# Inflation Outlook

## Quarterly Inflation Report

Carlos Viana de Carvalho

September 2017

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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)

# Basic 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:

- signals compatible with gradual recovery of the Brazilian economy
- high level of economic slack

## ii. External Scenario:

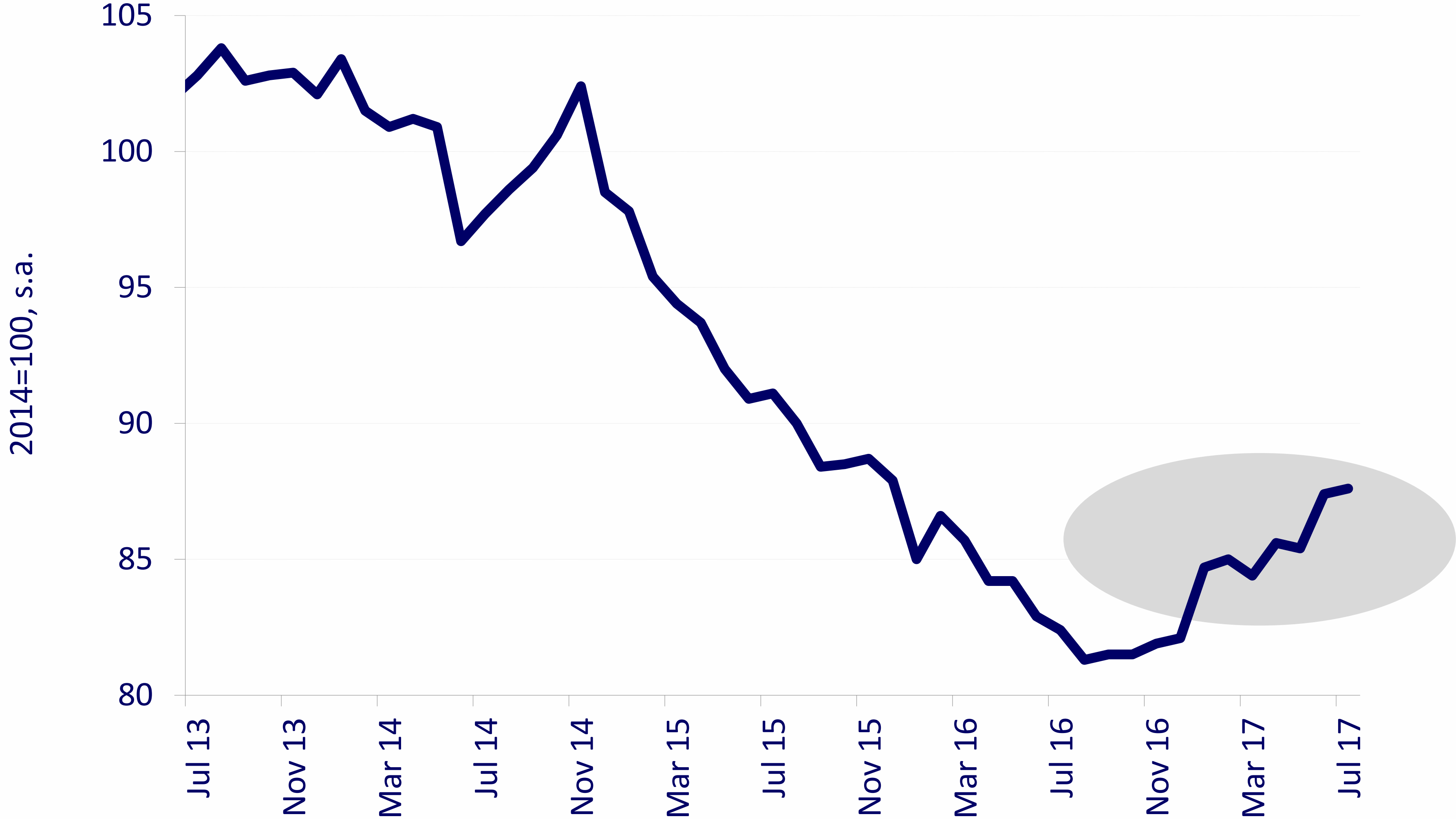
- global outlook has been favorable
- global economic activity remains on a gradual recovery path, without pressuring financial conditions in advanced economies
- this supports risk appetite towards emerging economies

## iii. Inflation:

- inflation developments remain favorable, with various measures of underlying inflation running at low levels, including components that are most sensitive to the business cycle and monetary policy
- expectations for 2017, 2018, 2019 and 2020 around 3.1%, 4.1%, 4.25% and 4.00%, respectively

