4.1% in 2018 (-1.8% in 2017)
 - Household Consumption: 3.0% in 2018 (1.0% in 2017)
 - Government Consumption: 0.5% in 2018 (-0.6% in 2017)
 - Net Exports: -0.2 p.p. in 2018 (0.0 p.p. in 2017)

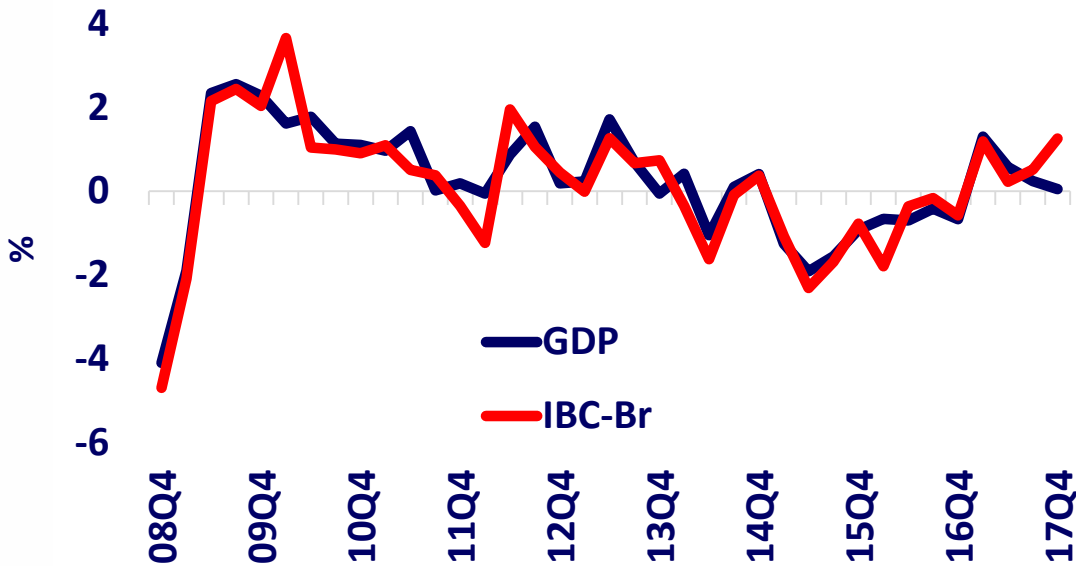
Box: Methodological aspects and comparison of IBC-Br and GDP

- IBC-Br and GDP specificities – emphasis on the differences between them.
 - IBC-Br: timely aggregate indicator of economic activity – supply side;
 - Uses information from the System of National Accounts – but with significant differences in terms of coverage;
 - Some differences in trajectories – interannual comparisons are more adequate.

Inter-annual variations of GDP and IBC-Br



Quarterly Variations of GDP and IBC-Br^{1/}



1/ Seasonally adjusted variations

Box: “Cash, credit card or debit card?”

- Law 13,455 (Jul/2017): authorized prices differentiation, according to the instrument and term of payment;
- Special questionnaires jointly developed by BCB and IBRE/FGV to gather information on the level of awareness and practical effects of the new legislation;
- Questionnaires were applied in the survey series *Sondagens* (Consumer, Commerce and Services) of IBRE/FGV;

Discount for payment in cash or debit card

(compared to payment with credit card)

Description	Was offered or offered discount in the last month? (% “Yes”)	More frequently than in the last year? (% “Yes”)	Possibility of or amount of discount announced within the establishment? (% “Yes”)	In general, how much was the discount?		Aware that practice became legal by law? (% “Yes”)
				Cash	Debit card	
Consumer	32.4	38.8	-	-	-	63.9
Commerce ^{1/}	46.4	27.7	64.4	8.4	7.1	85.8
Services	17.4	31.5	-	9.4	8.0	73.9

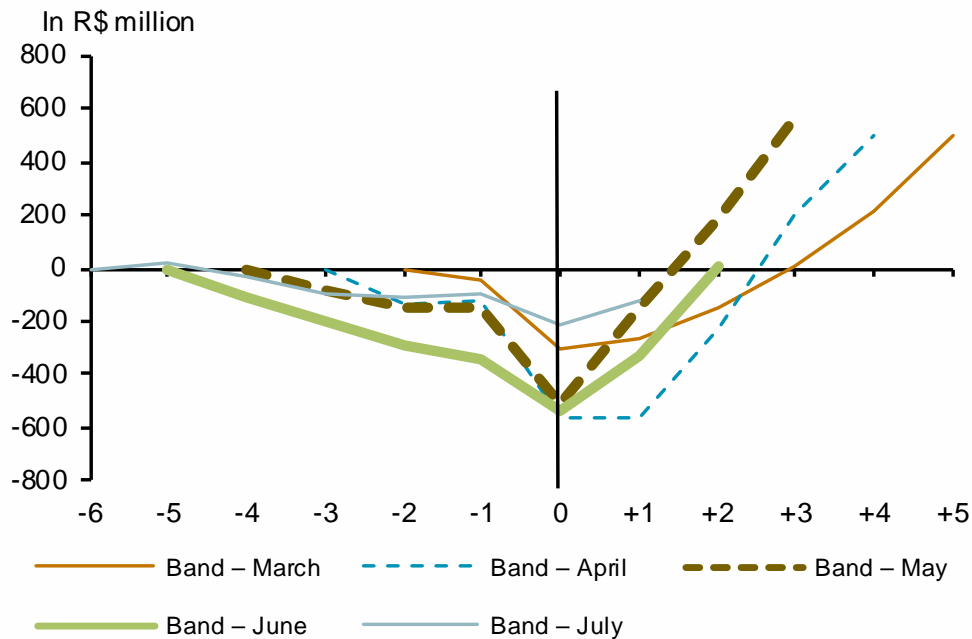
1/ Corresponding to segments classified as broad retail in the Monthly Retail Trade Survey (PMC).

Source: IBRE/FGV

Box: Withdrawals from FGTS inactive accounts: How did the beneficiaries use the resources?

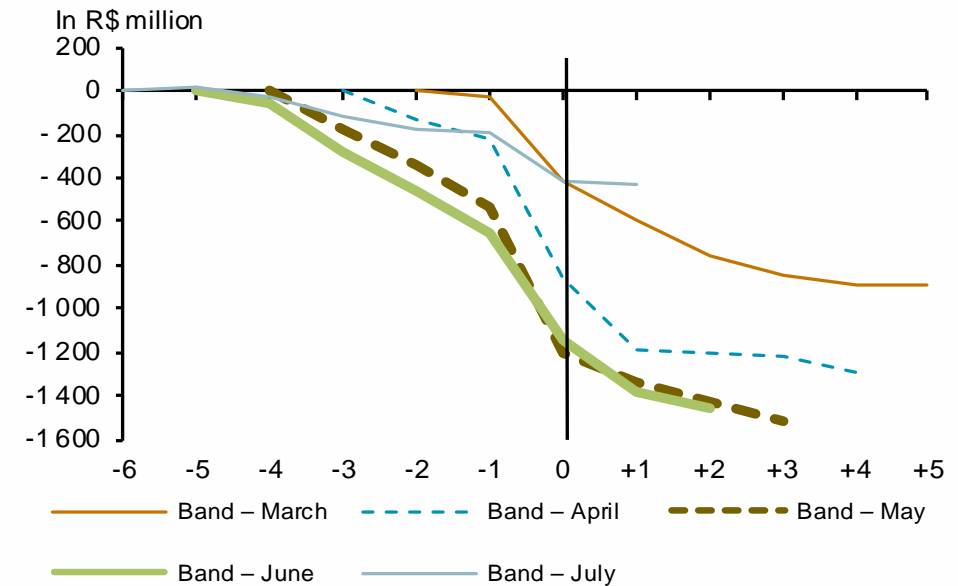
- Impact of the withdrawals of the FGTS inactive accounts on consumption of durable and non-durable goods, indebtedness, delinquency and financing of vehicles and real estate:
 - R\$44.3 billion were withdrawn (63.8%) by individuals with active banking indebtedness or that used credit card as a mean of payment;
 - Out of the total, R\$13.05 billion (46%) were mapped;
 - Estimates based on comparisons of treatment group (those who withdrew resources) and control group (similar, but which were not authorized).

Banking indebtedness impact



Banking indebtedness impact

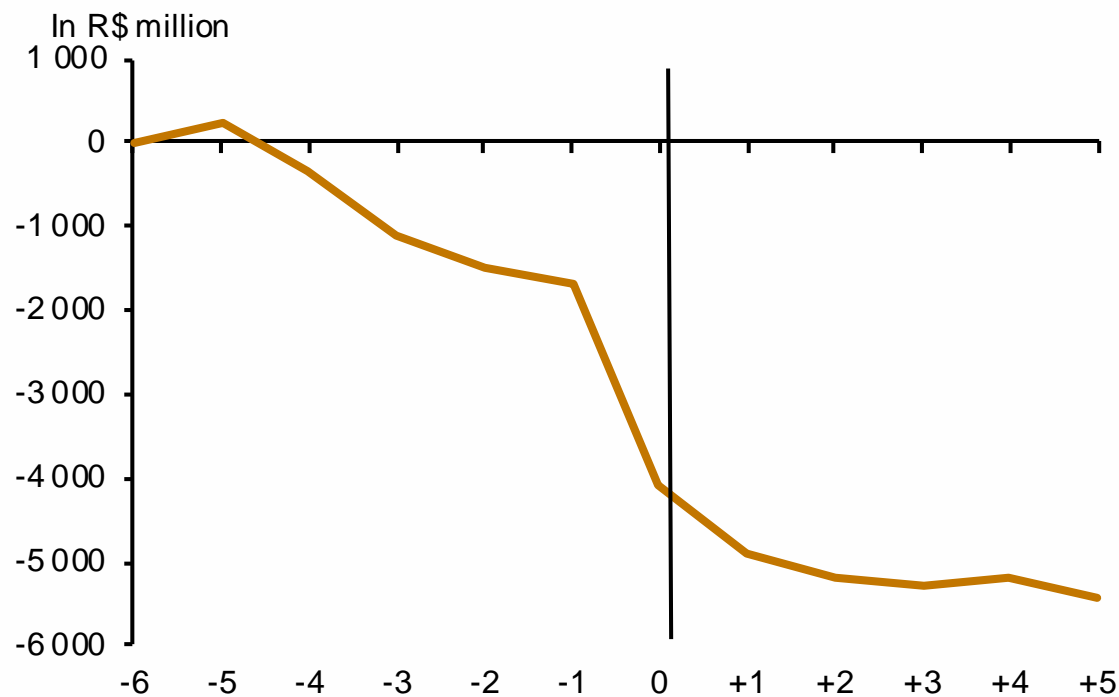
Excluding vehicles and real state new financing



Box: Withdrawals from FGTS inactive accounts: How did the beneficiaries use the resources?

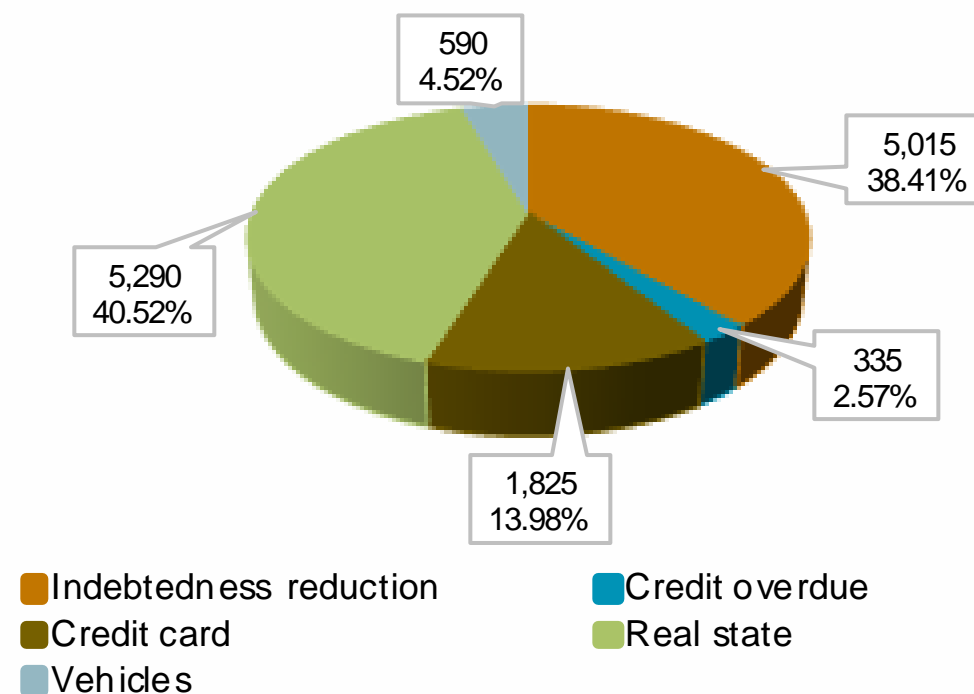
Banking indebtedness impact

Excluding vehicles and real state new financing



Destination of resources mapped by methodology

(in R\$ million)



Box: How are exchange rate expectations formed in Brazil?

- Compares the ability of three models to rationalise exchange rates projections of each participant of the Focus survey:
 - Two caveats regarding the analysis: explores the models' relative performance; does not relate to the best way to project the exchange rate;
 - The Uncovered Interest Parity (**UIP**) is the worst model to explain projections; for a significant number of institutions, the Purchase Power Parity (**PPP**) has the best performance for most of the projection's horizons; the Random Walk (**RW**) has the best performance in the very short-term.

UIP and PPP or RW comparison ^{1/}

(number of institutions)

Projection horizon	Total	Deviations	
		UIP > PPP	UIP > RW
1	102	102	102
2	101	101	101
3	100	100	100
4	98	98	98
...
9	86	86	86
10	81	81	81
11	75	73	75
12	72	68	70
13	67	64	65
14	66	56	62

^{1/} Considering models excluding external variables

PPP and RW comparison ^{1/}

(number of institutions)

Projection horizon	Total	Deviations	
		PPP > RW	RW > PPP
1	102	36	4
2	101	4	37
3	100	4	52
4	98	2	46
...
9	86	5	16
10	81	6	14
11	75	8	5
12	72	9	5
13	67	8	2
14	66	8	1

^{1/} Considering models excluding external variables

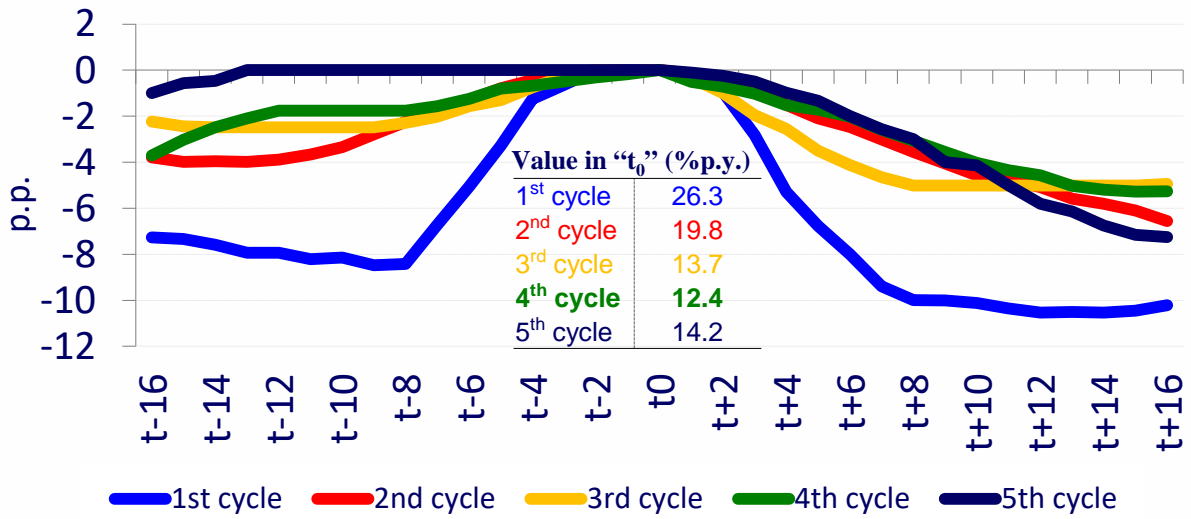
Box: Balance of payments projections for 2018

- US\$23.3 billion deficit in current account (1.09% of GDP):
 - Trade balance: US\$56 billion **balance**, US\$225 billion **exports** (+3.6%) and US\$169 billion **imports** (+10.3%);
 - Net **travel** expenses : US\$17.3 billion (+31.1%);
 - Net **transportation** expenses: US\$6 billion (+20.6%);
 - Net **interests** expenses: US\$19.4 billion (-11.1%);
 - **Profits and dividends** expenses: US\$24.5 billion (+16.4%).
- FDI net inflow: US\$80 billion (3.75% of GDP), allowing a comfortable funding of the current account deficit.
- Rollover rate: 100%.

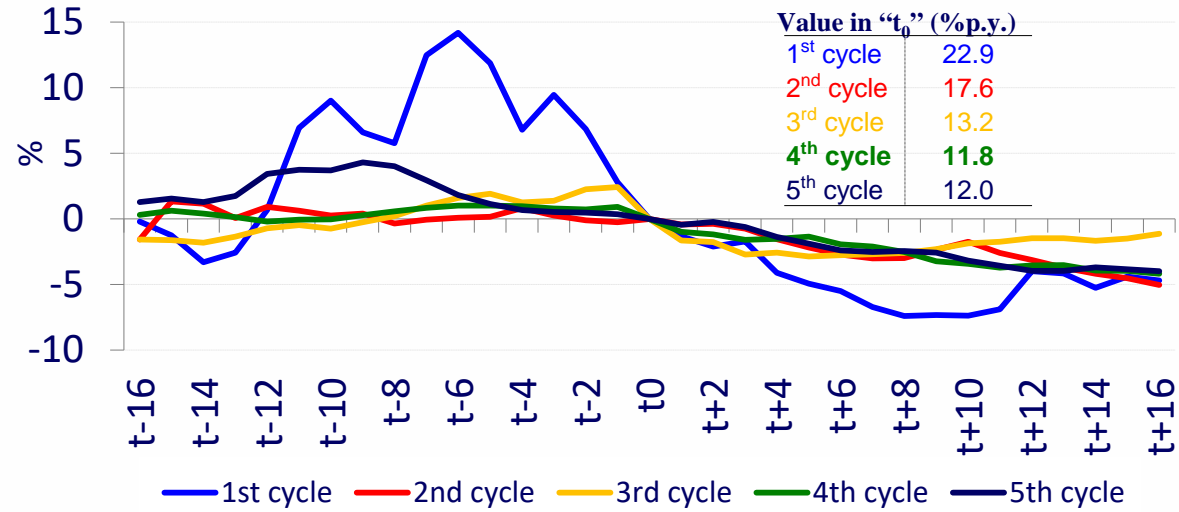
Box: Monetary Policy Cycles

- In general, the behavior of credit markets in this monetary easing cycle (interest rates, lending) is in line with the pattern of previous cycles. Some differences exist in some modalities.
- Monetary policy in the current easing cycle has been effective in reducing credit financing costs and in fostering the growth of new credit operations.