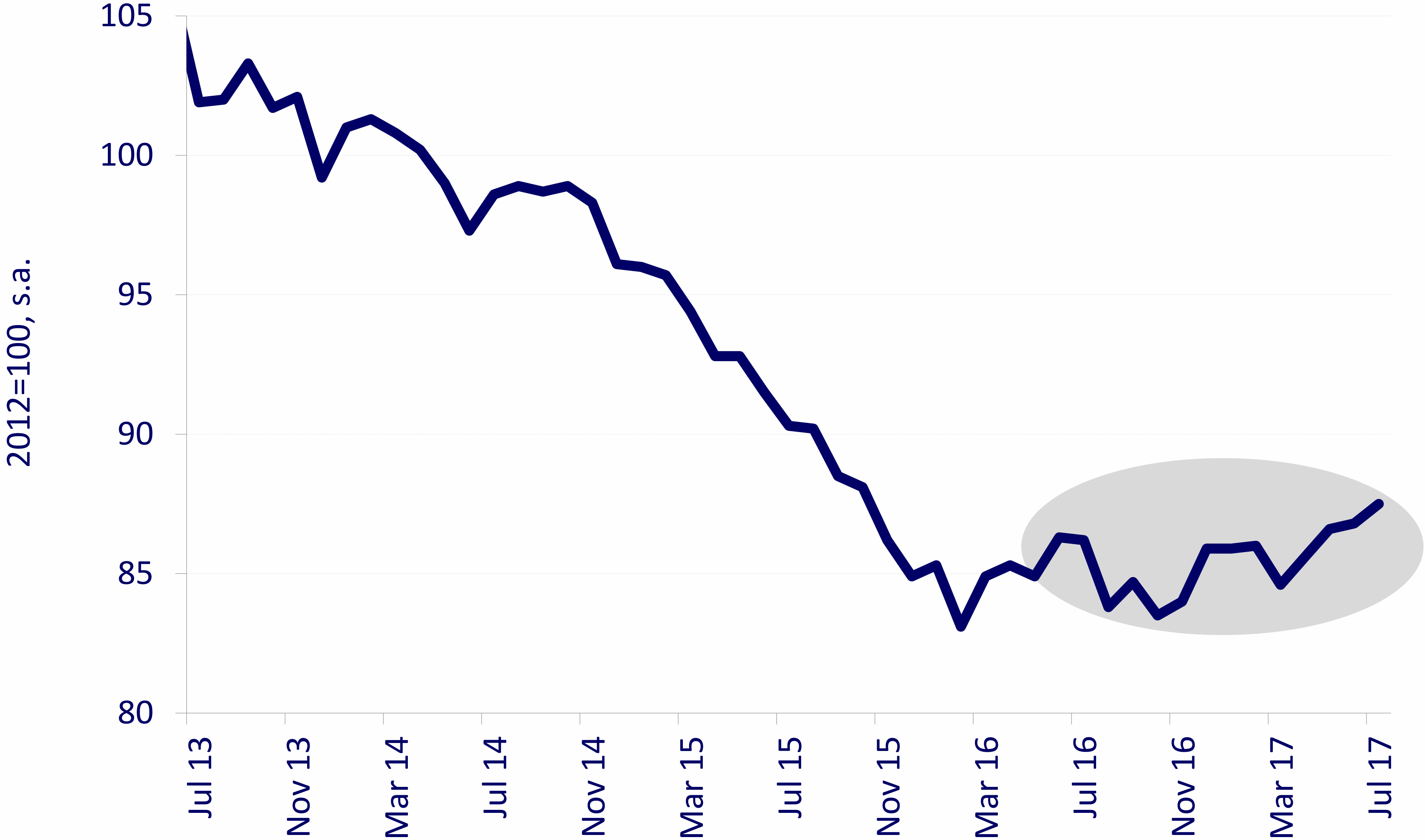
# i. Economic Activity

# Broad Retail Sales



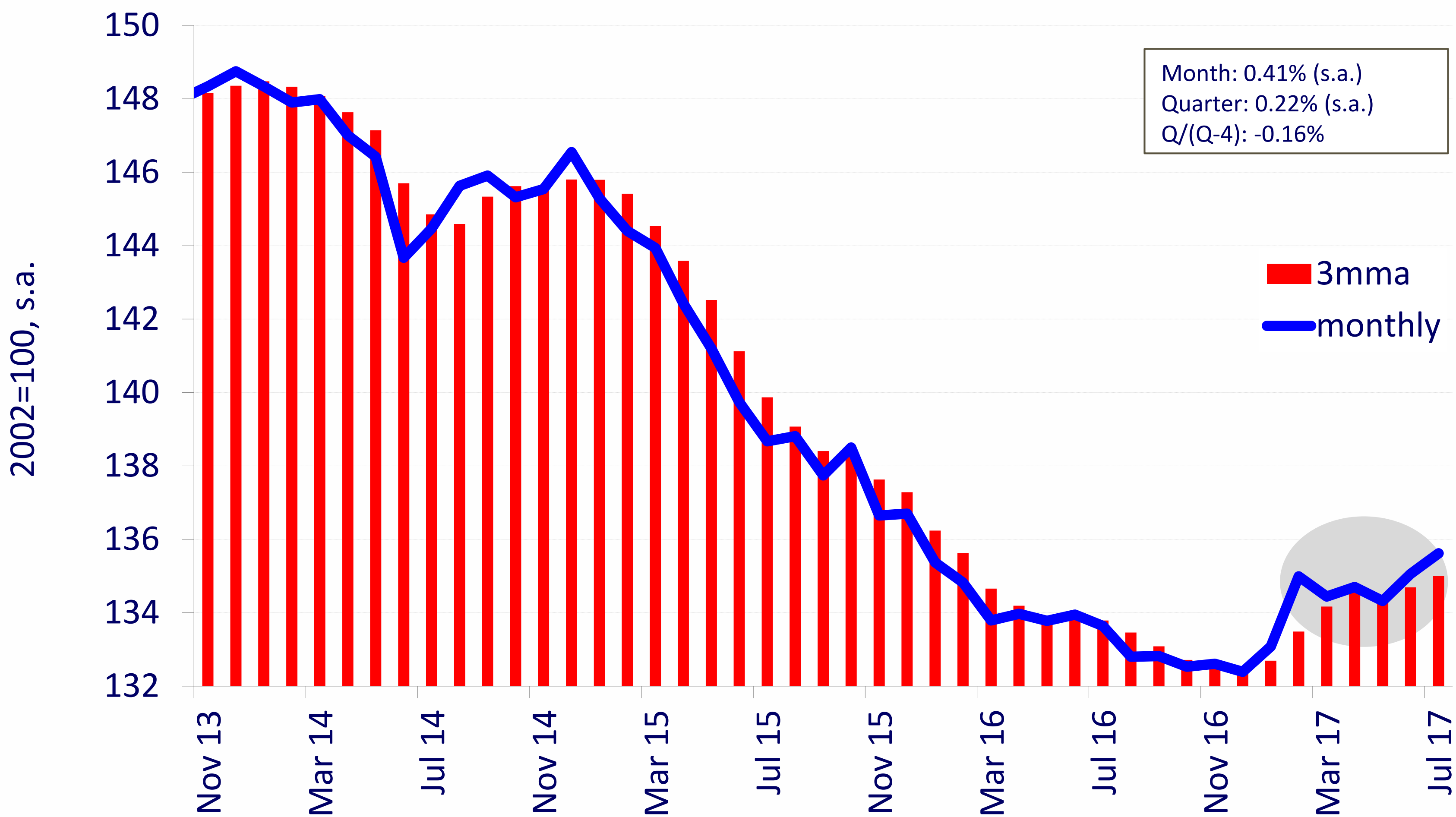

Source: IBGE

# Industrial Production



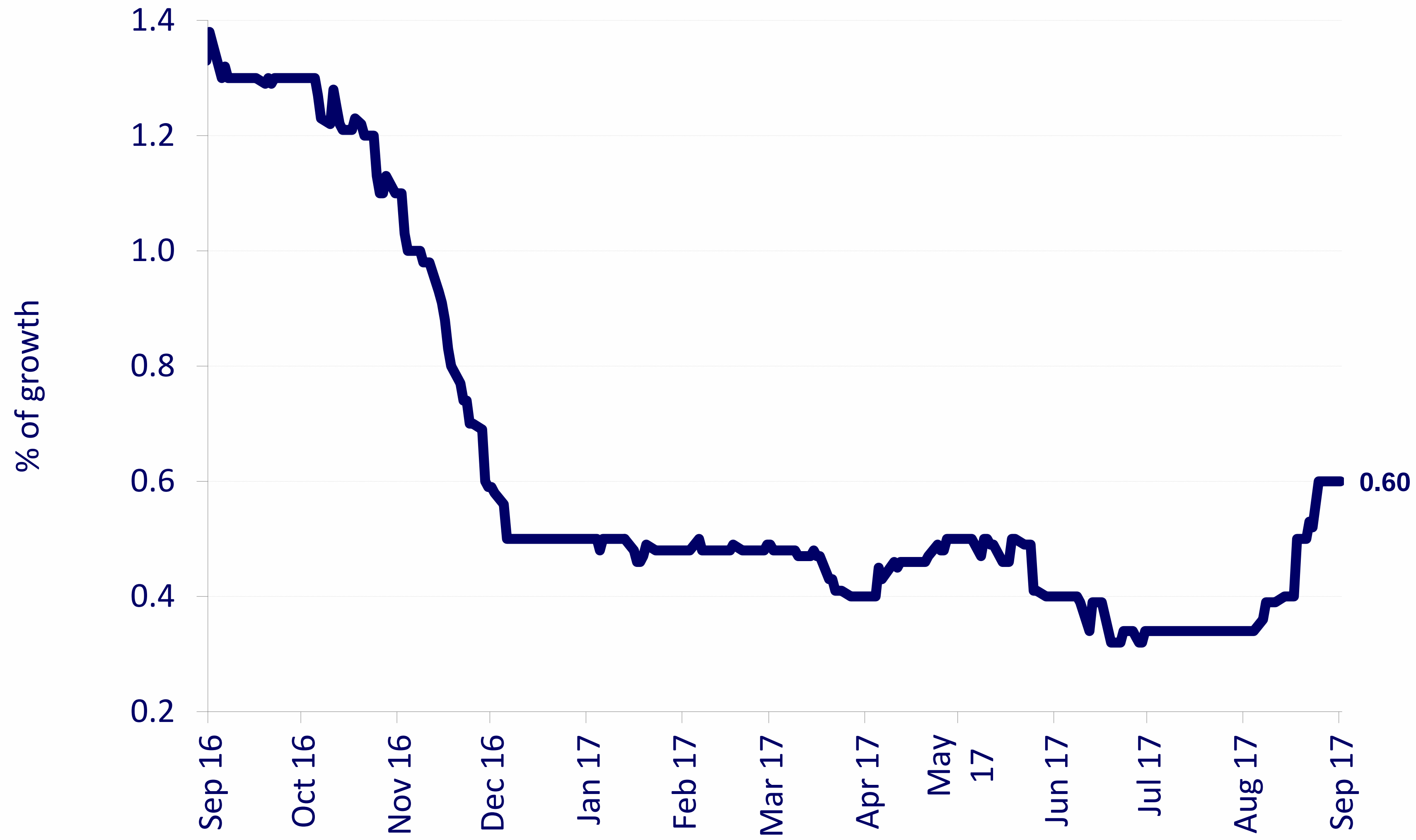