Selic rate variation in relation to t_0



2 years pre-DI swap rate variation in relation to t_0



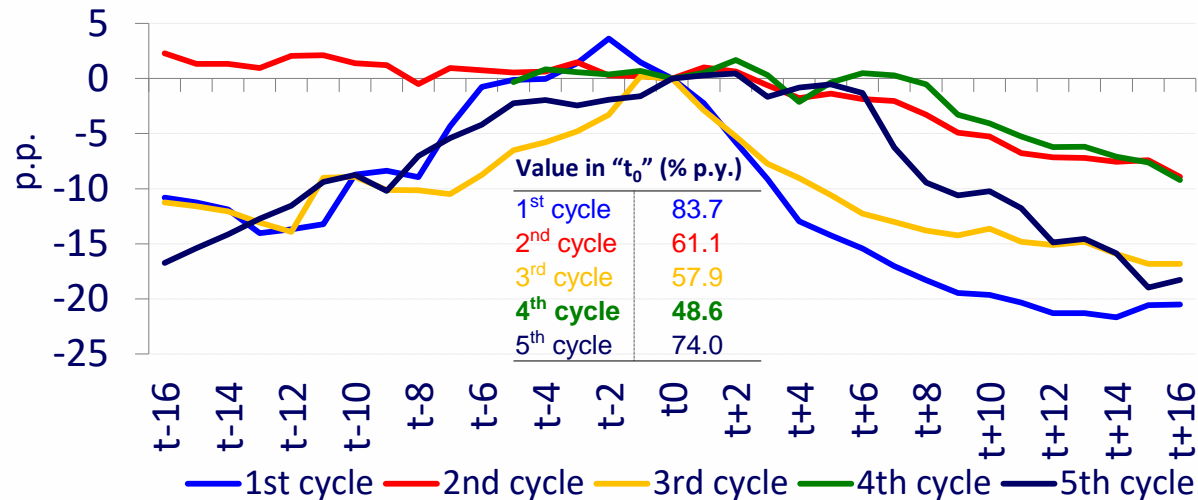
Box: Monetary Policy Cycles

Periods of monetary policy cycles

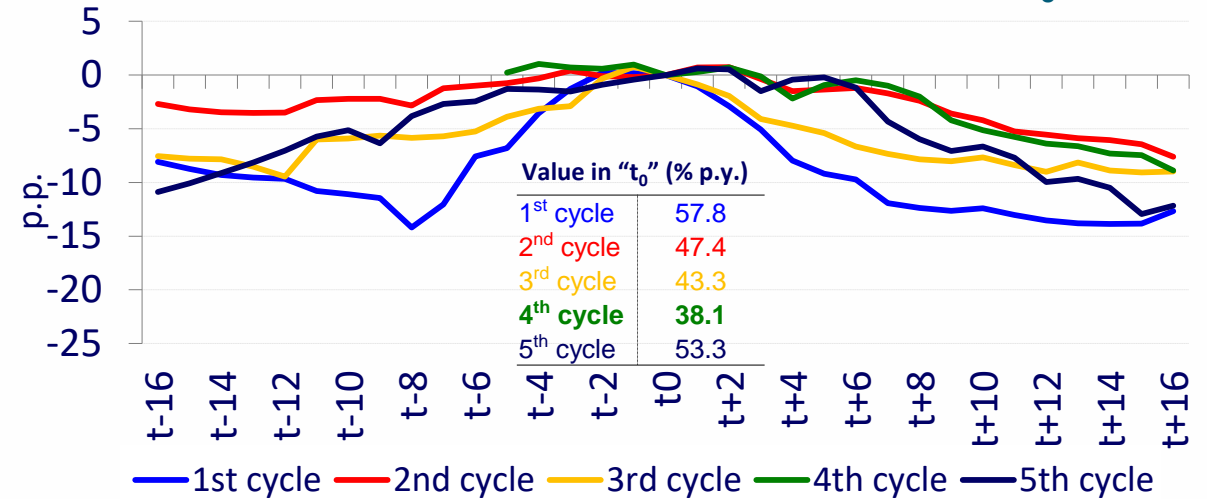
	t-16	t ⁰ ¹	t+16
1 ^o cycle	Jan/02	May/03	Sep/04
2 ^o cycle	Apr/04	Aug/05	Dec/06
3 ^o cycle	Aug/07	Dec/08	Apr/10
4 ^o cycle	Apr/10	Aug/11	Dec/12
5 ^o cycle (current)	May/15	Sep/16	Jan/18

1/ For each cycle, t₀ refers to month immediately preceding the first fall of the Selic rate.

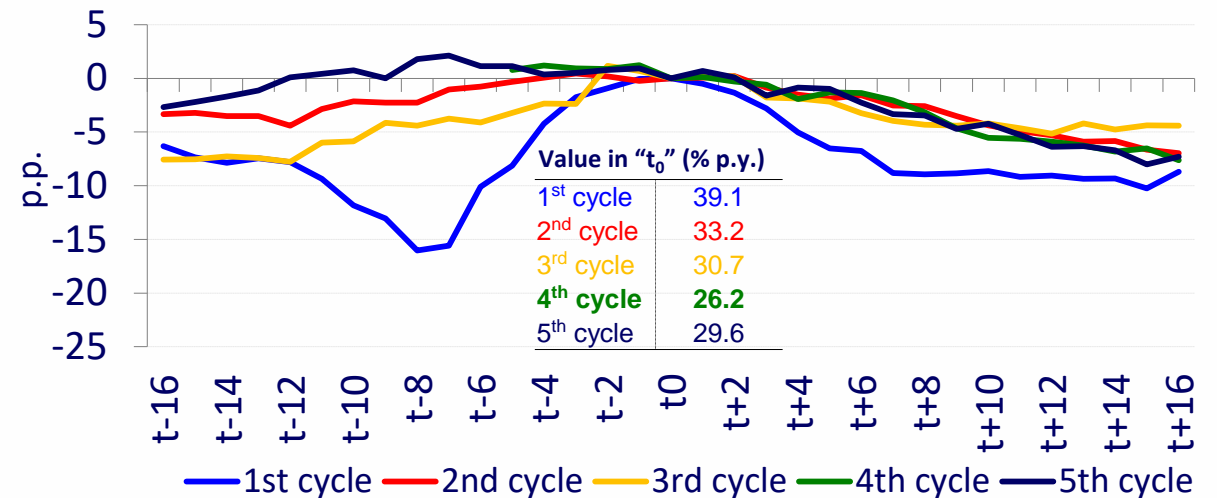
Free interest rates variation (Indiv.) in relation to t₀



Free interest rates variation (total) in relation to t₀



Free interest rates variation (Corp.) in relation to t₀



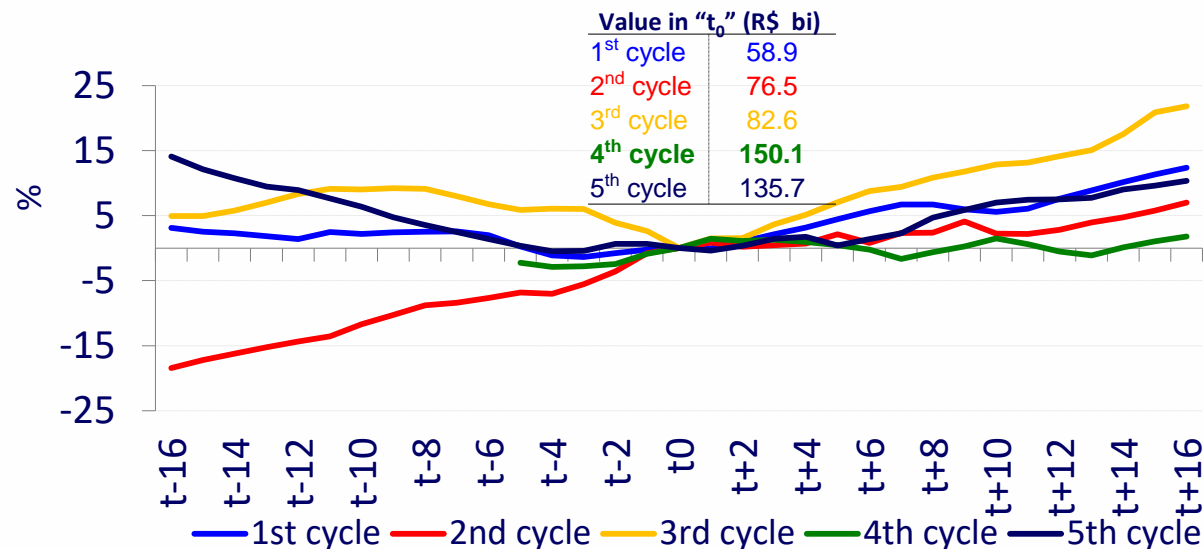
Box: Monetary Policy Cycles

Periods of monetary policy cycles

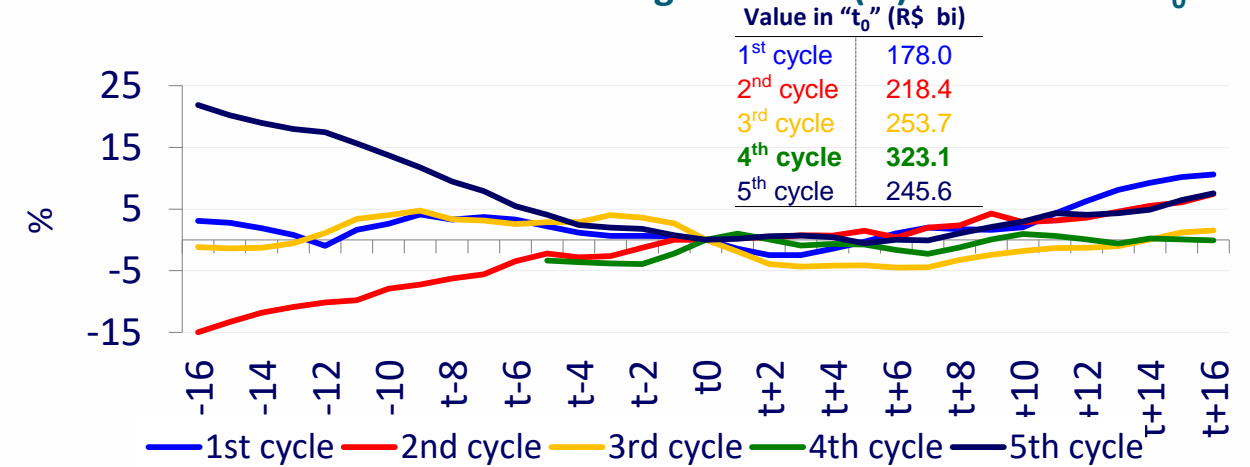
	t-16	t ₀ ¹	t+16
1 ^o cycle	Jan/02	Mai/03	Sep/04
2 ^o cycle	Apr/04	Aug/05	Dec/06
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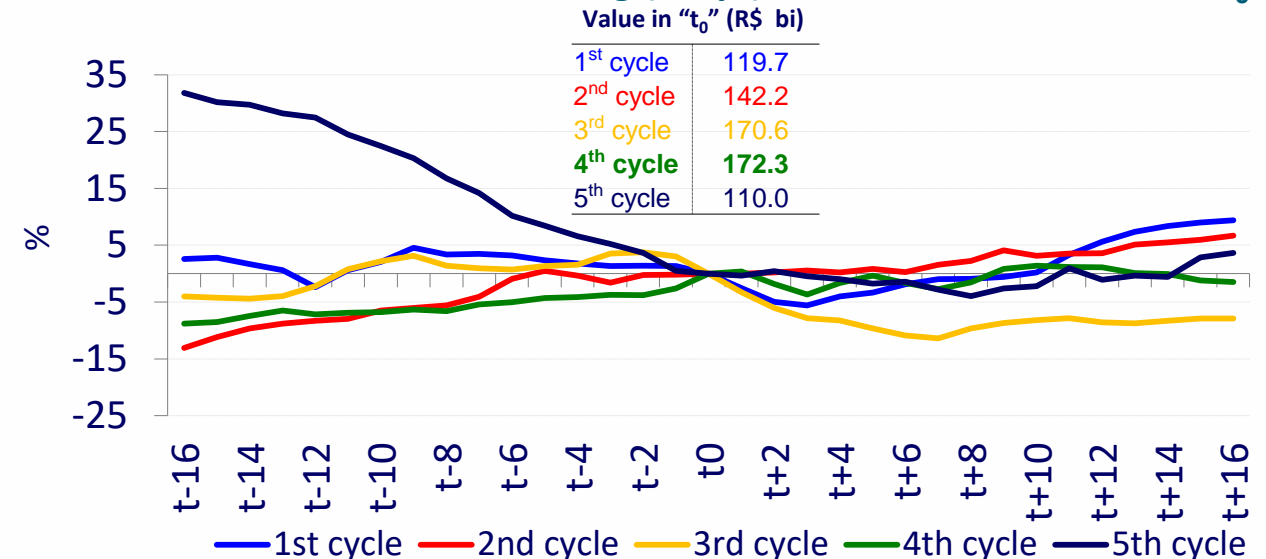
Non-earmarked credit lending (Indiv.) % variation in relation to t₀



Non-earmarked credit lending variation (%) in relation to t₀



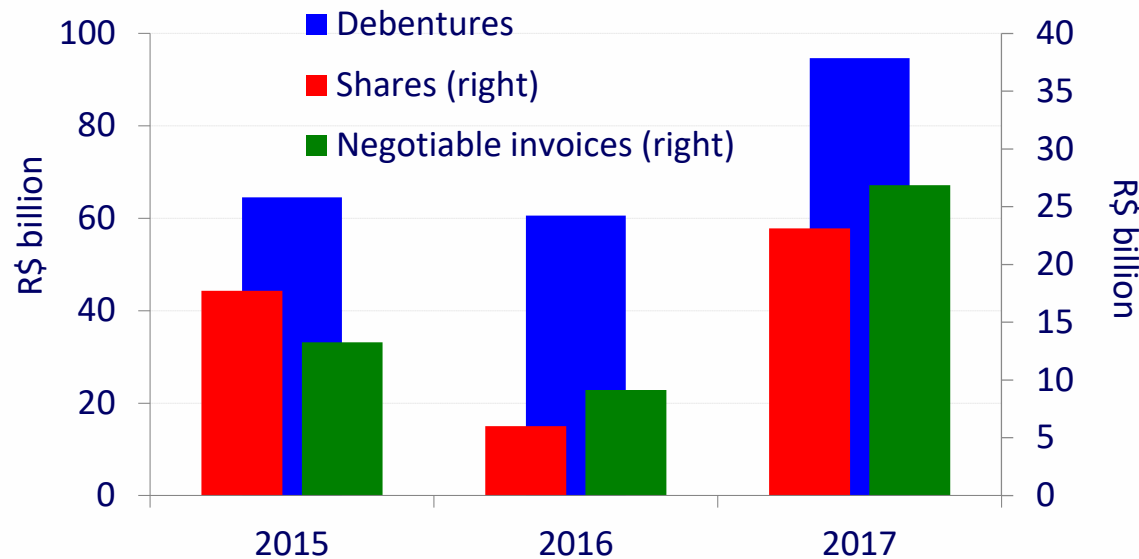
Non-earmarked credit lending (Corp.) % variation in relation to t₀



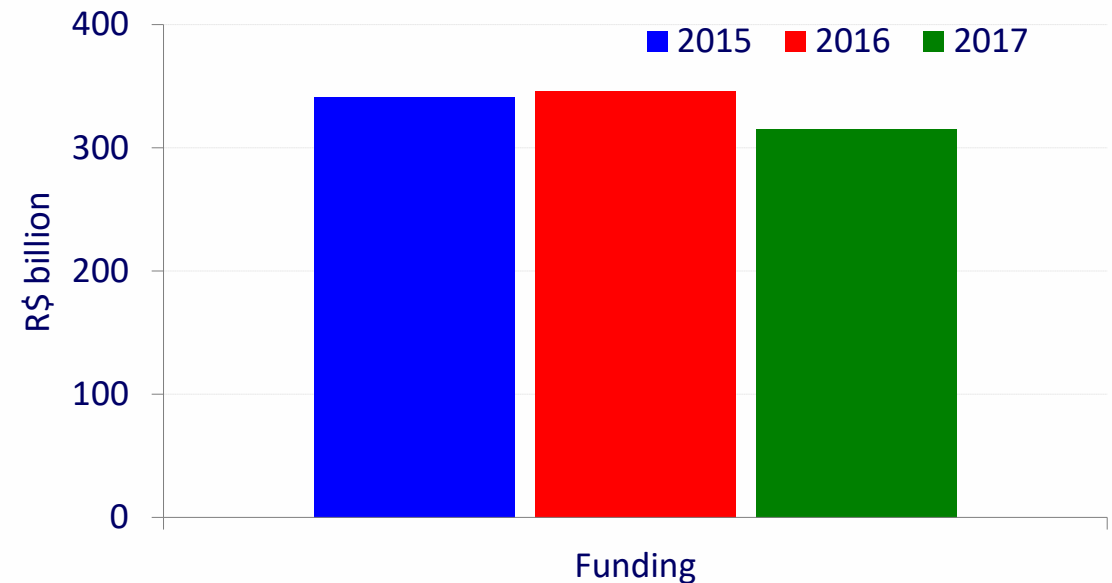
Box: Financing and Indebtedness – Corporate

- Capital markets and external financing dynamism in 2017; contraction in SFN lendings, mainly in the earmarked segment;
- Increased broad indebtedness of companies that borrowed from capital markets or that internalized external resources in 2017, despite the reduction of the SFN indebtedness.
- This movement denotes the substitution of funding sources.

Corporate financing

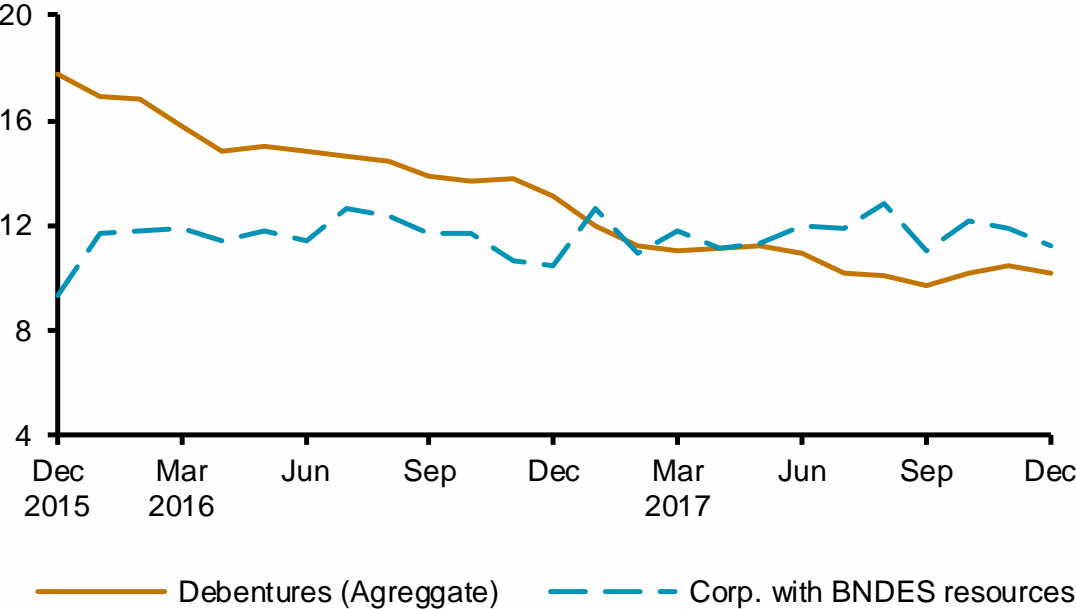


Corporate financing



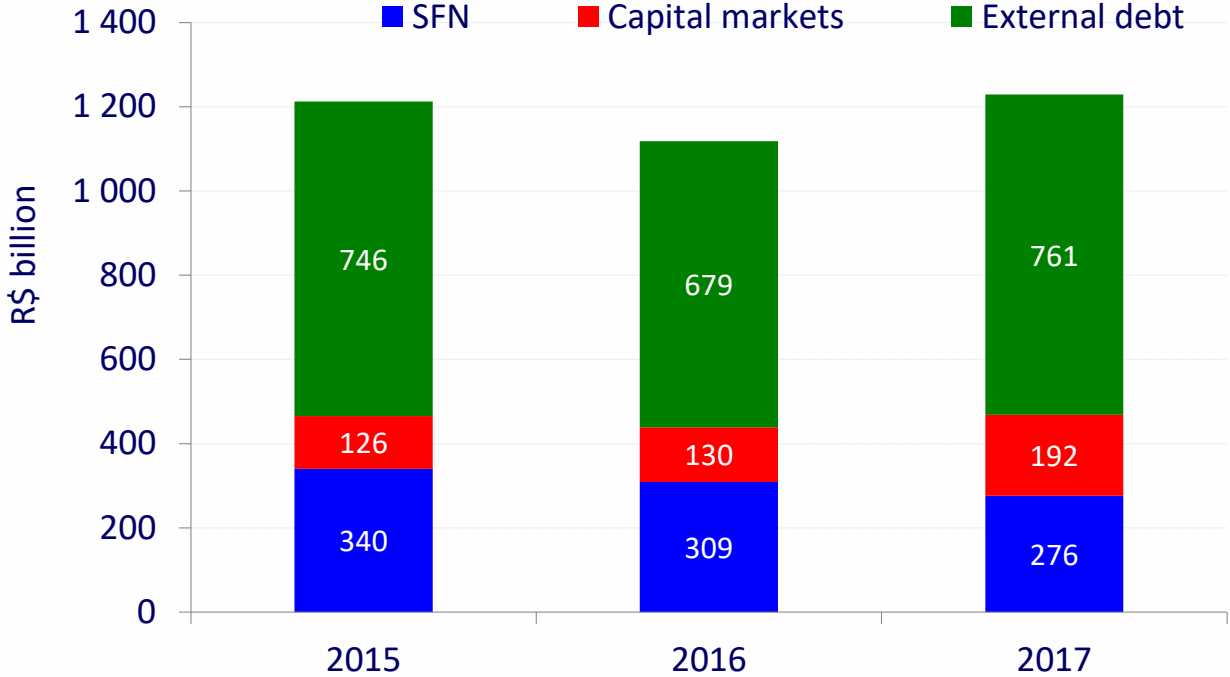
Box: Financing and Indebtedness – Corporate

Financing costs (% p.y.)



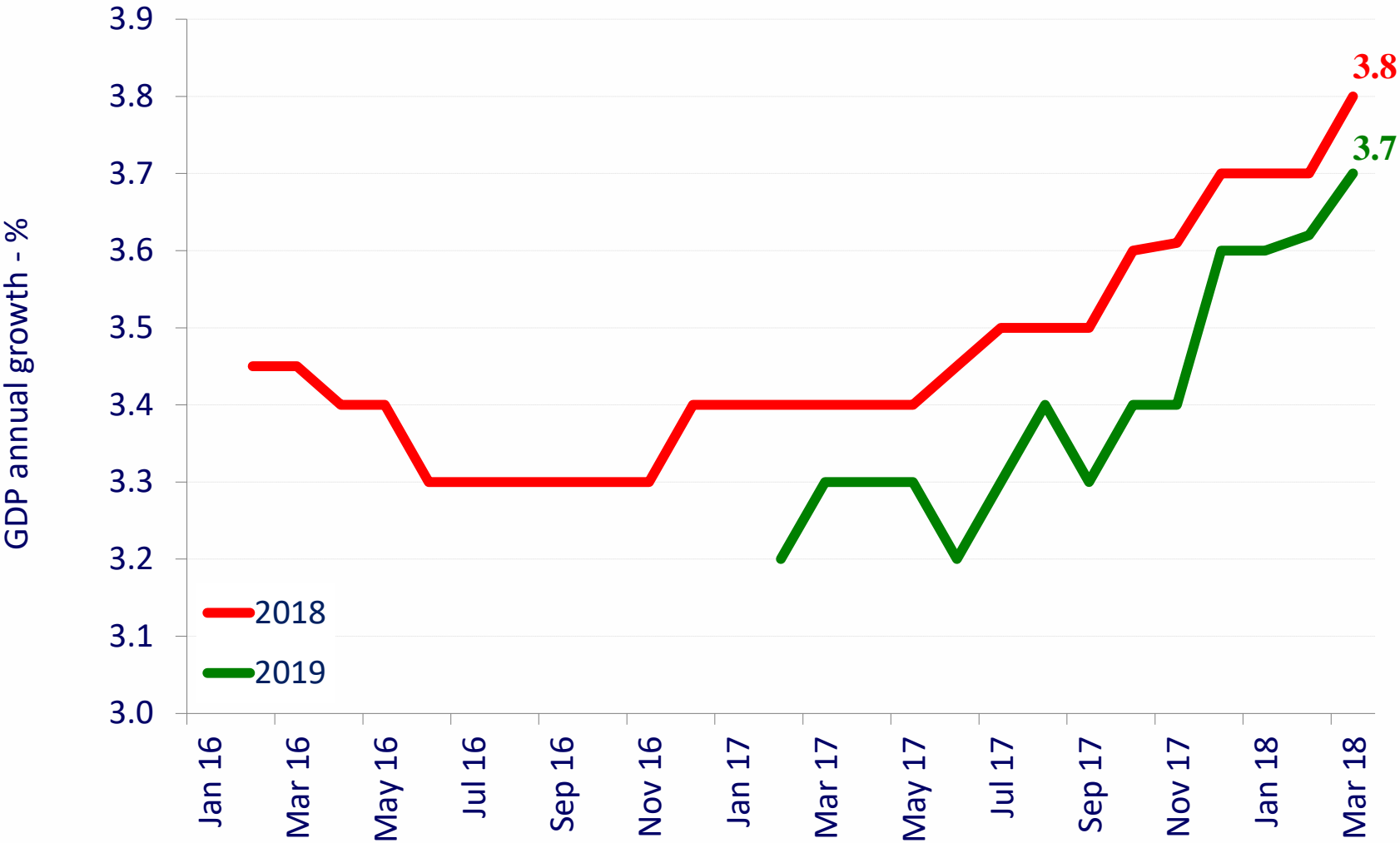
Sources: BCB and Cemec/Fipe

Indebtedness – Selected group



ii. Global Outlook

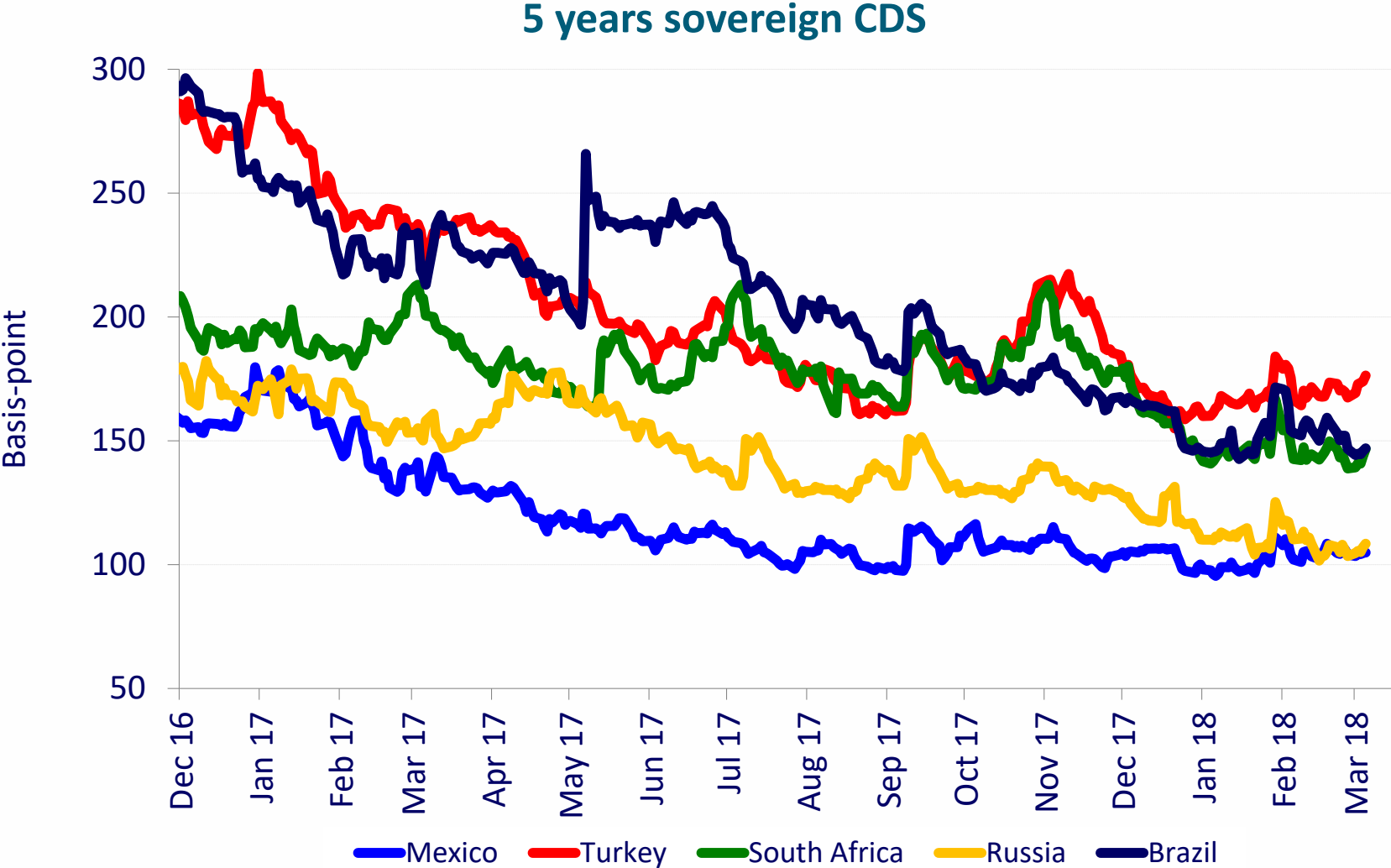
Expectations of Moderate Global Growth



Up to Mar/16

Source: Bloomberg

Favorable outlook for emerging economies

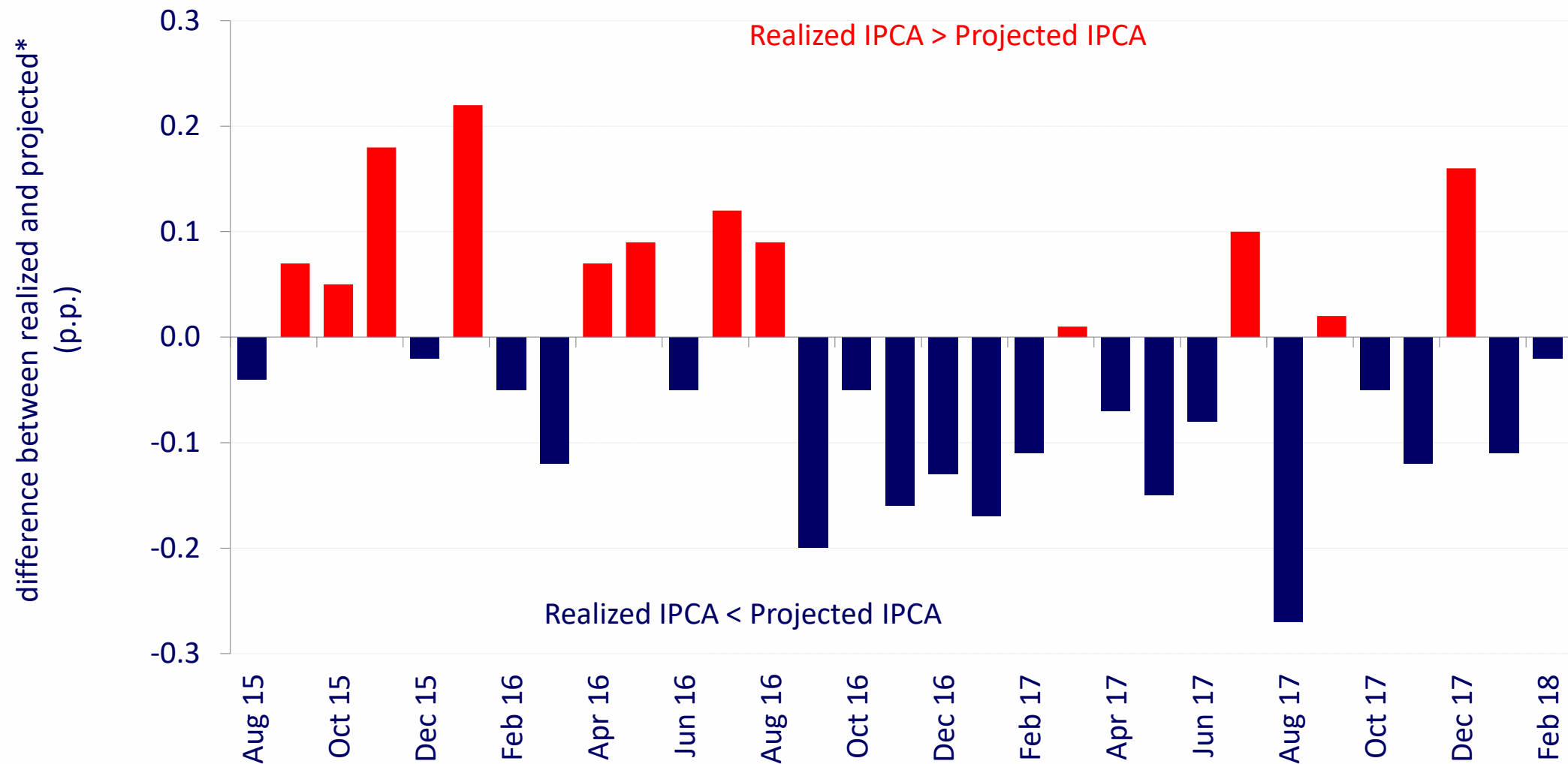


Source: Bloomberg

Up to Mar/16

iii. Inflation

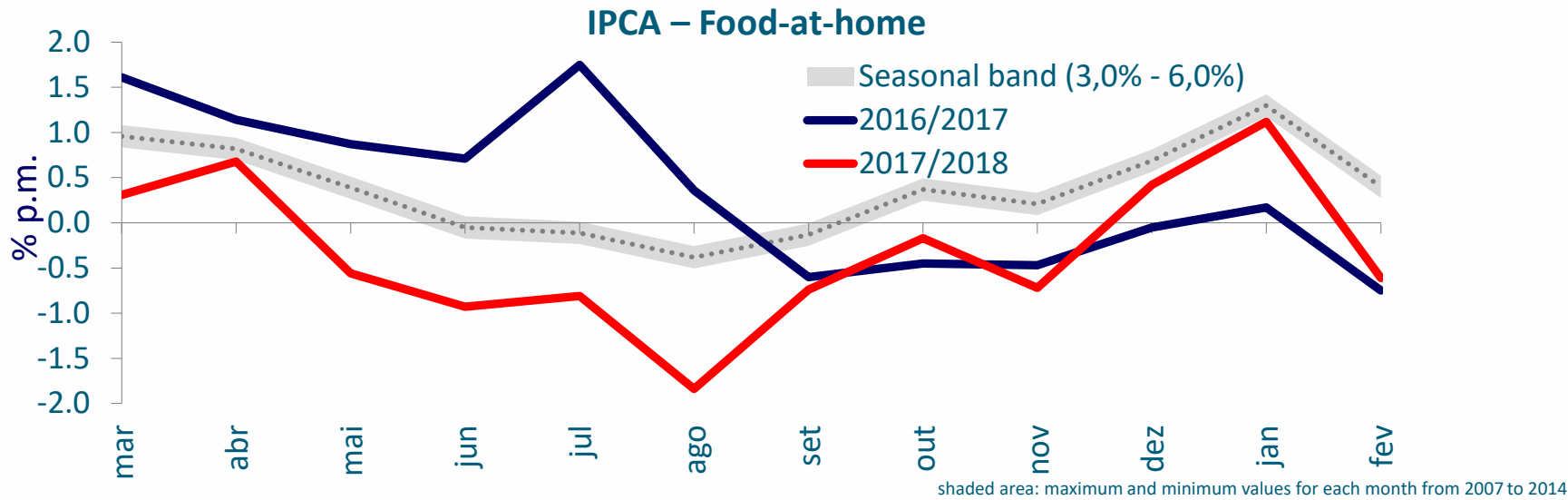
Monthly IPCA – Expectations x Projections



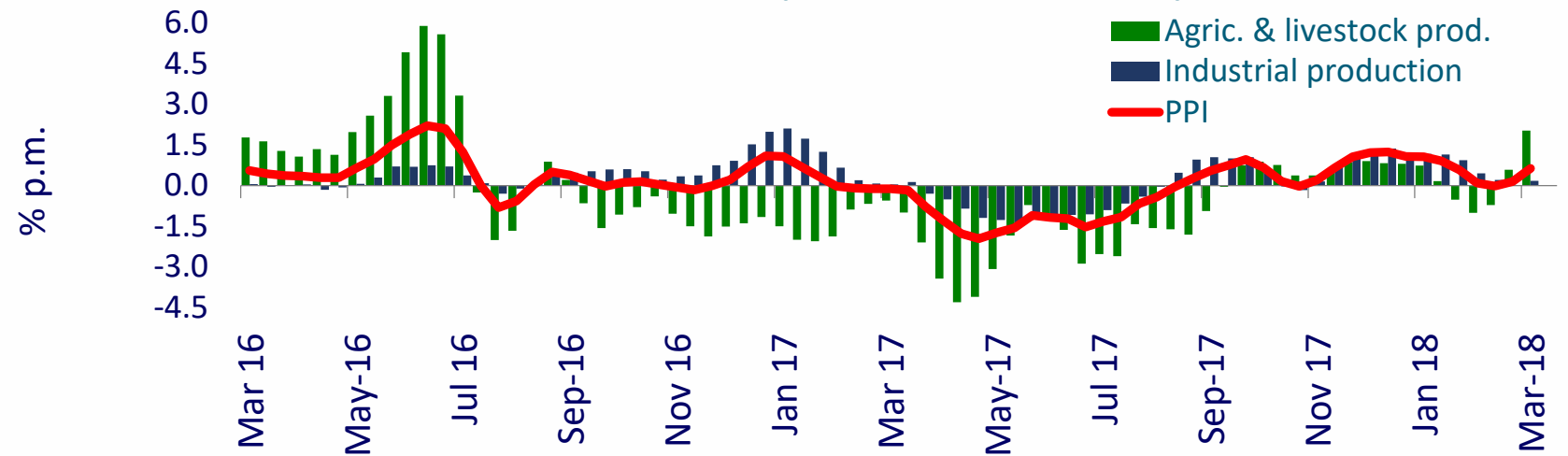
*projected at reference dates of the 'Top 5 for IPCA'