Source: IBGE

# IBC-Br




Source: BC

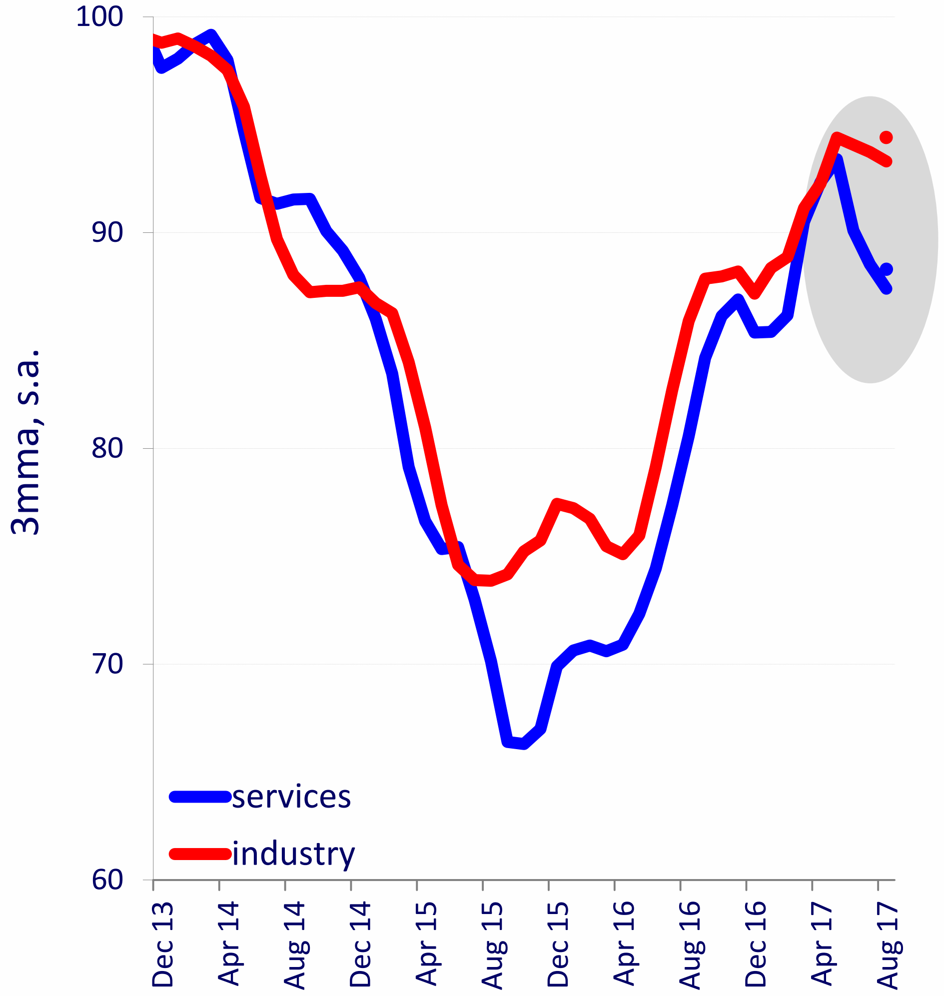
# Market Expectations for 2017 GDP

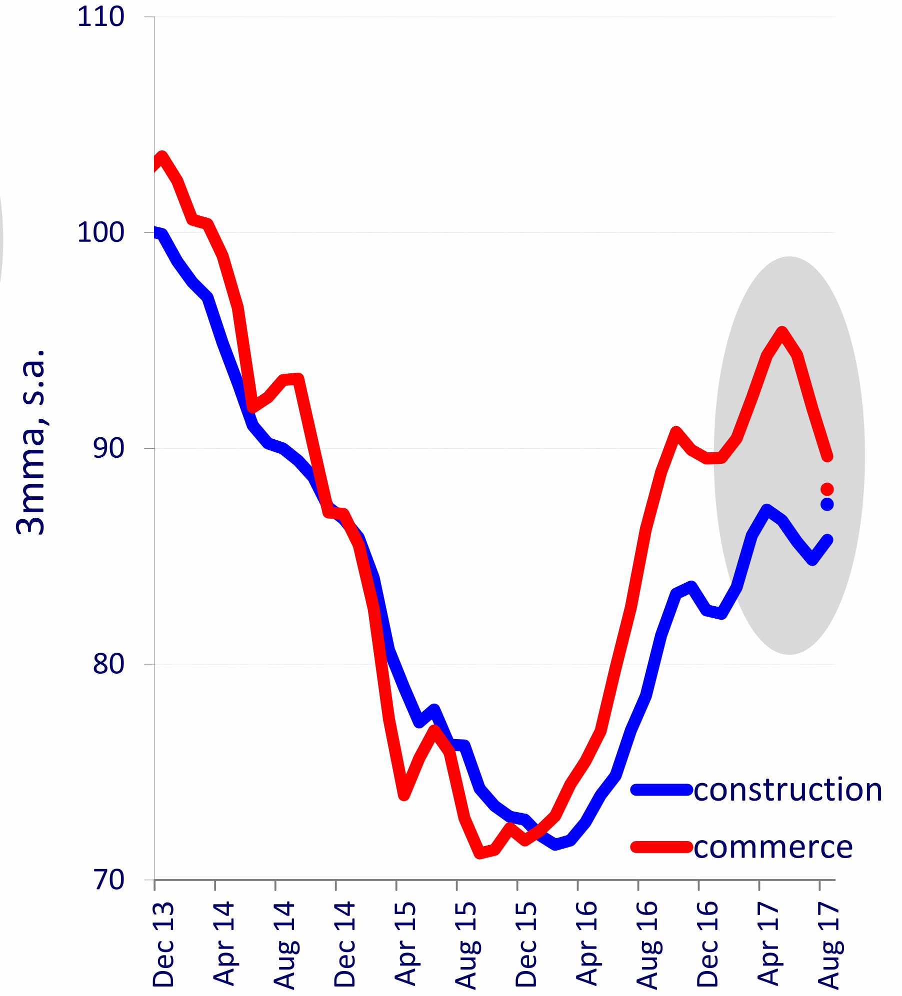



through September 15th

Source: BC (Focus)