Sources: IBGE and BCB

Food Disinflation



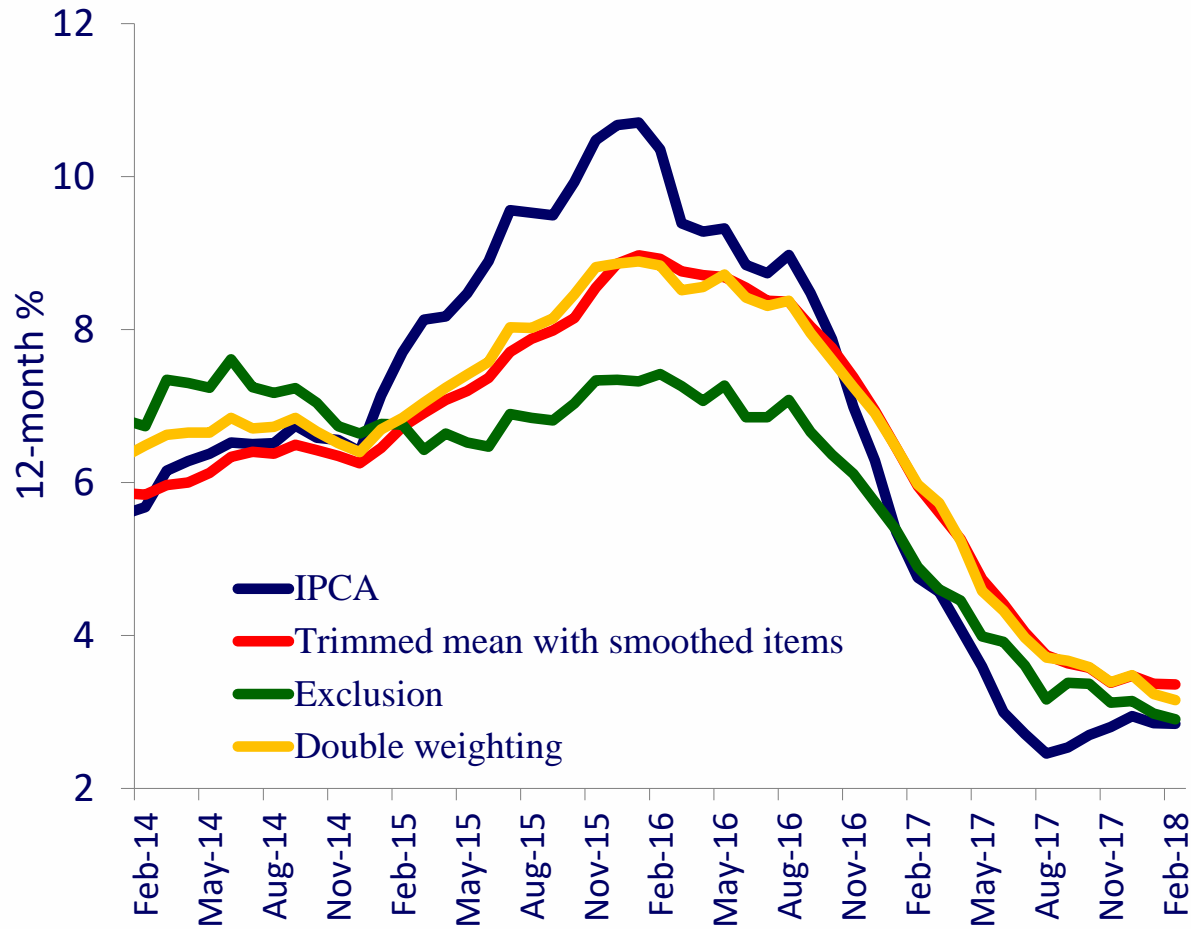
PPI – Total (10, M and DI – Chained)



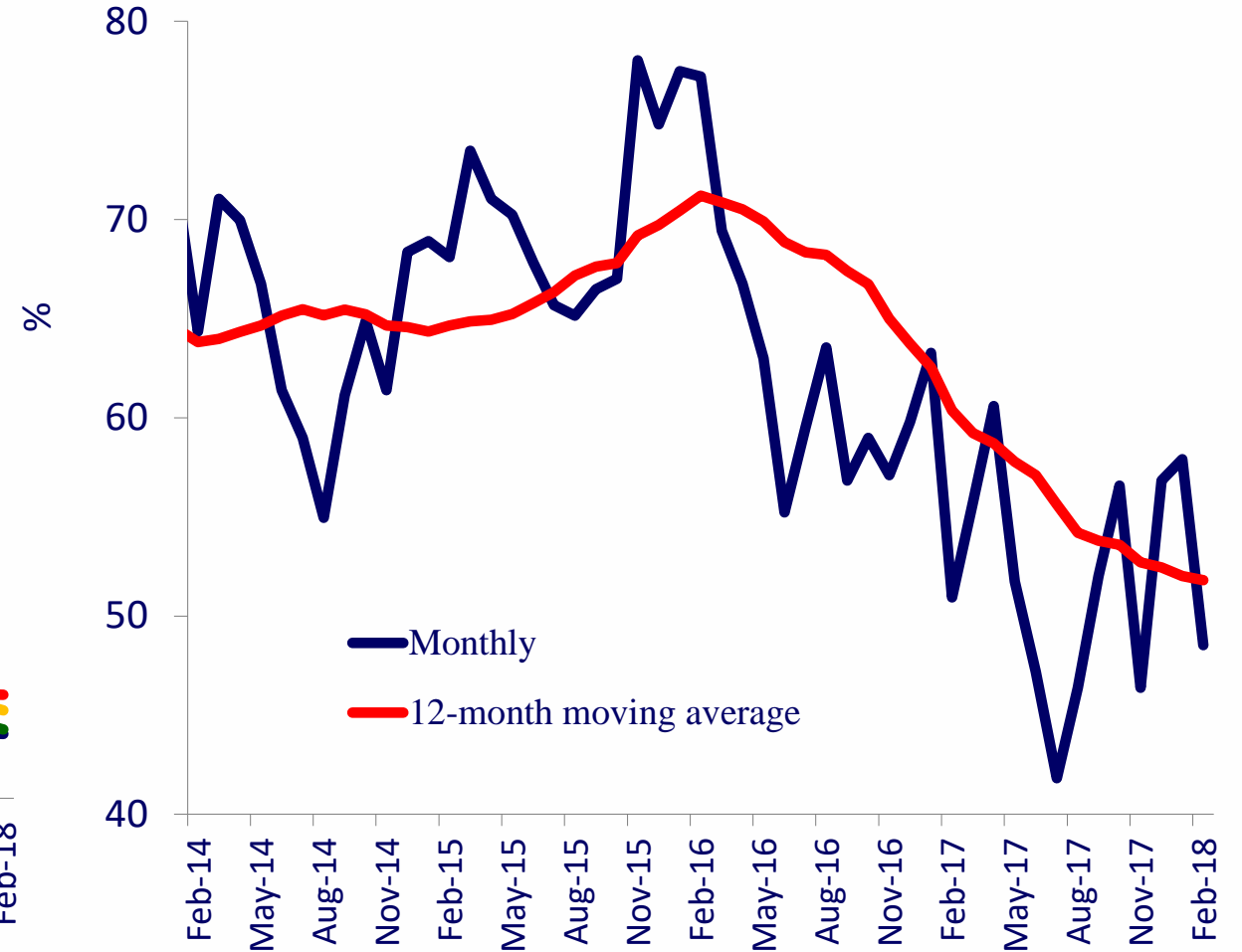
Sources: IBGE, FGV and BCB

Disinflation

Headline and Core Measures

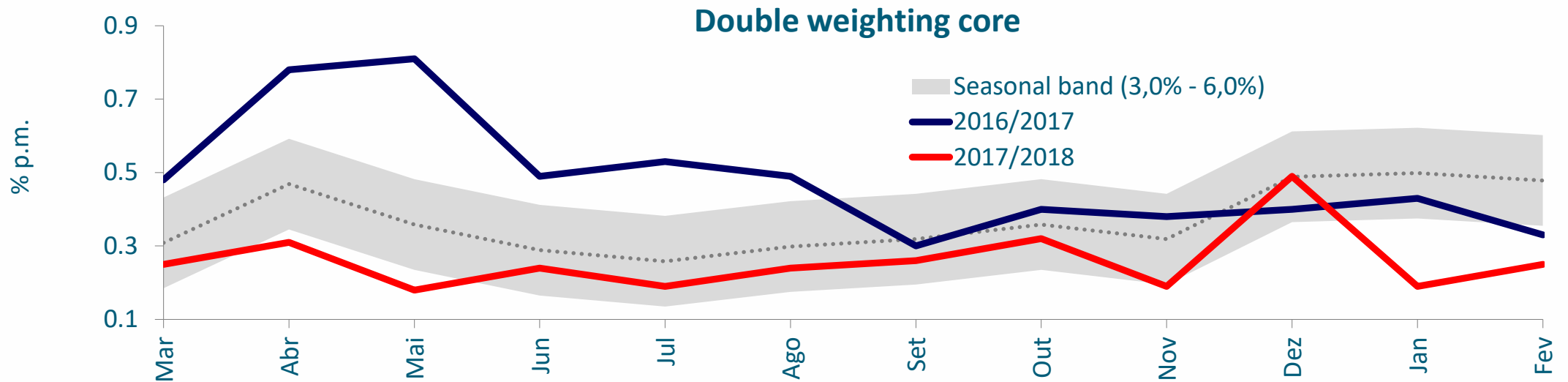
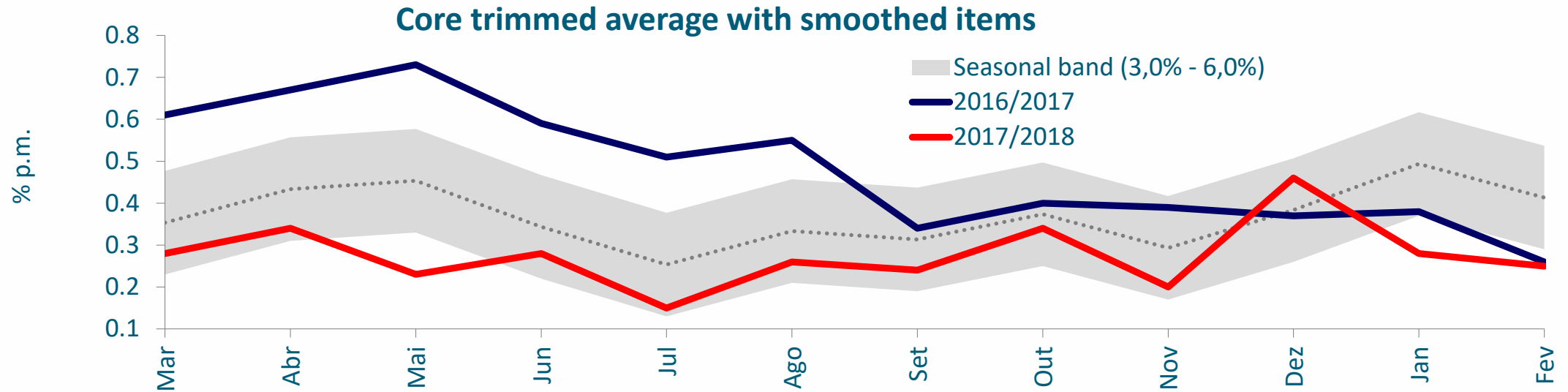


IPCA Diffusion Index



Source: IBGE

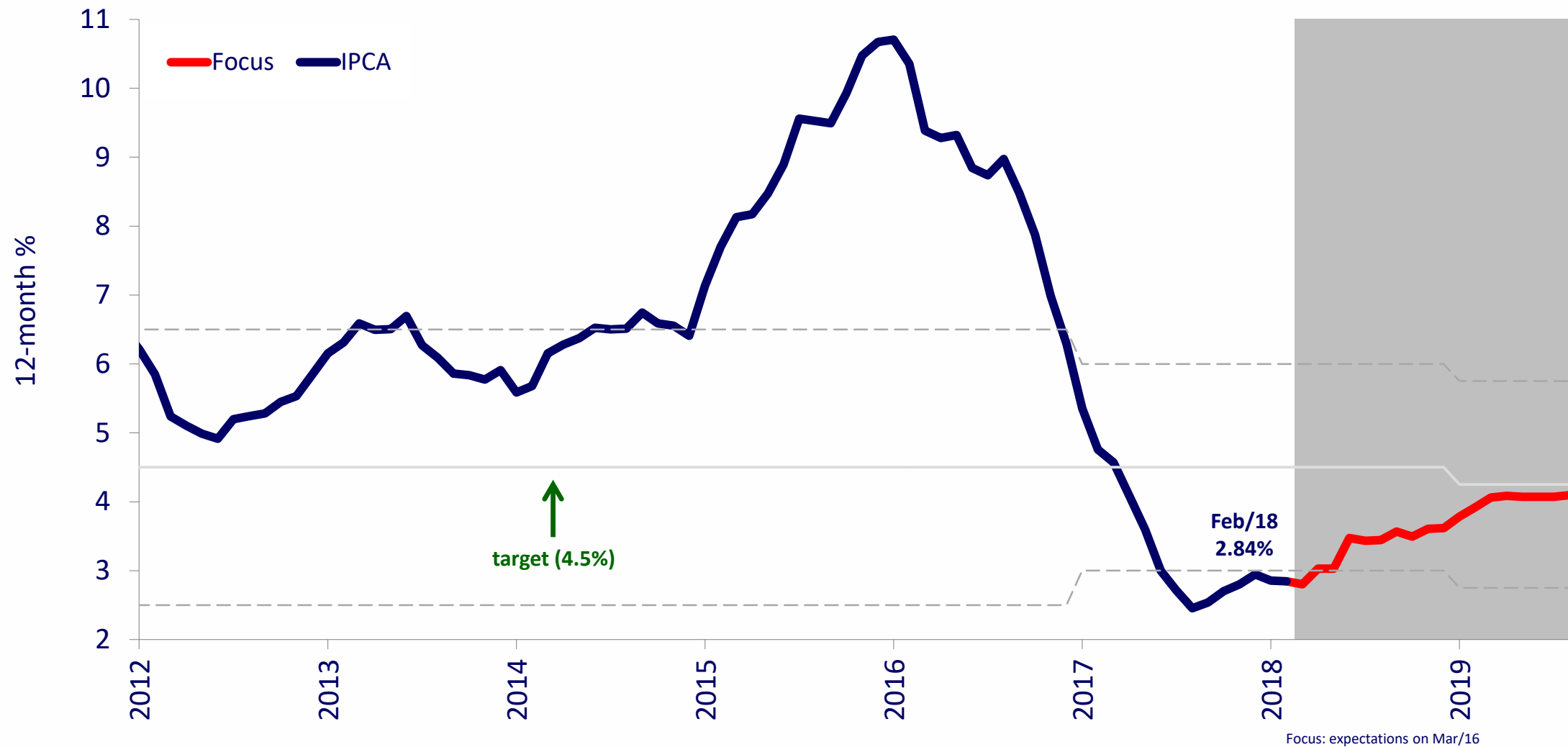
Underlying inflation measures



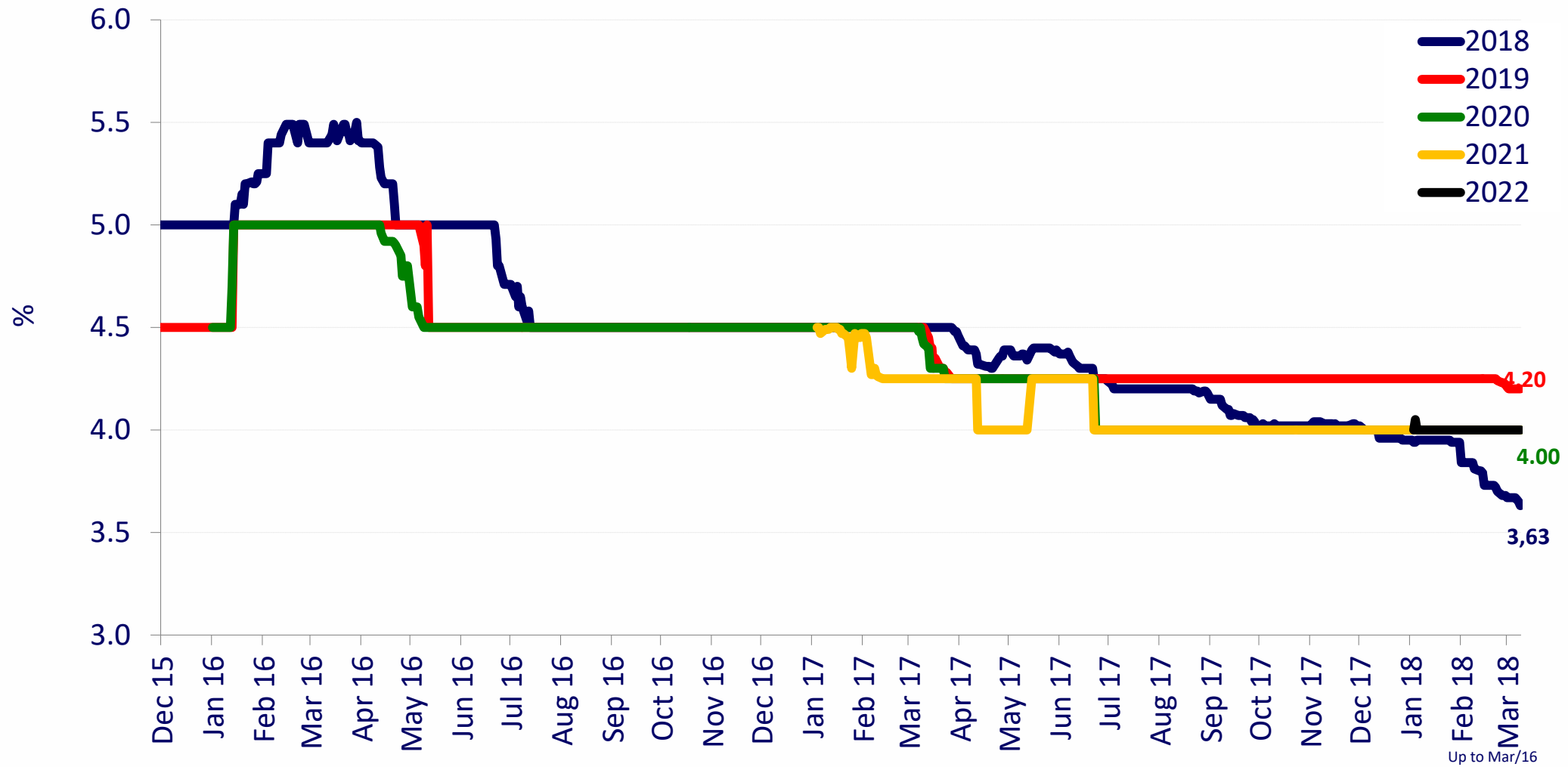
Sources: IBGE, FGV and BCB

Seasonal band: seasonal pattern compatible with inflation target

Consumer's price



Market expectations evolution for IPCA 2018-2022



III. Conditional Projections

Short-term revisions and projections

IPCA – Inflationary surprise

	% variation					
	2017	2018				
	Dec	Jan	Feb	quarter	year	12 months up to Feb.
Copom's scenario ^{1/}	0.29	0.53	0.47	1.30	1.00	3.09
IPCA (actual)	0.44	0.29	0.32	1.05	0.61	2.84
Surprise (p.p)	0.15	-0.24	-0.15	-0.25	-0.39	-0.25