# Agents’ Confidence - Businessmen

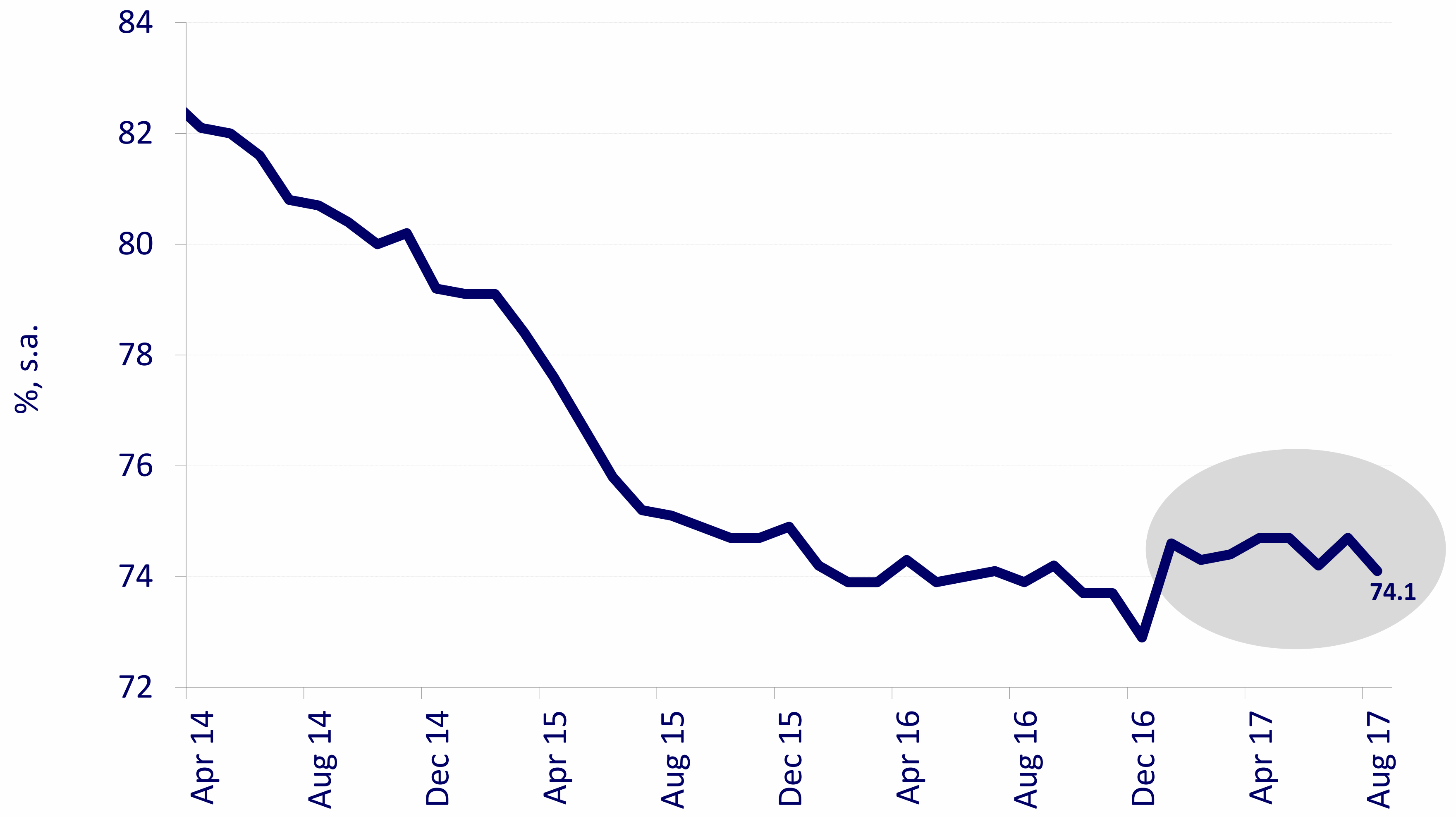



Obs.: proportion of favorable answers – proportion of unfavorable answers + 100

Source: FGV

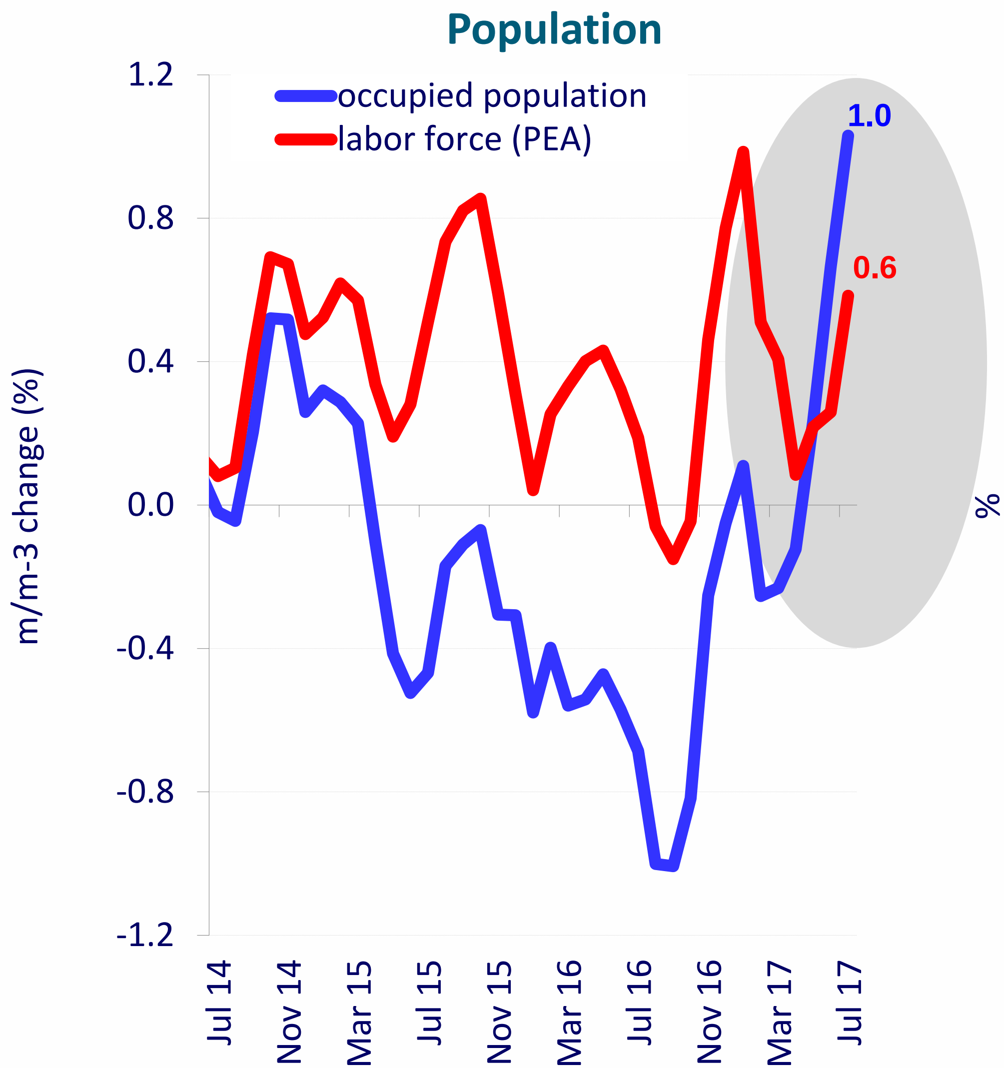
# Installed Capacity Utilization Level (NUCI)

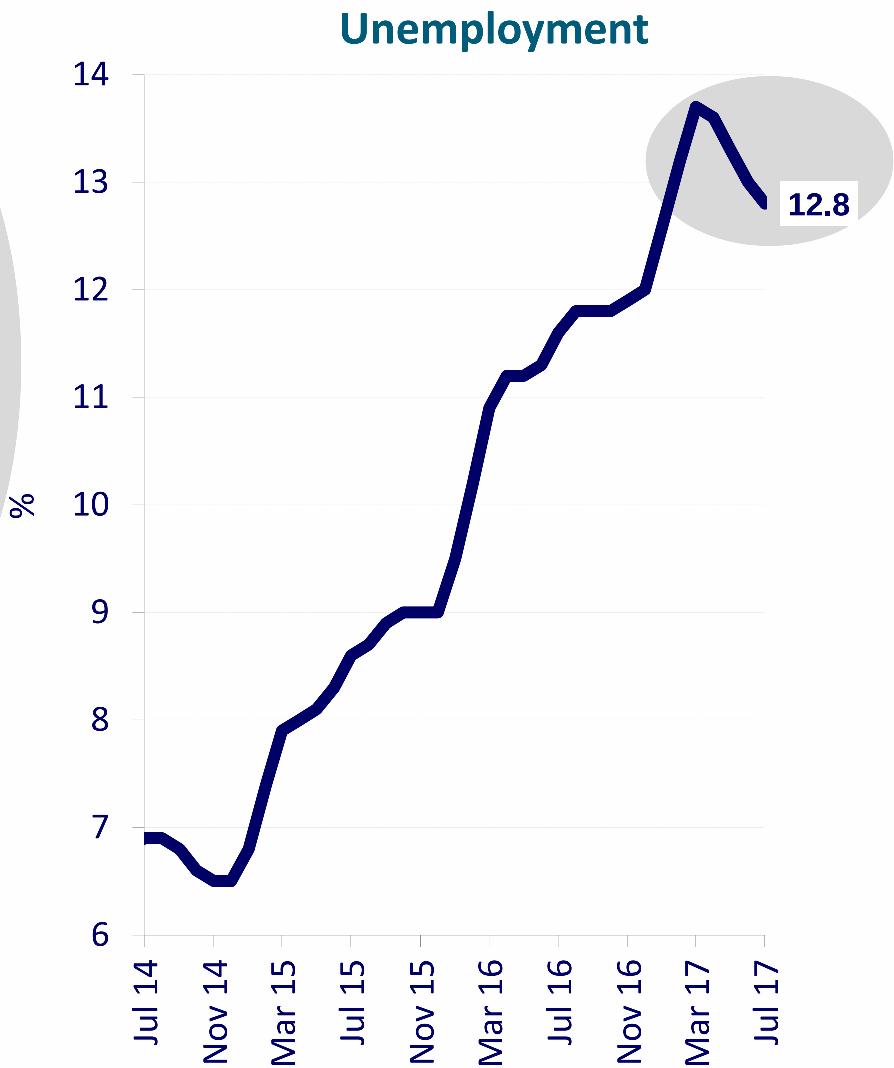



Source: FGV

BANCO CENTRAL DO BRASIL

# Labor Market




Source: IBGE (PNADC)

# Box: 2017 and 2018 GDP Projections

2017 and 2018 change at 0.7% and 2.2%, respectively:

- Supply :
  - Agriculture and livestock: 12.1% in 2017 and 1.5% in 2018 (-6.6% in 2016)
  - Industry: -0.6% in 2017 and 2.6% in 2018 (-3.8% in 2016)
  - Services: 0.1% in 2017 and 1.9% in 2018 (-2.7% in 2016)
- Demand:
  - Investment: -3.2% in 2017 and 3.0% in 2018 (-10.2% in 2016)
  - Household Consumption: 0.4% in 2017 and 2.5% in 2018 (-4.2% in 2016)
  - Government Consumption: -1.8% in 2017 and 1.0% in 2018 (-0.6% in 2016)
  - Net Exports: 0.3 p.p. in 2017 and -0.2 p.p. in 2018 (1.7 p.p. in 2016)

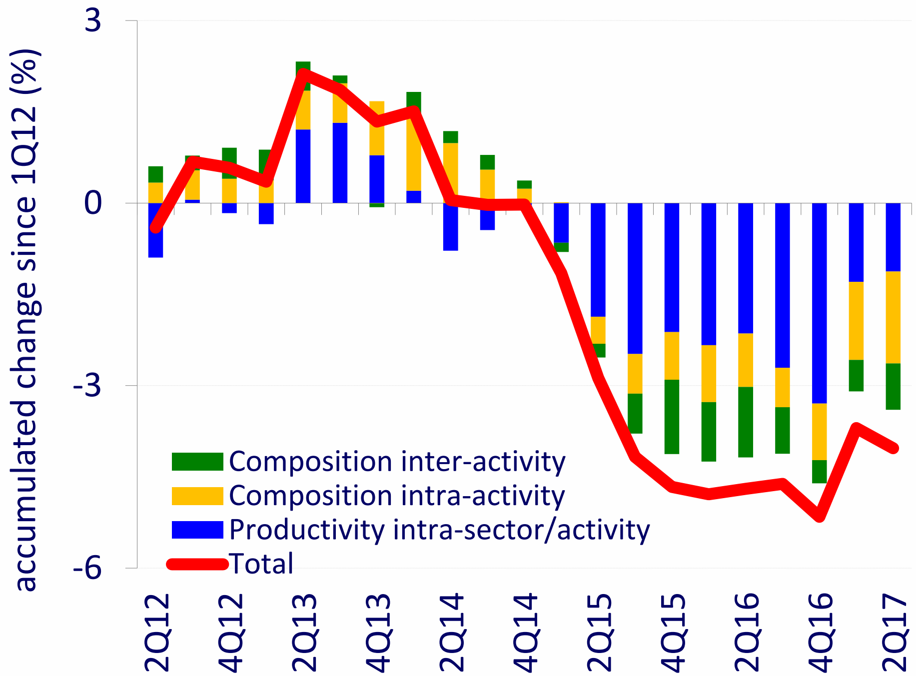
# Box: Recent Evolution of Labor Productivity

Analyses the recent productivity behavior, from its decomposition into three effects:

- composition among activities
- composition among institutional sectors (firms/families) in each activity and
- evolution of productivity within each activity/sector