1/ Scenario at the cut-off date of the December 2017 Inflation Report

IPCA – Short-term projections

	% variation				
	2018				
	Mar	Apr	May	quarter	12 months up to May
Copom's scenario ^{1/}	0.20	0.33	0.26	0.79	2.94

1/ Scenario at the cut-off date

Sources: IBGE and BCB

Conditional inflation projections

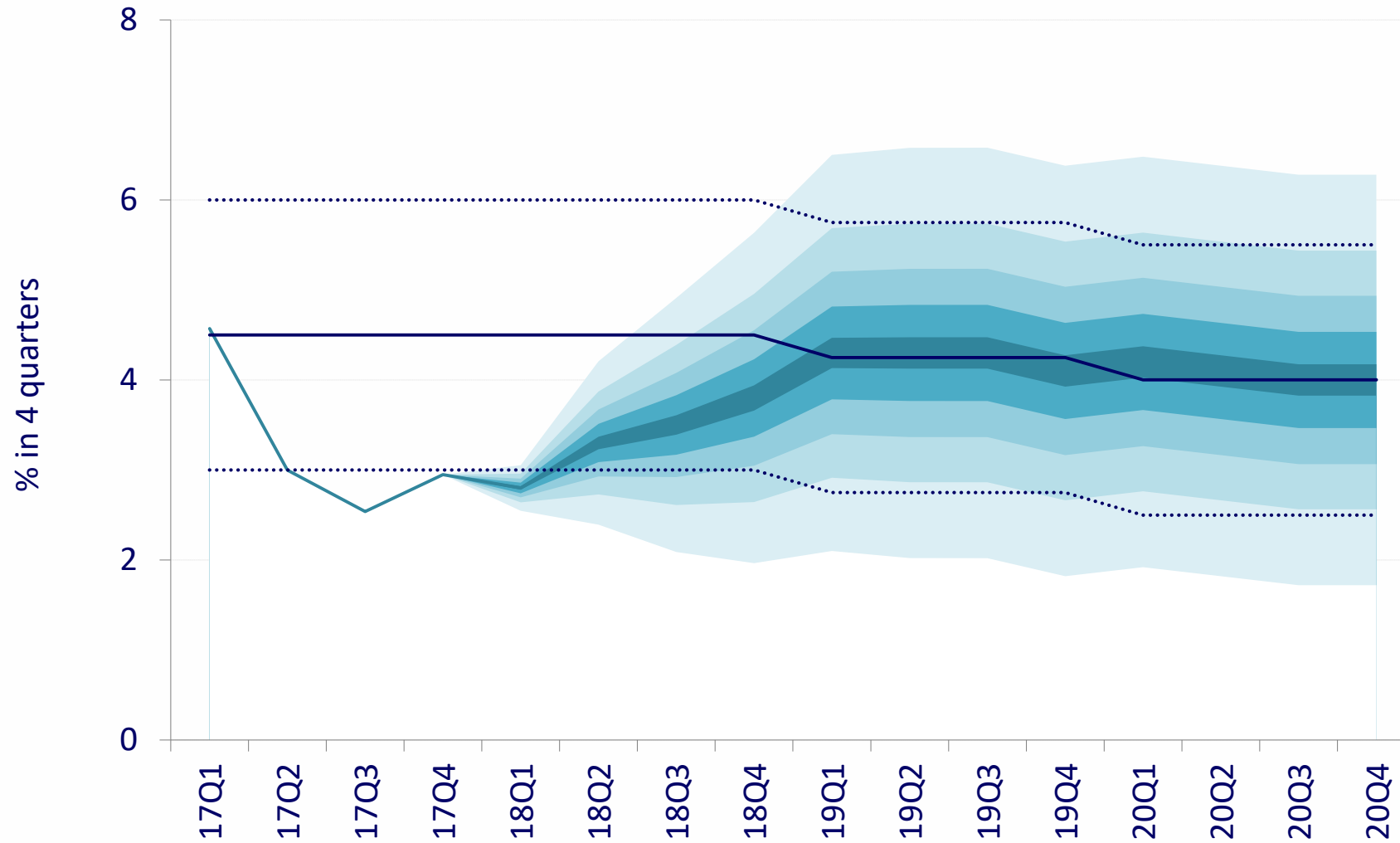
Scenario with interest and FX rates from the Focus survey

Period	IR – December 2017	IR – March 2018
2018 1	3.2	2.8
2018 2	3.7	3.3
2018 3	3.8	3.5
2018 4	4.2	3.8
2019 1	4.2	4.3
2019 2	4.2	4.3
2019 3	4.3	4.3
2019 4	4.2	4.1
2020 1	4.2	4.2
2020 2	4.2	4.1
2020 3	4.1	4.0
2020 4	4.1	4.0

Obs.: inflation accumulated in 4 quarters (%)

Conditional inflation projections

Scenario with interest and FX rates from the Focus survey



Conditional inflation projections

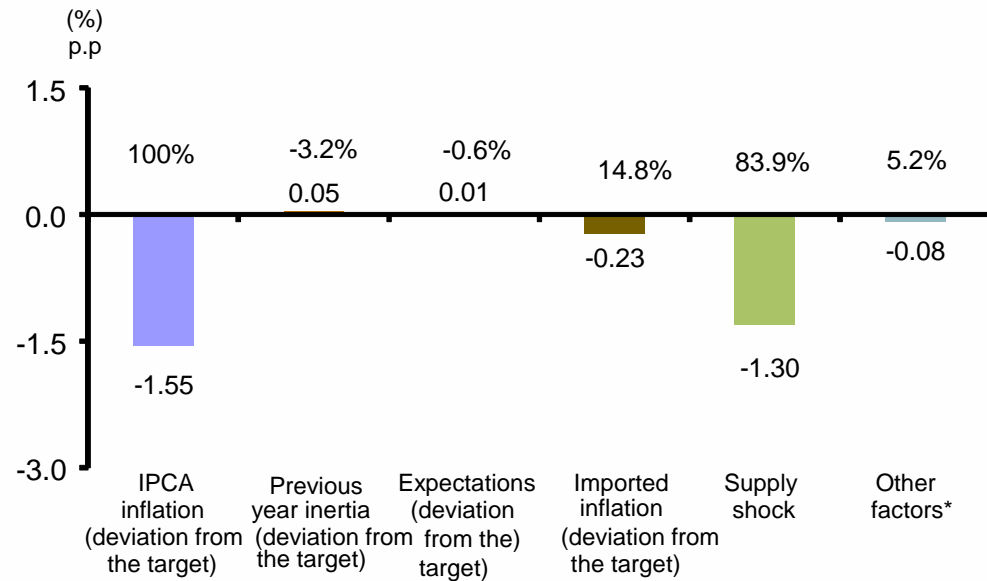
Reported scenarios

Period		Focus FX and interest rates	Constant FX and Focus interest rates	Constant FX and interest rates	Constant interest rates and Focus FX
2018	1	2.8	2.8	2.8	2.8
2018	2	3.3	3.3	3.3	3.3
2018	3	3.5	3.4	3.4	3.5
2018	4	3.8	3.6	3.6	3.7
2019	1	4.3	4.1	4.1	4.2
2019	2	4.3	4.1	4.1	4.3
2019	3	4.3	4.1	4.1	4.3
2019	4	4.1	3.9	4.0	4.2
2020	1	4.2	3.9	4.1	4.3
2020	2	4.1	3.8	4.1	4.4
2020	3	4.0	3.8	4.1	4.4
2020	4	4.0	3.8	4.1	4.4

Obs.: inflation accumulated in 4 quarters (%)

Box: 2017 Inflation breakdown

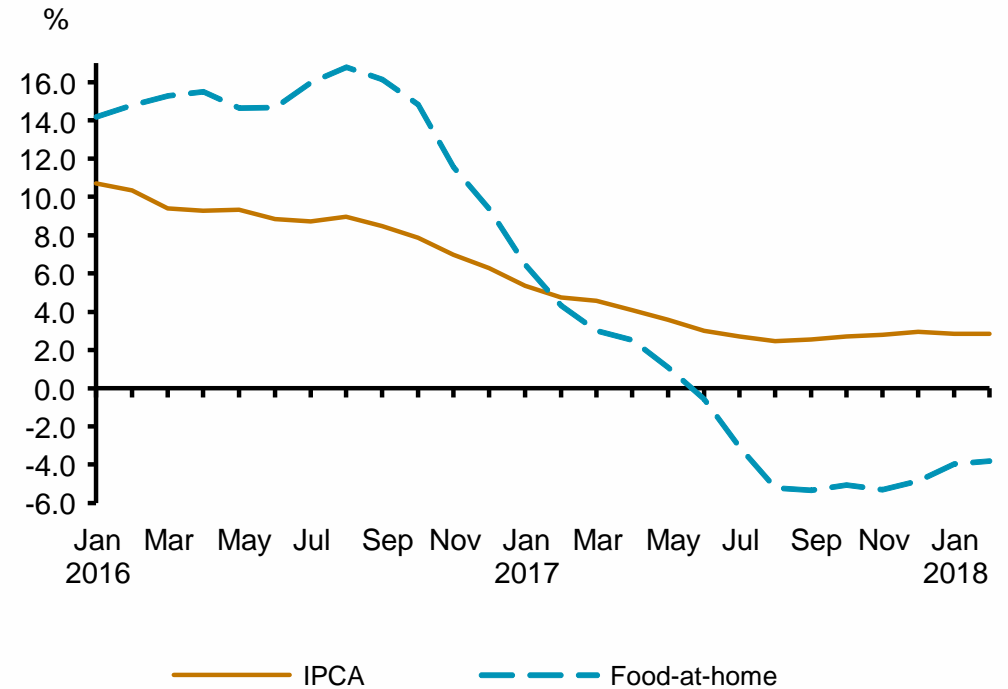
Breakdown of 2017 inflation rate deviation from the target



* Contribution of IPCA inflation as a deviation from the target after excluding the following factors: inertia associated with the portion of inflation in the previous year that deviated from the target; expectations as a deviation from the target; imported inflation as a deviation from the target; and supply shock.

Food-at-home inflation and IPCA

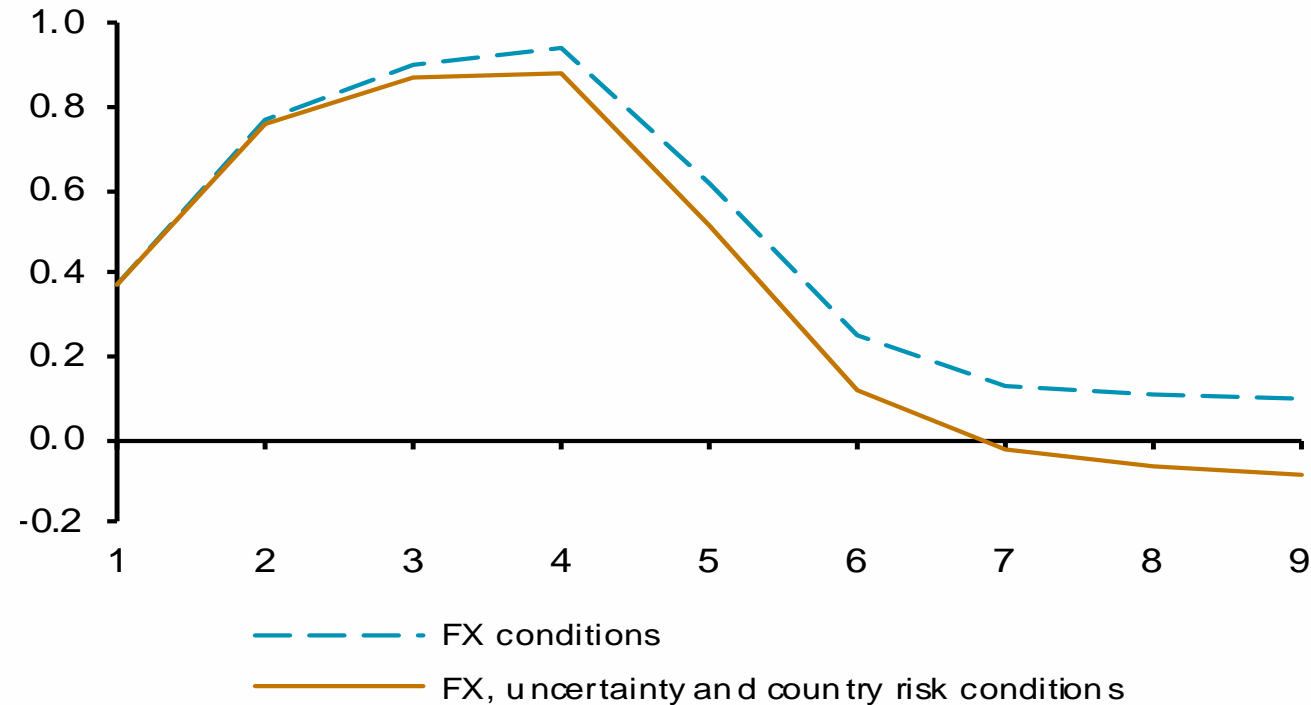
(12-month accumulated)



Box: Internally consistent conditioning of FX, economic uncertainty and country risk premium

Figure 4 – Response to inflationary shocks in two conditioning scenarios ^{1/}

Accumulated IPCA in 4 quarters (p.p.)



^{1/} Shock magnitude: 10% permanent increase in FX

Conduct of Monetary Policy - 1

- At its February meeting (212th Meeting), the Copom unanimously decided to reduce the basic interest rate by 0.25 percentage point to 6.50 percent per year.
- The Committee judged that this decision was consistent with convergence of inflation to target over the relevant horizon for the conduct of monetary policy, which includes 2018 and, with smaller and gradually increasing weight, 2019.

Conduct of Monetary Policy - 2

- On the occasion, the Committee communicated that its baseline scenario involved risks in both directions:
 - On the one hand, the possible propagation, through inertial mechanisms of low inflation levels, may lead to a lower-than-expected prospective inflation trajectory.
 - On the other hand, frustration of expectations regarding the continuation of reforms and necessary adjustments in the Brazilian economy may affect risk premia and increase the path for inflation over the relevant horizon for the conduct of monetary policy. This risk intensifies in the case of a reversal of the current benign global outlook for emerging economies.

Conduct of Monetary Policy - 3

- The Copom reiterated that economic conditions prescribe accommodative monetary policy, i.e., interest rates below the structural rate.
- The Copom understands that the process of reforms and necessary adjustments in the Brazilian economy contributes to the reduction of its structural interest rate, estimates of which will be continuously reassessed by the Committee.

Conduct of Monetary Policy - 4

- The Copom highlights that the evolution of the baseline scenario made it appropriate to reduce the Selic rate by 0.25%. For the next meeting, at this time the Copom views an additional moderate monetary easing as appropriate. The Committee judges that this additional stimulus mitigates the risk of delayed convergence of inflation toward the targets. This view regarding the next Copom meeting might change in favor of the interruption of the monetary easing process, if risk mitigation proves unnecessary. Beyond the next meeting, absent relevant additional changes to the baseline scenario and balance of risks, the Copom deems appropriate to interrupt the monetary easing process, with the aim of evaluating next steps, in light of the relevant horizon for monetary policy at that time. The Copom emphasizes that the next steps in the conduct of monetary policy will continue to depend on the evolution of economic activity, the balance of risks, possible reassessments of the extension of the cycle, and on inflation projections and expectations.

Conduct of Monetary Policy - 5

- The Copom understands that monetary policy has to balance two dimensions: reacting to ensure that inflation converges to target at a proper pace and, at the same time, guaranteeing that the achievement of a low inflation environment endures, even in the event of adverse shocks. The Copom reaffirms that monetary policy has the flexibility to react to risks in both directions.