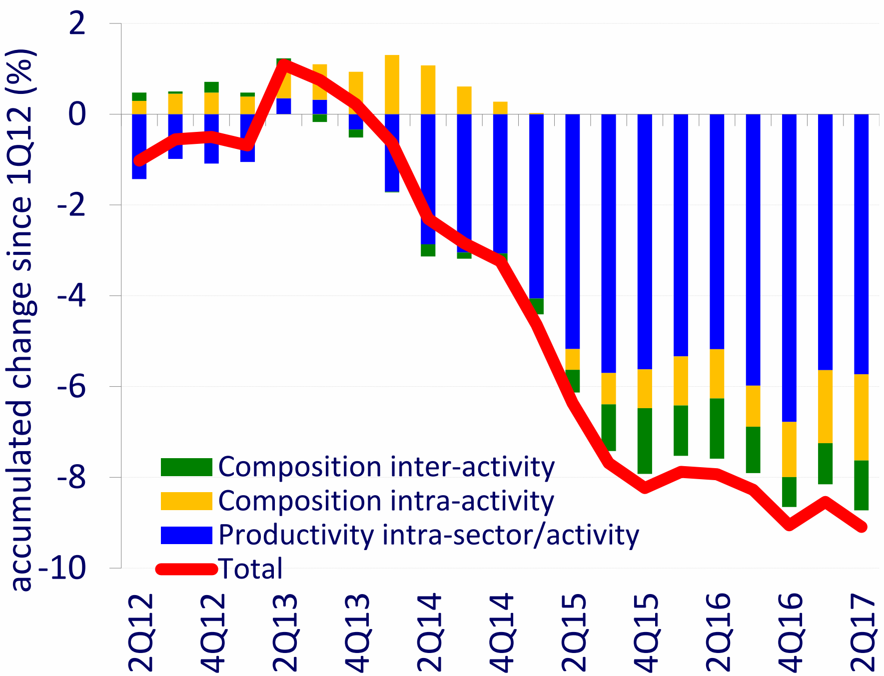
## Productivity Decomposition

Except real estate activity and rents




## Productivity Decomposition

Except real estate activity and rents, agricult. and extractive ind.



# Box: Projections for 2017 and 2018 BoP

BoP - 2017

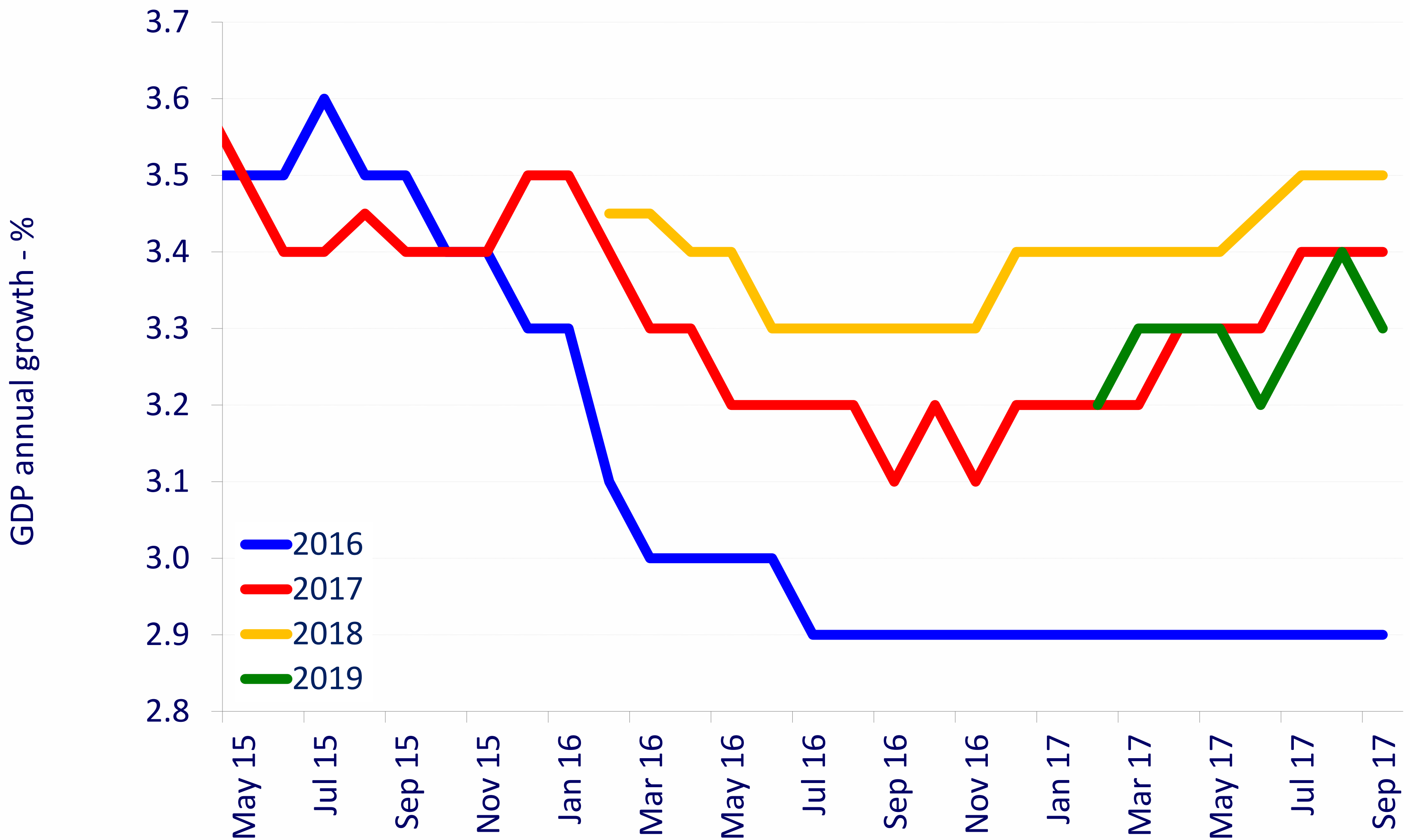
- projection of current account *deficit* of US$16 billion (0.8% of GDP), compared to *deficit* of US$23.5 billion (1.31% of GDP) in 2016 and of US$24 billion in the previous IR
  - trade balance: projection of surplus increased from US$54 billion to US$61 billion (surplus of US$45 billion in 2016) due to exports reestimation
- projection of net inflows of Direct Investment Liabilities (DIL) remained at US$75 billion, which will allow comfortable financing of the BoP
- increase of the rollover rate from 90% to 100%

BoP - 2018

- projection of current account *deficit* increased to US$30 billion (1.4% of GDP)
  - decrease of the trade balance surplus to US$51 billion, with stronger growth of imports (+12%) as compared to exports (+4%)
  - bigger net expenses with services (+14%, to US$37.7 billion), highlighting international travels expenses (+28%)
- projection of net inflows of Direct Investment Liabilities (DIL) at US$80 billion, main source for financing of the current account
- rollover rate kept at 100%