Inflation expectations

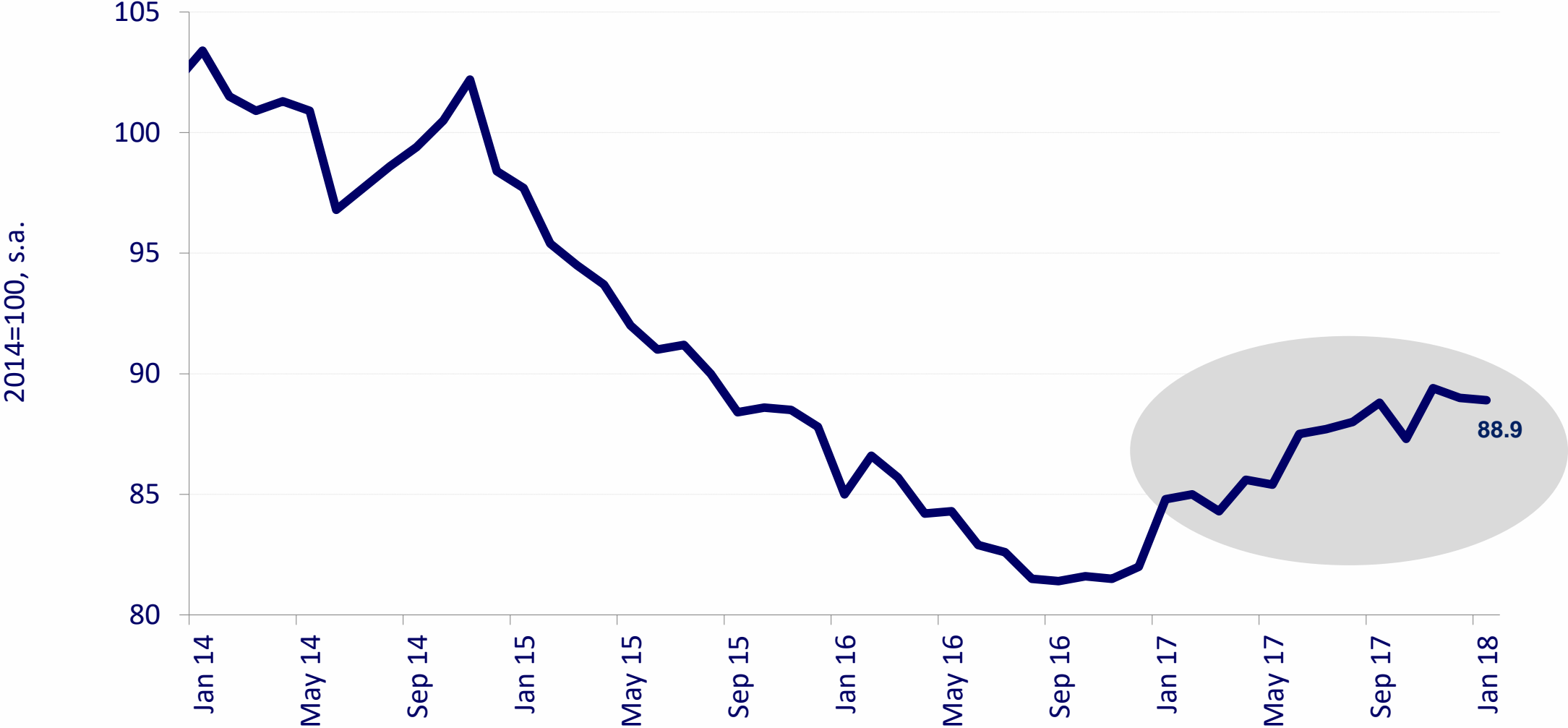
Quarterly Inflation Report

Carlos Viana de Carvalho

March 2018

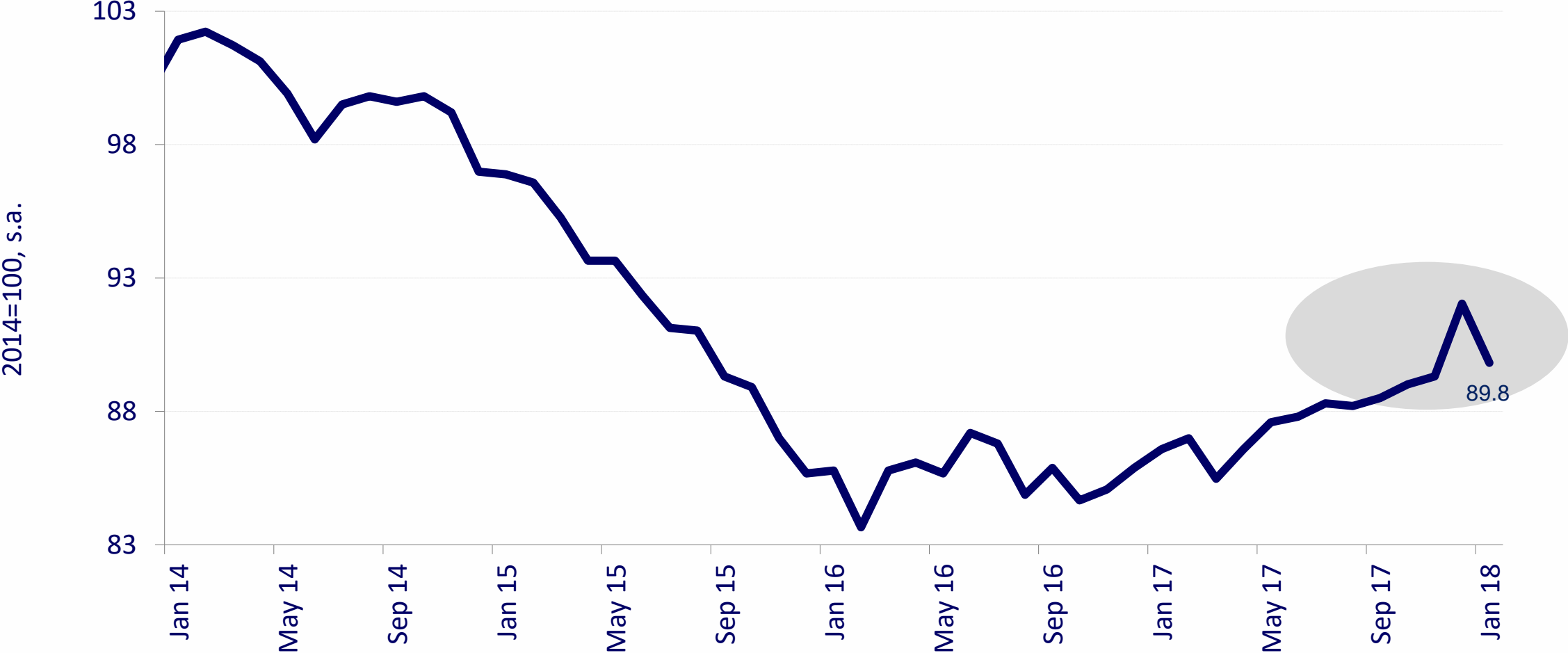
Additional material

Broad retail sales



Source: IBGE

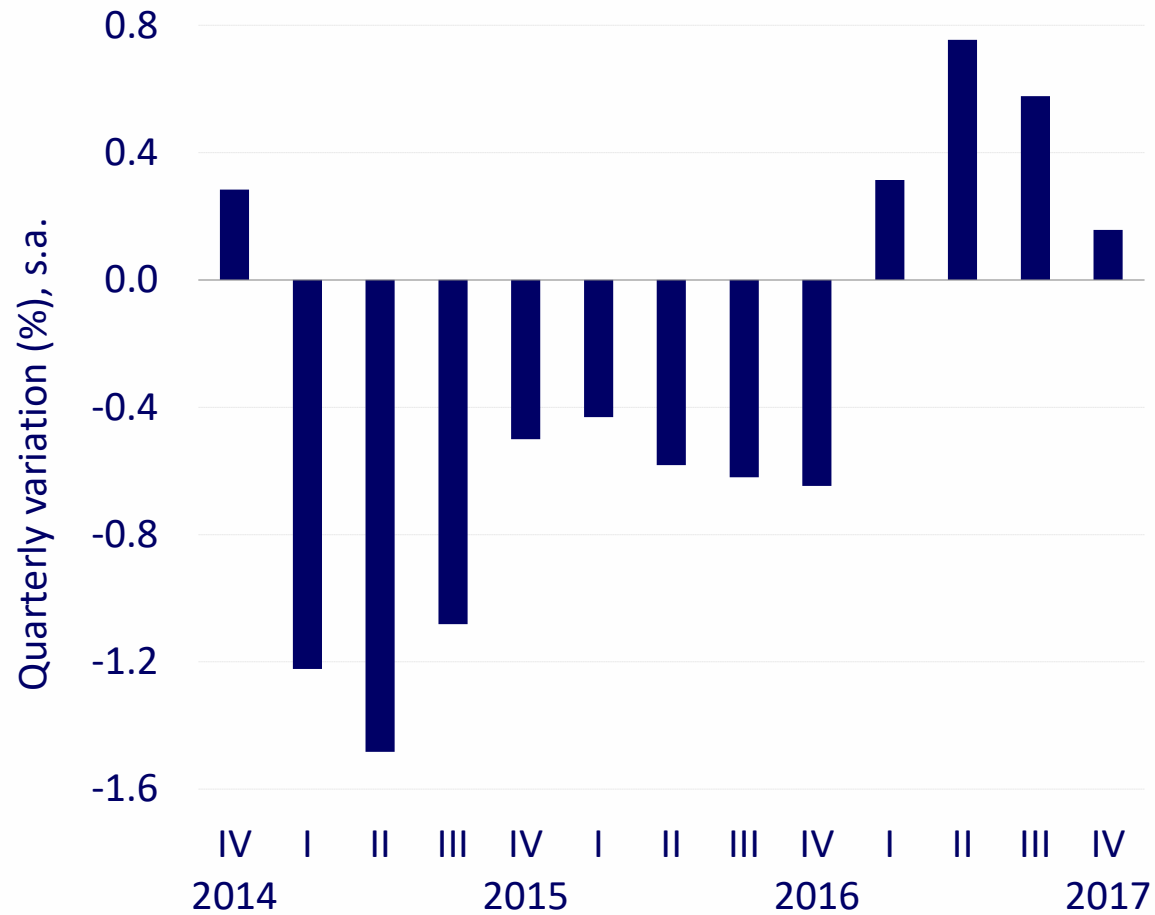
Manufacturing



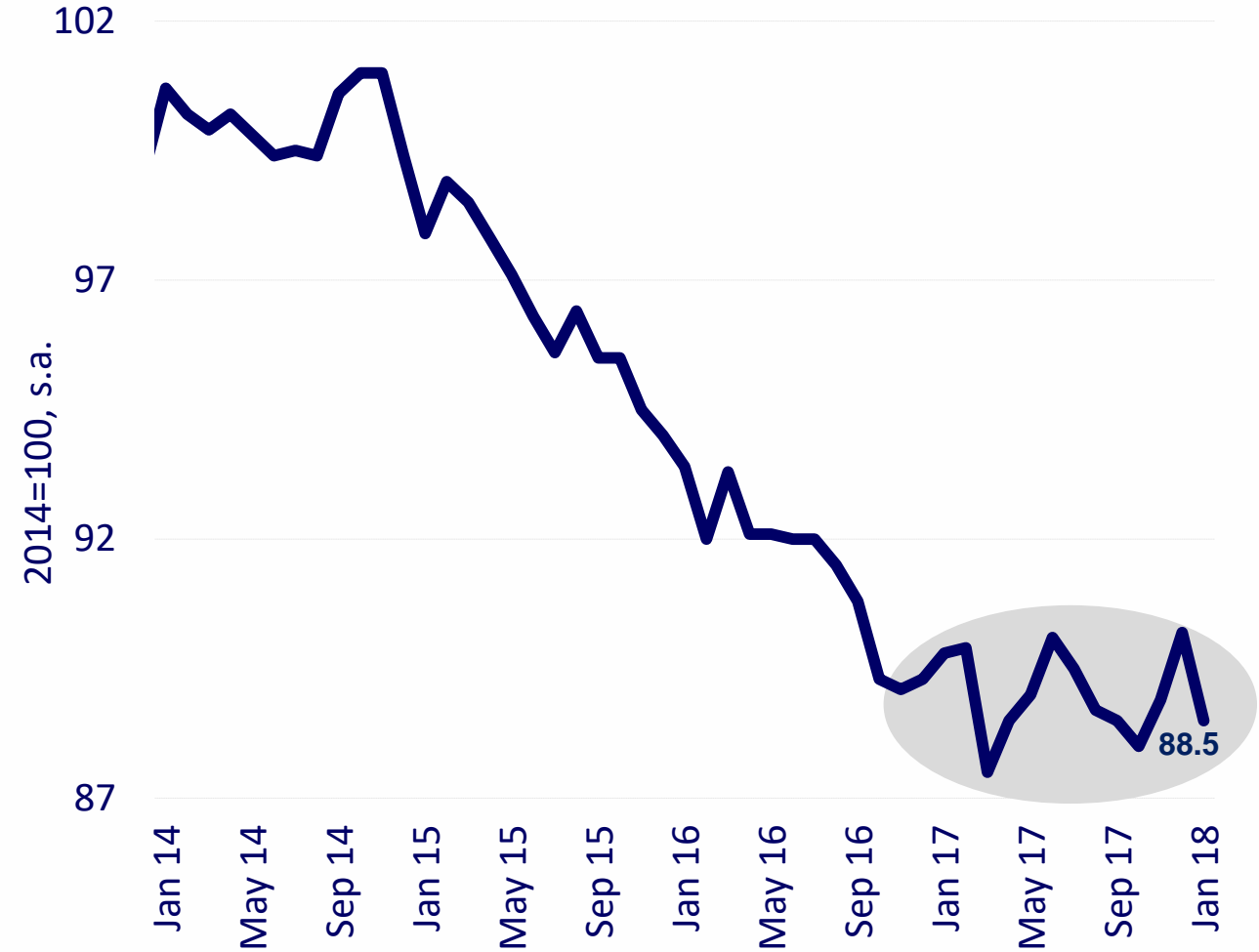
Source: IBGE

Services

Value added by the services sector – GDP

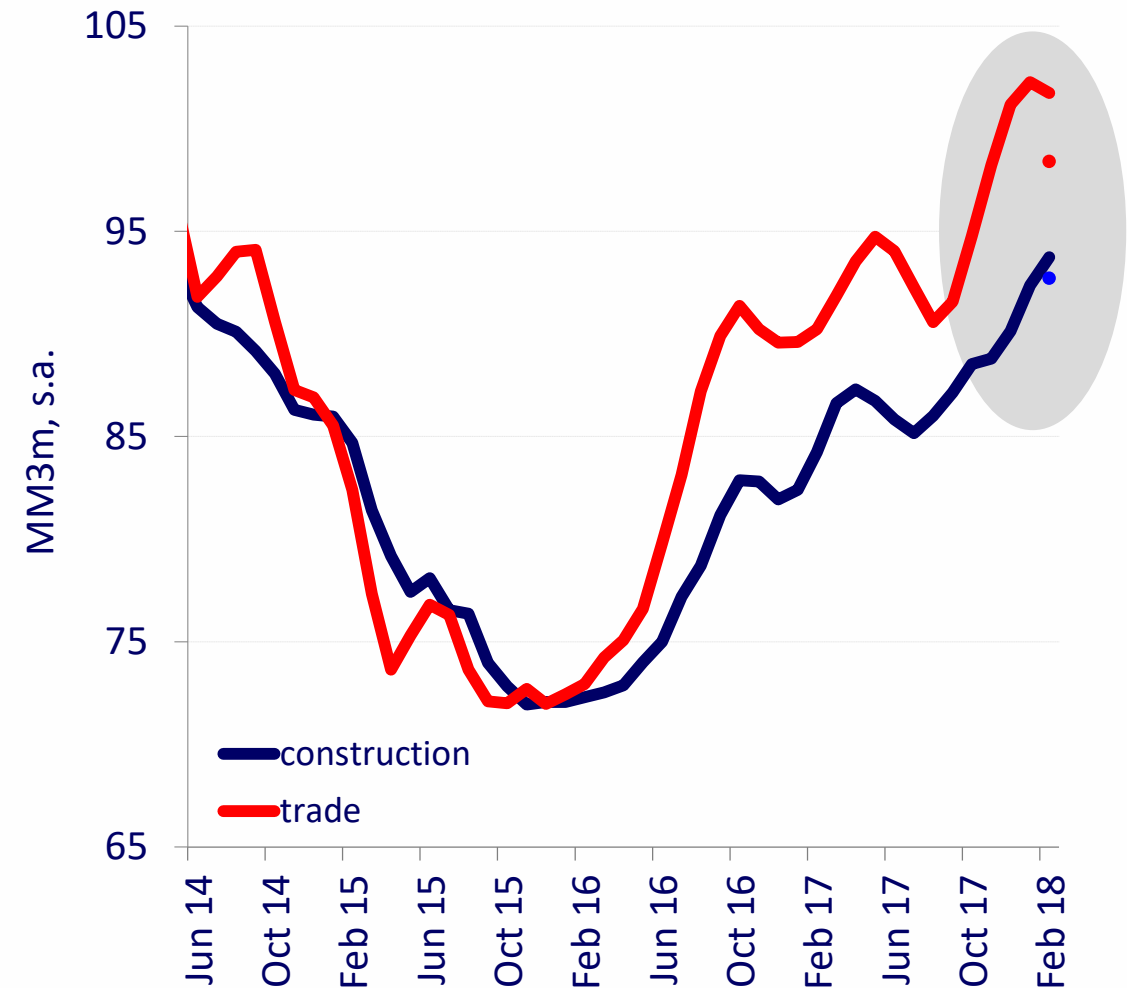
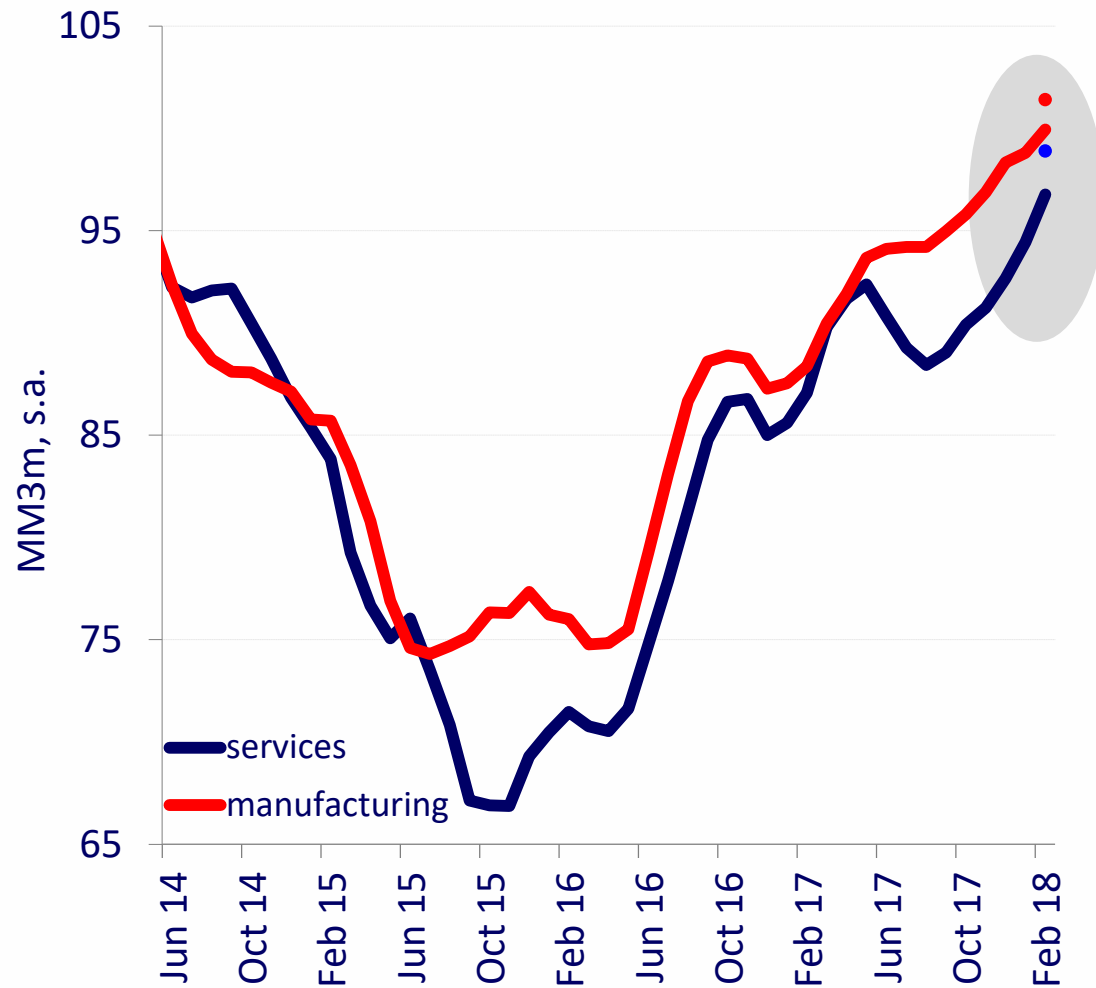