# ii. External Scenario

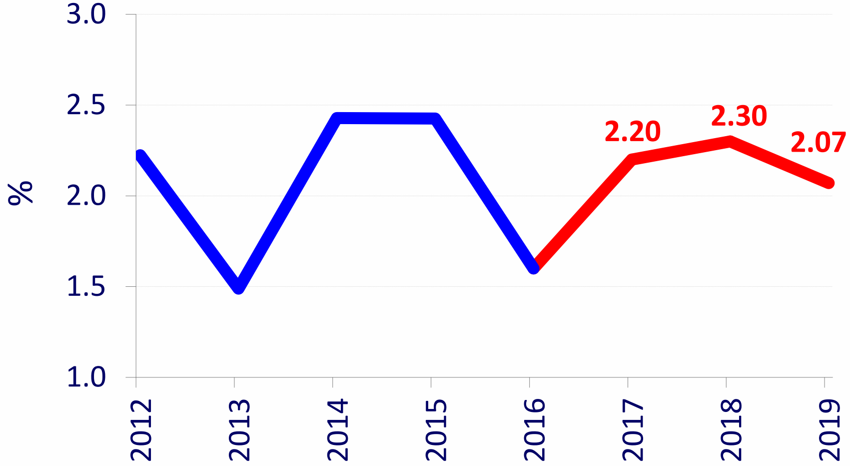
# Prospects of Moderate Global Growth



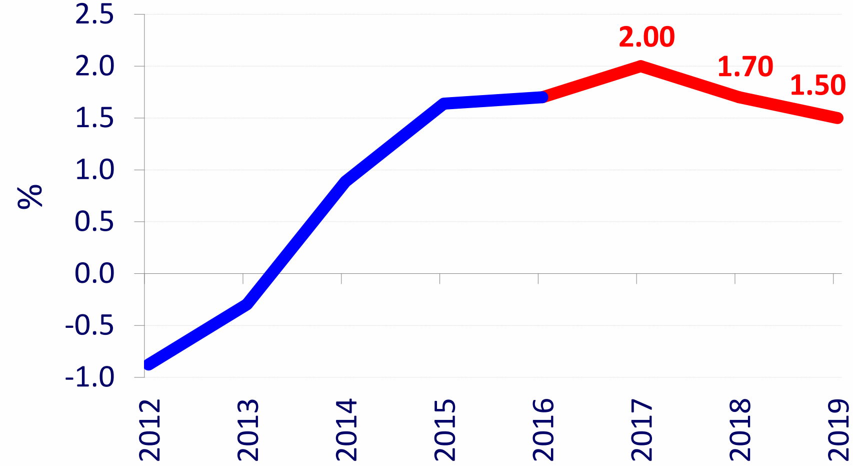

Source: Bloomberg (September: 9/15)

# Activity – GDP Annual Growth

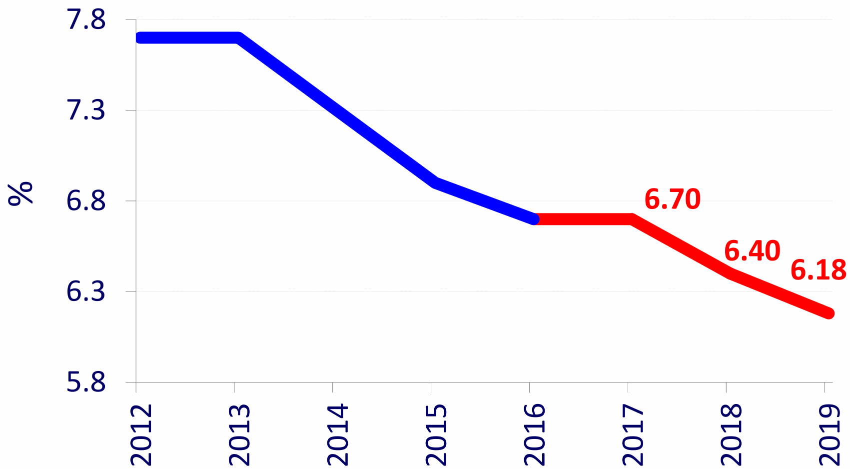
## United States



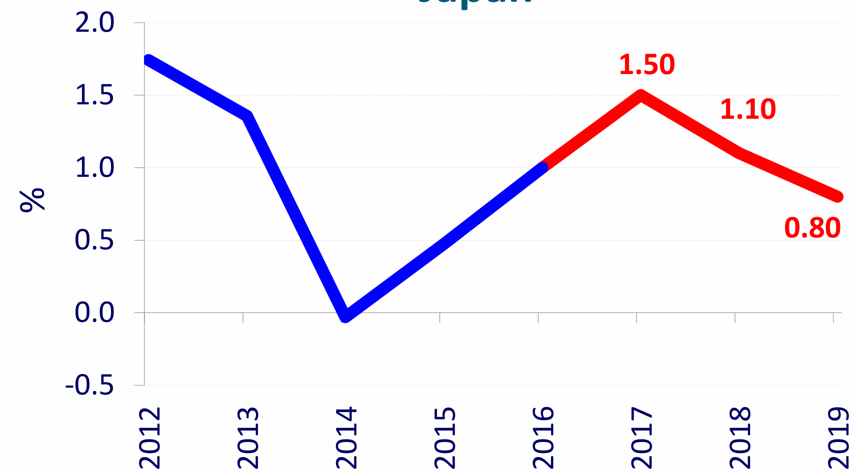

## Euro Area




## China




## Japan

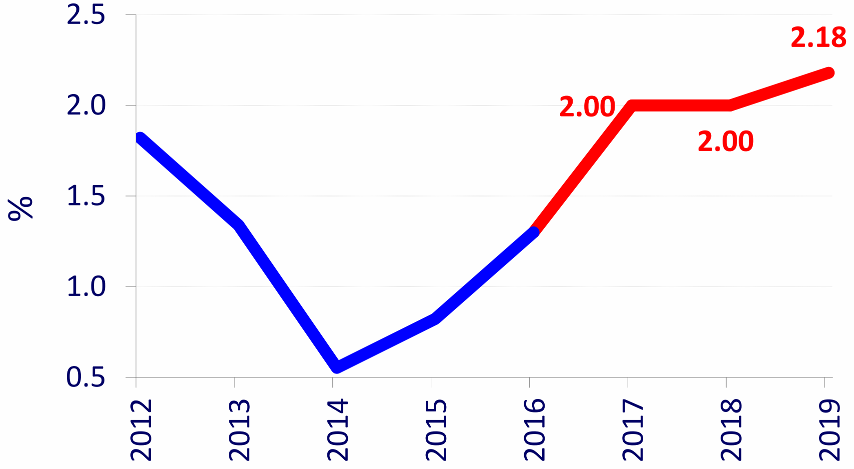



2017/18: projection

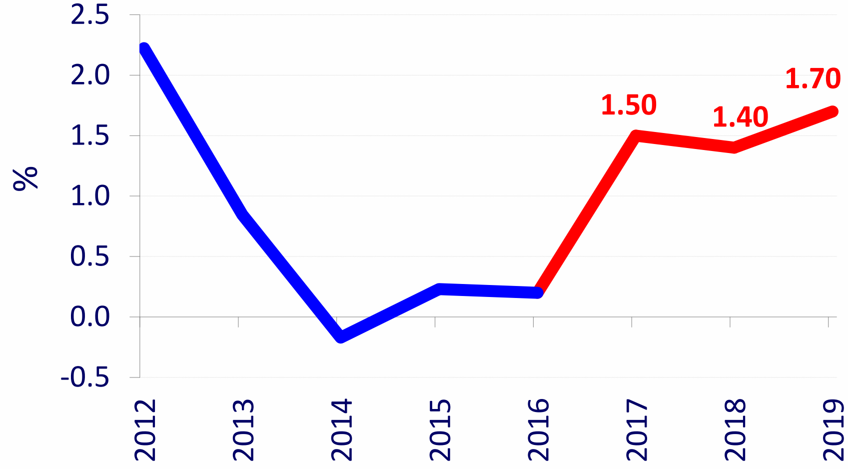
Source: Bloomberg (9/15)