PMS – Services sector volume



Source: IBGE

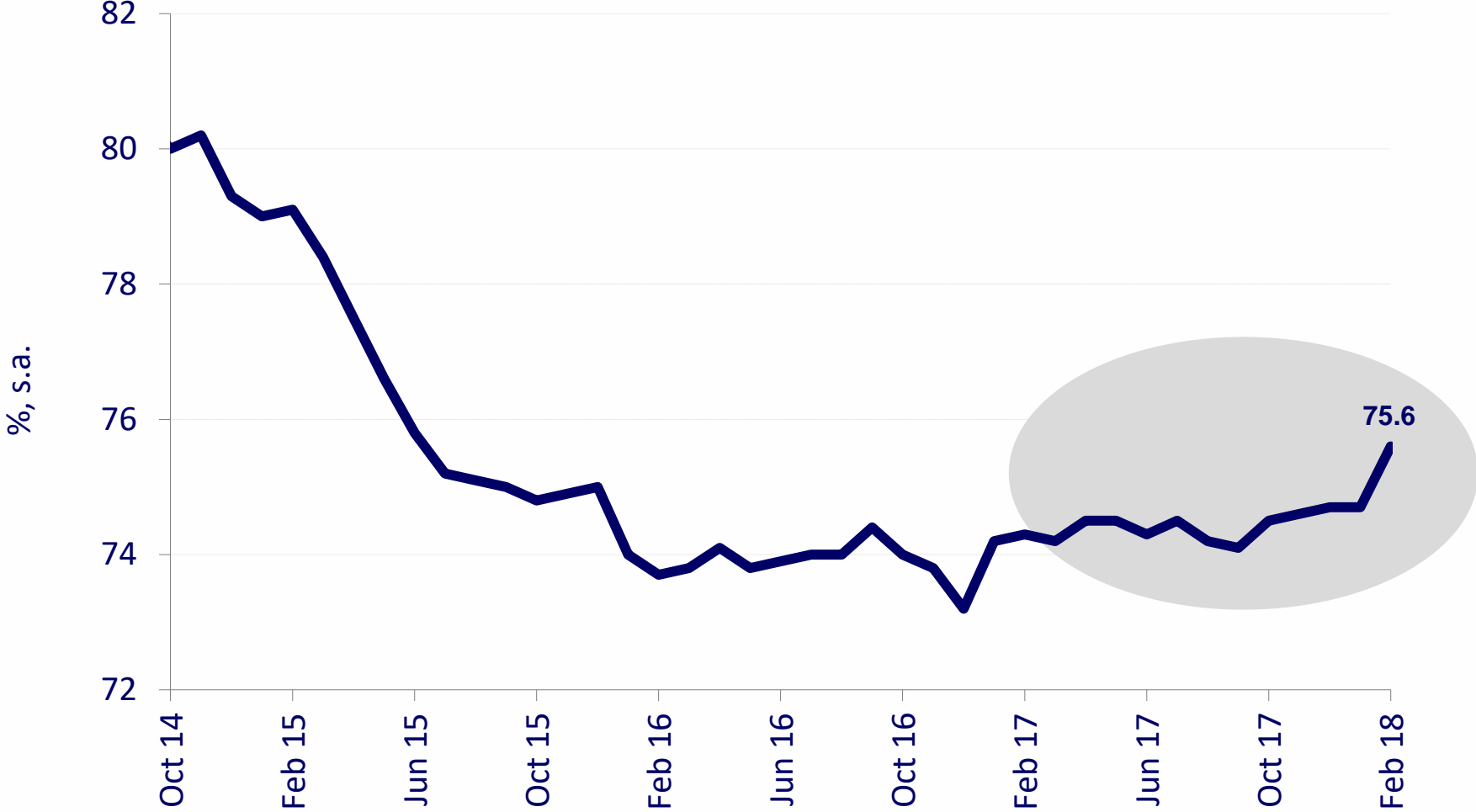
Economic agents confidence – Entrepreneurs expectations



Obs.: Positive response ratio – negative response ratio + 100

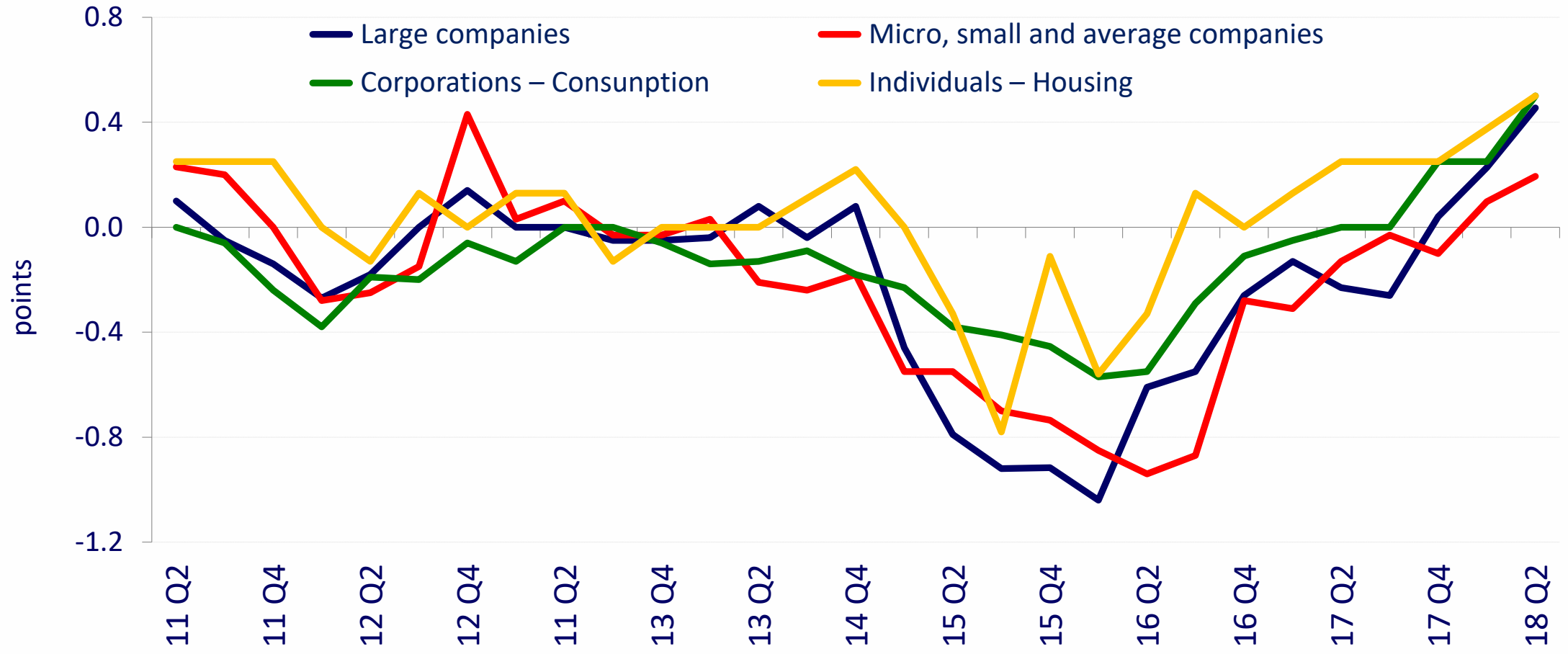
Source: FGV

Capacity Utilization

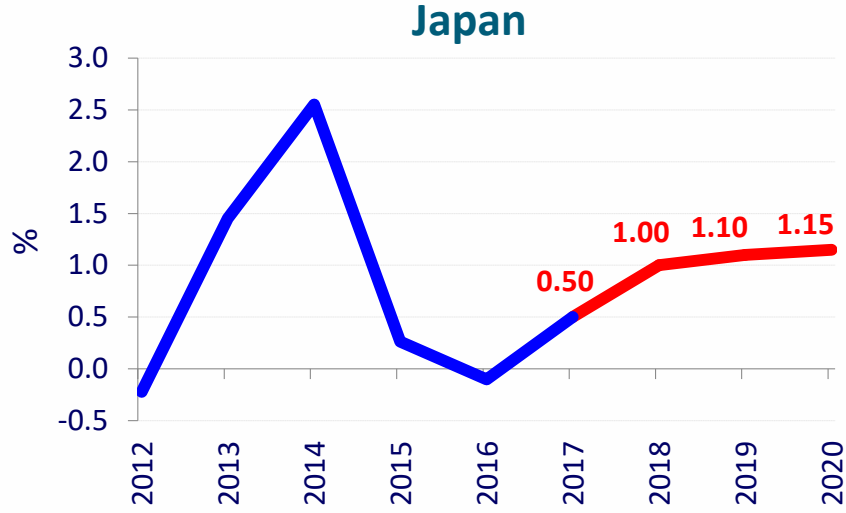
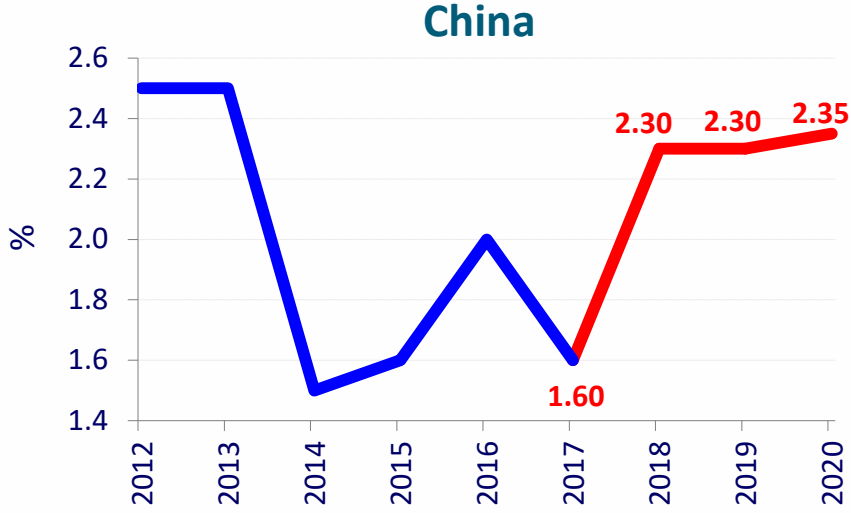
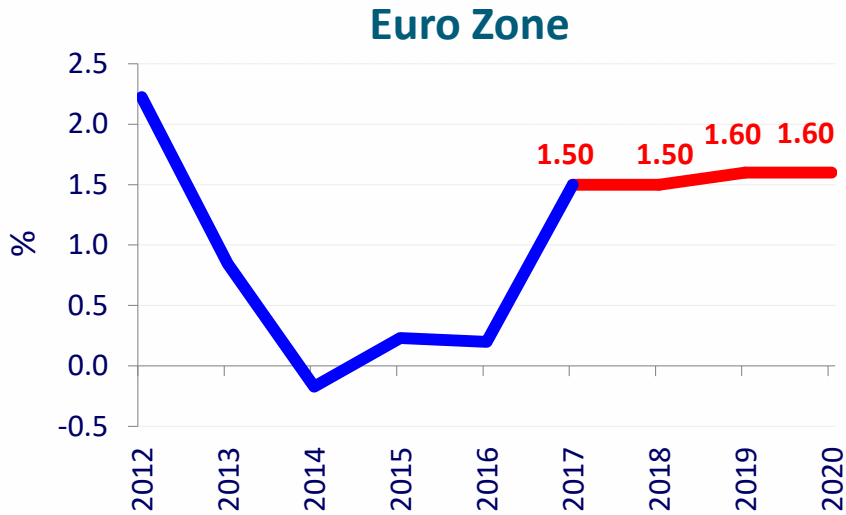
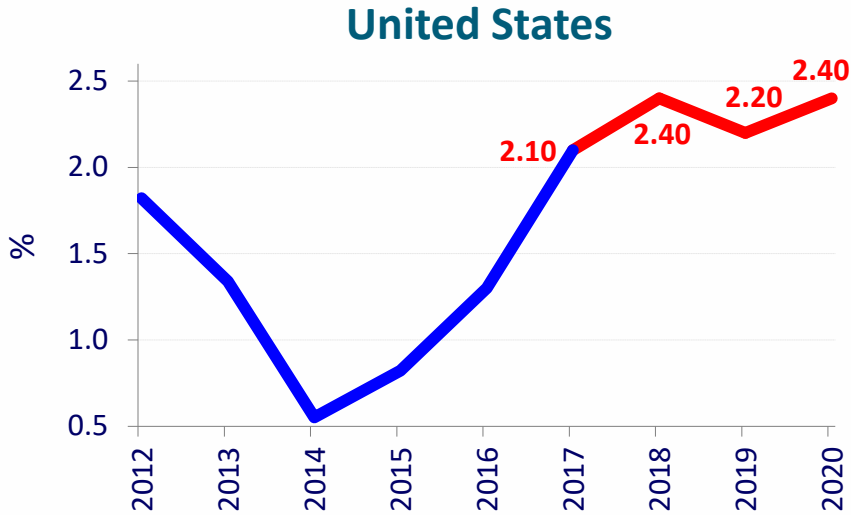


Source: FGV

Credit approval indicators



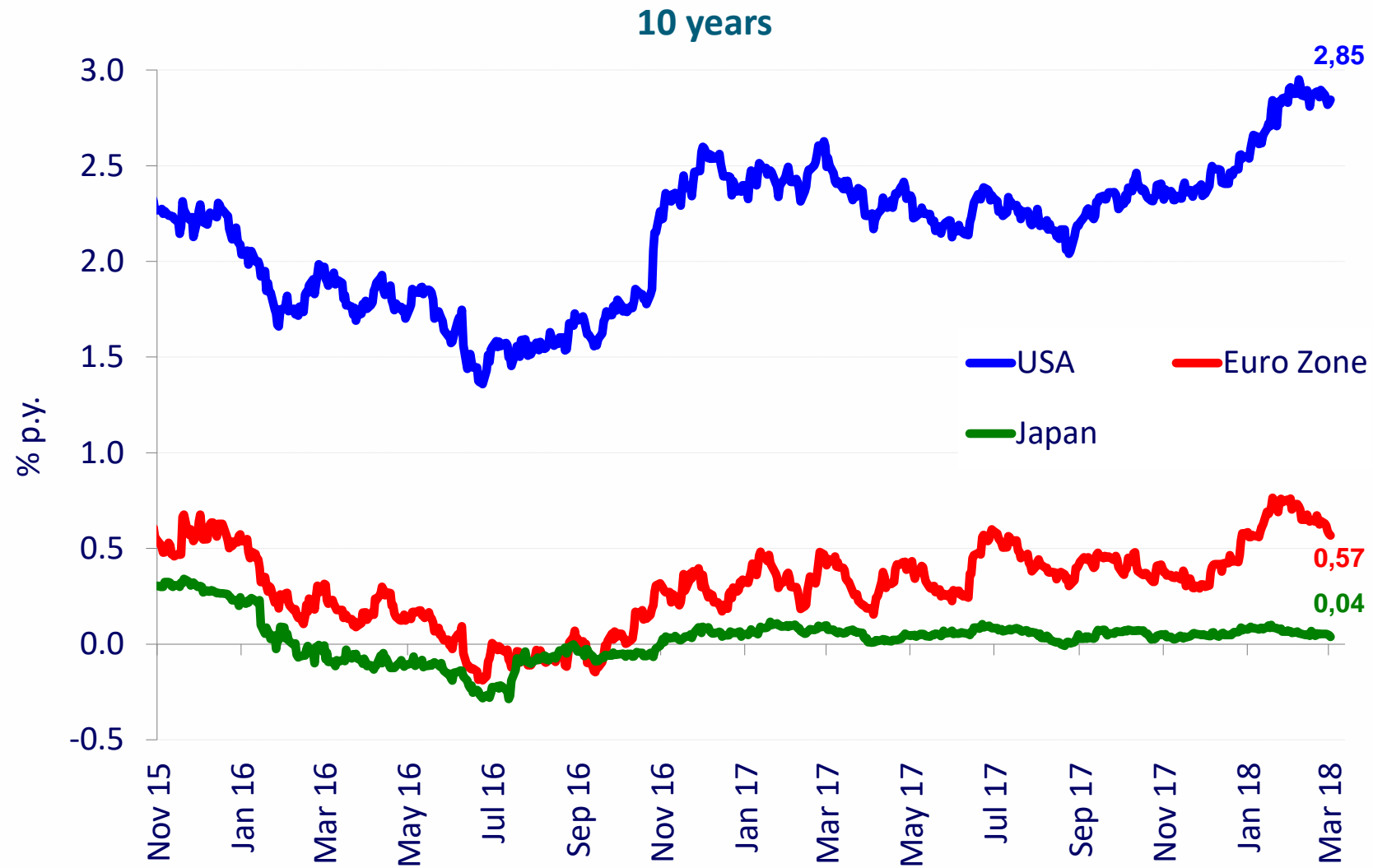
Inflation



2017/2018/2019:2020: projection

Source: Bloomberg (Mar/16)

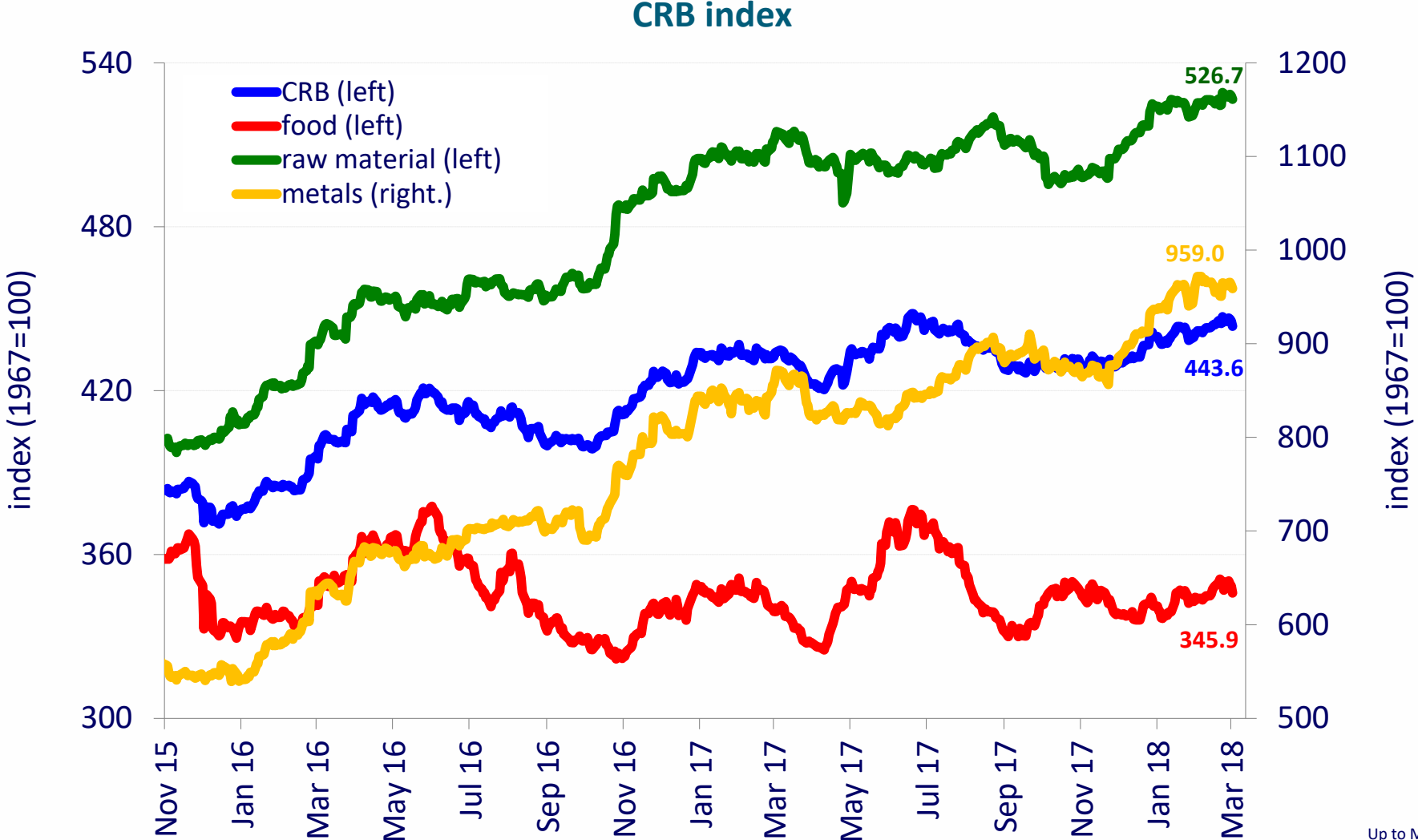
Long-term interest rates



Up to Mar/16

Source: Bloomberg

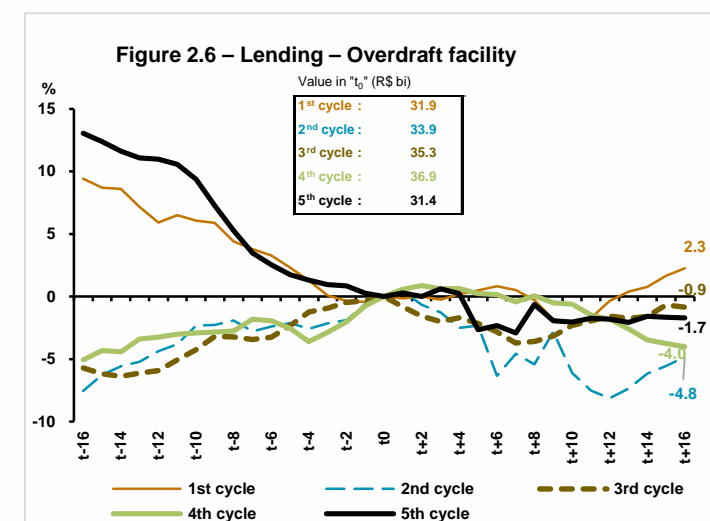
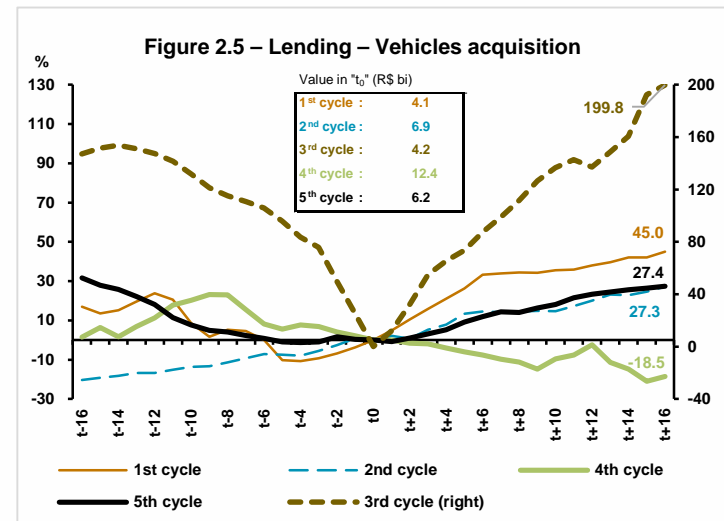
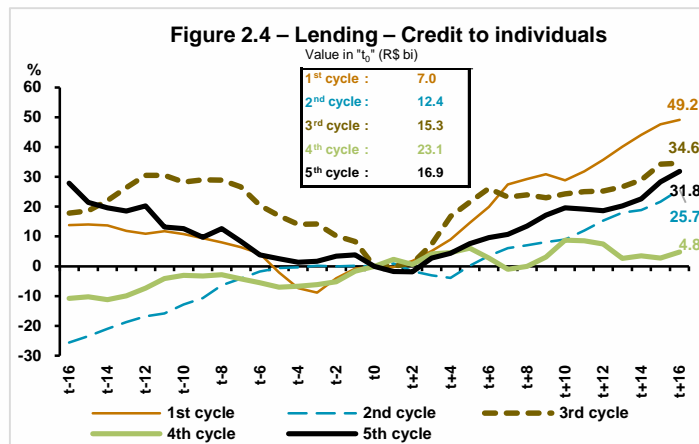
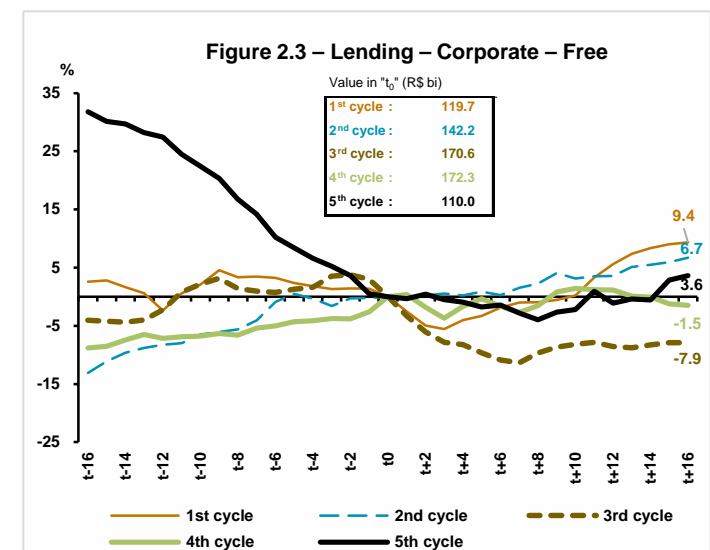
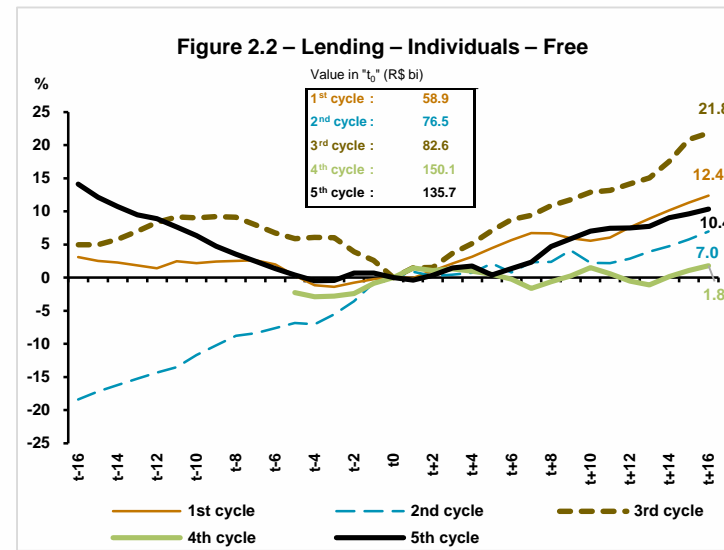
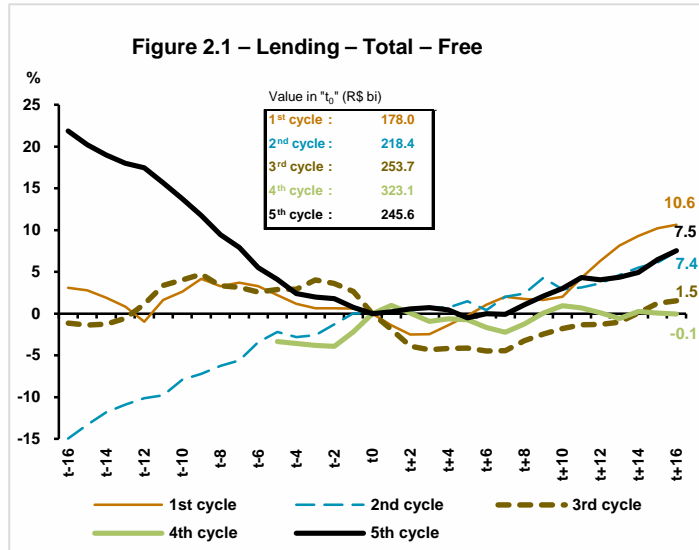
Commodities Prices



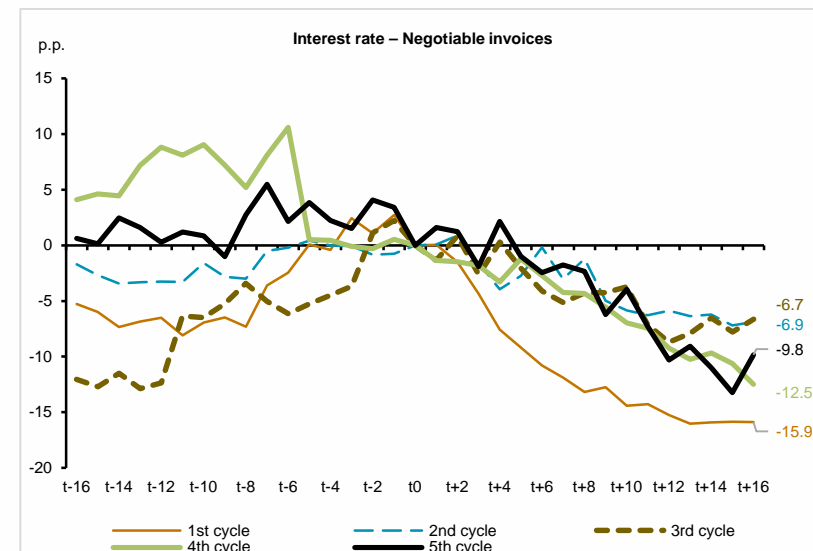
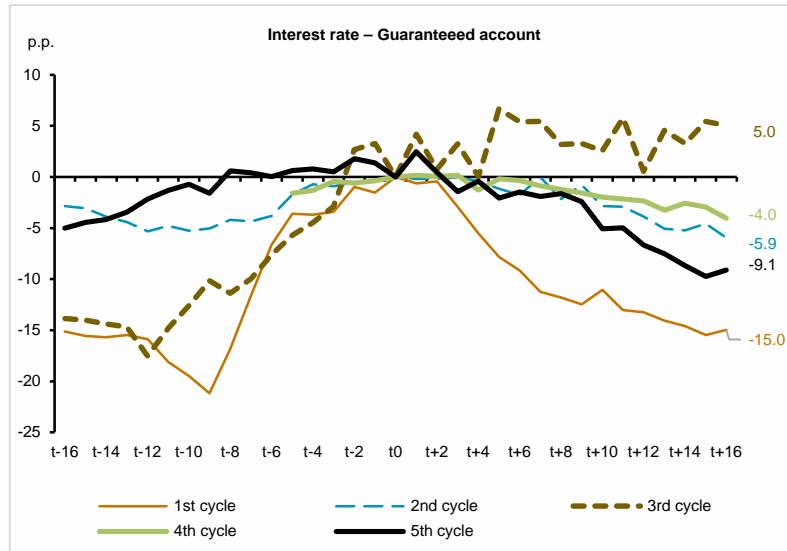
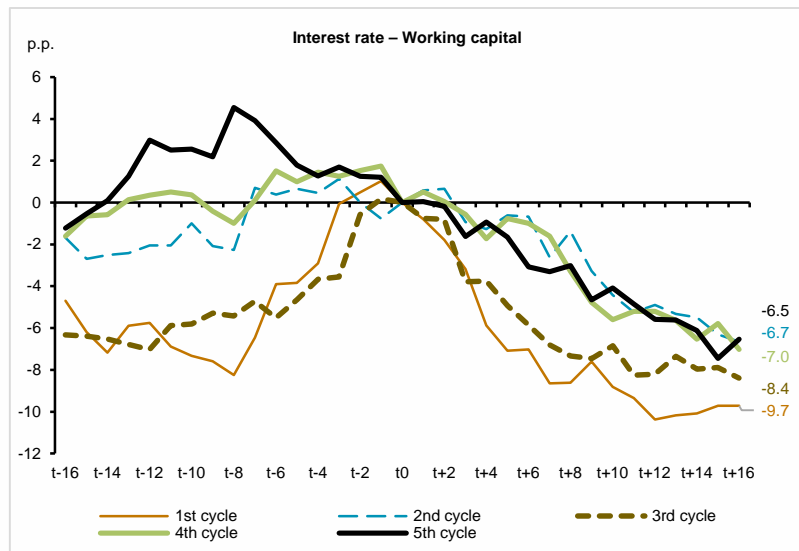
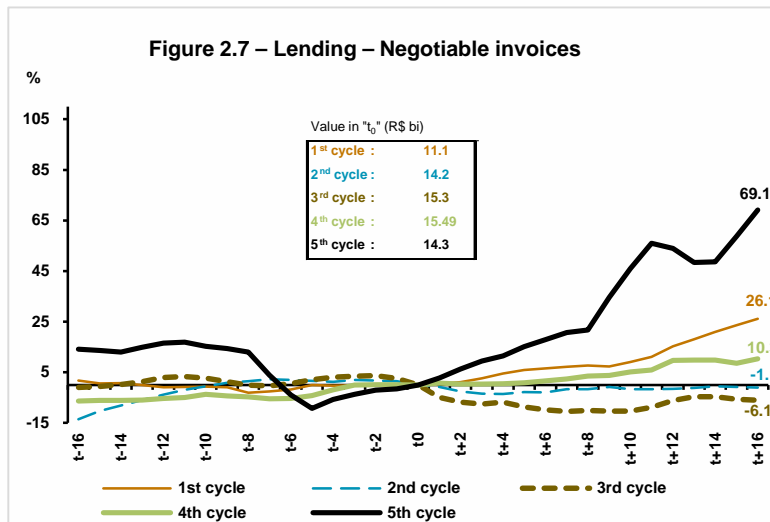
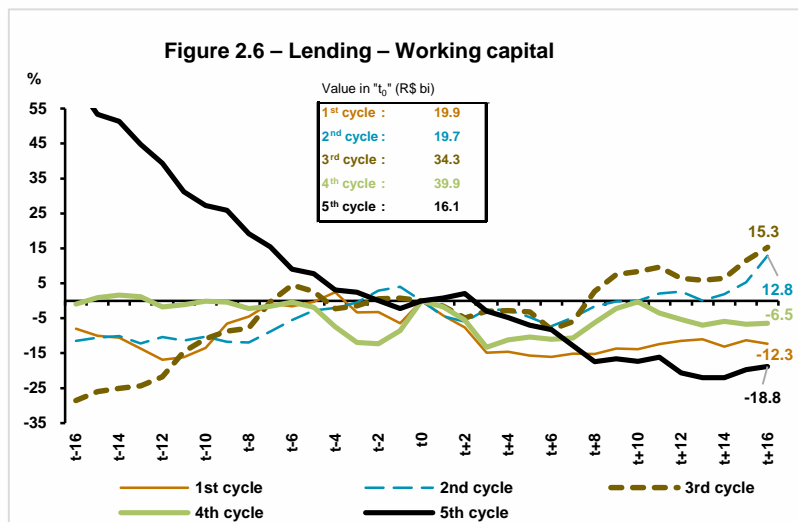
Source: Bloomberg

Up to Mar/16

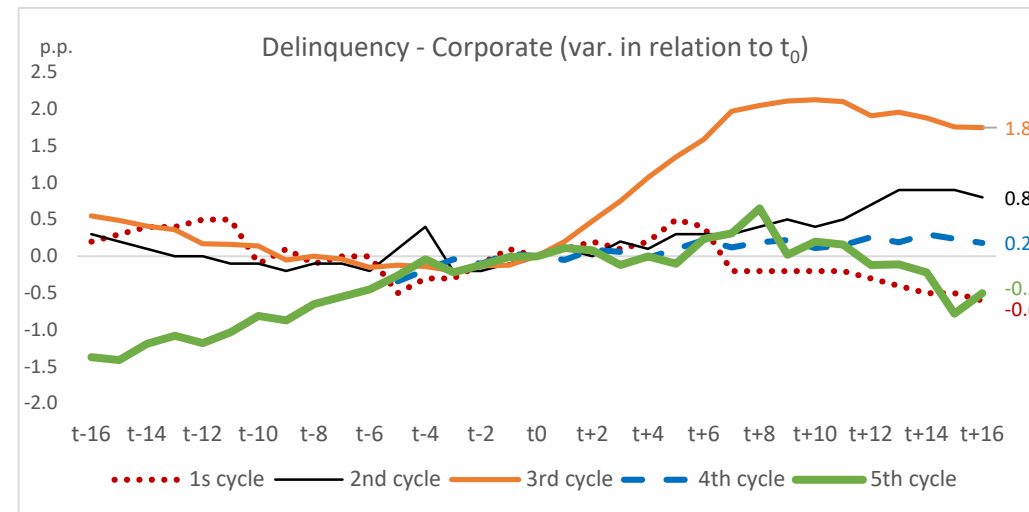
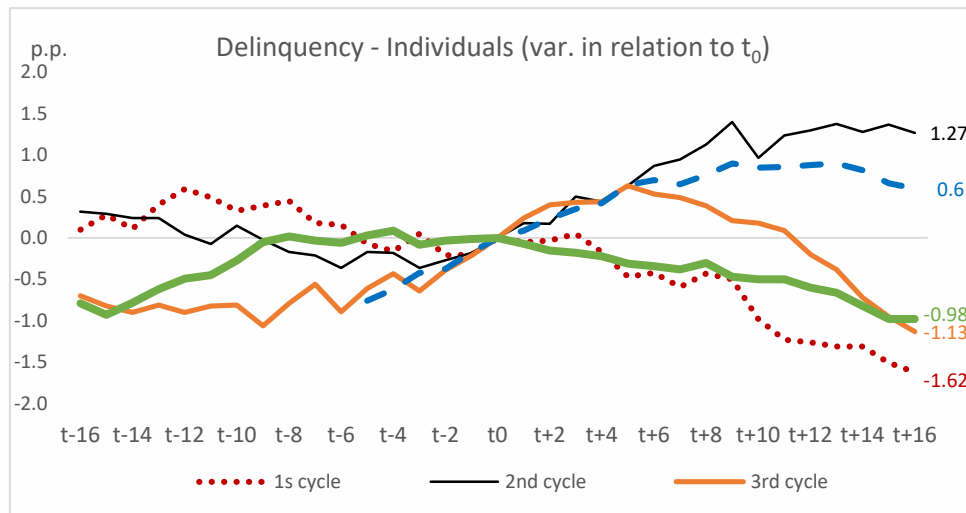
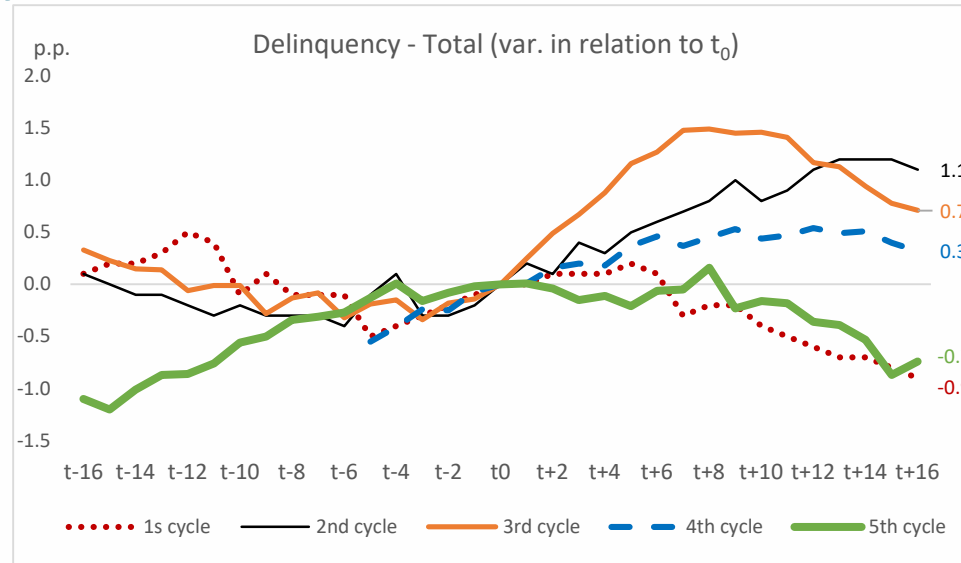
Box: Monetary Policy Cycles



Box: Monetary Policy Cycle



Box: Monetary Policy Cycles



Inflation expectations

Quarterly Inflation Report

Carlos Viana de Carvalho

March 2018