# Inflation

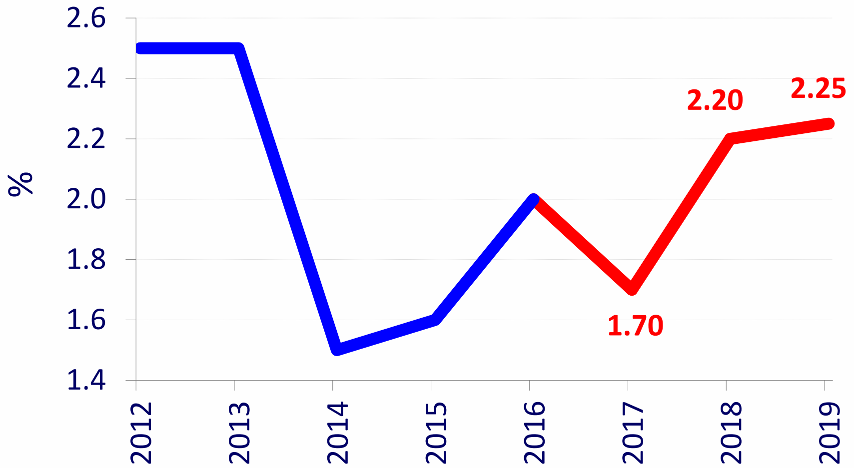
## United States



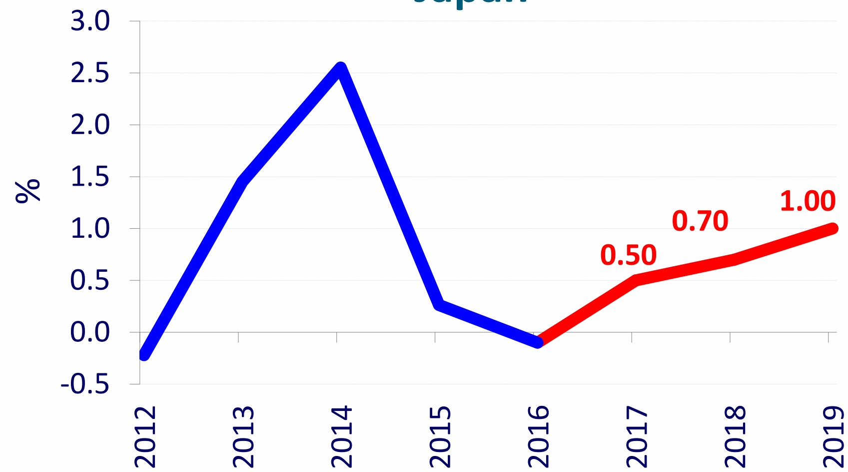

## Euro Area




## China




## Japan




2017/18: projection

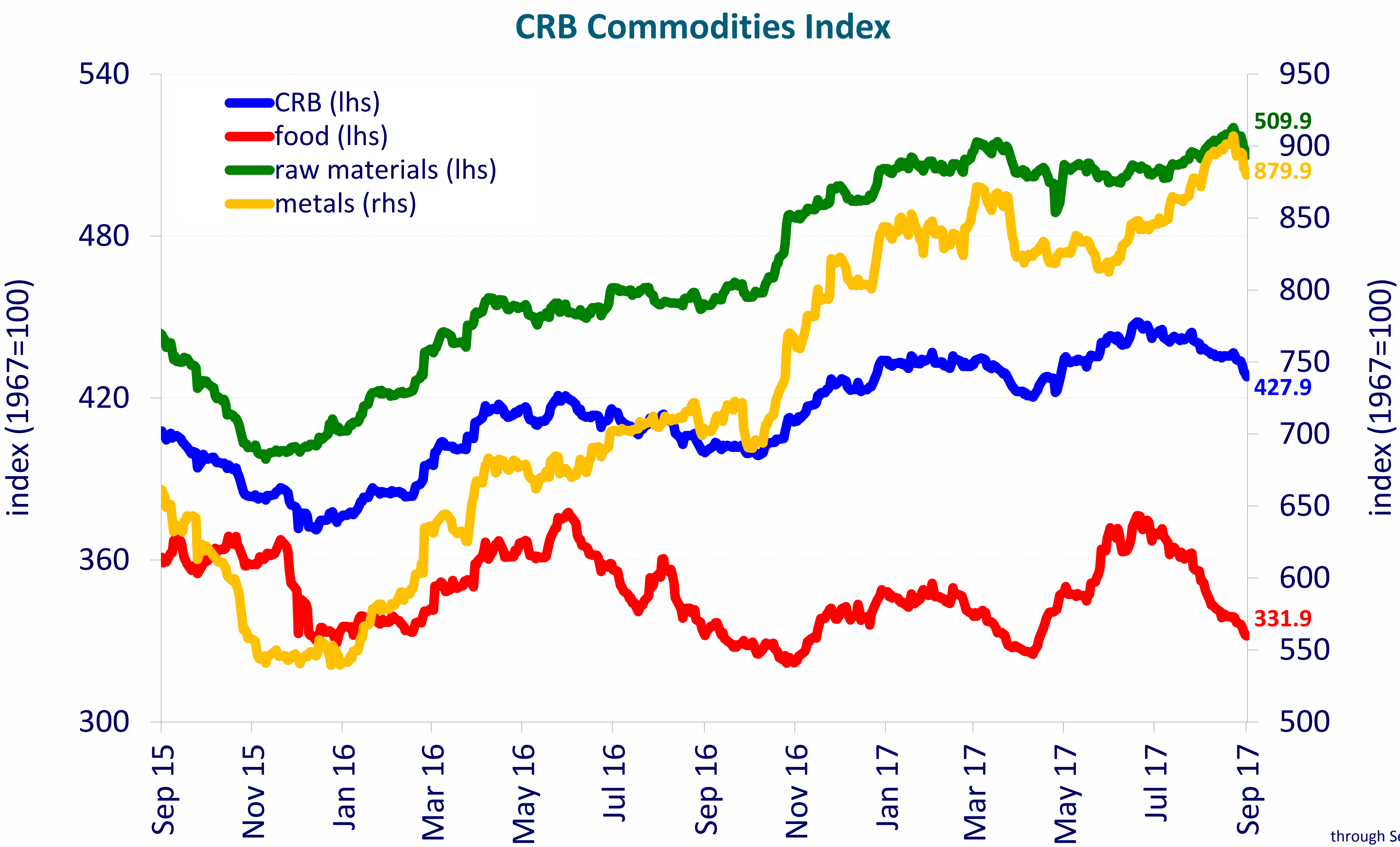
Source: Bloomberg (9/15)

# Long-Term Interest Rate


through Sep 15th

Source: Bloomberg

# Commodities Prices

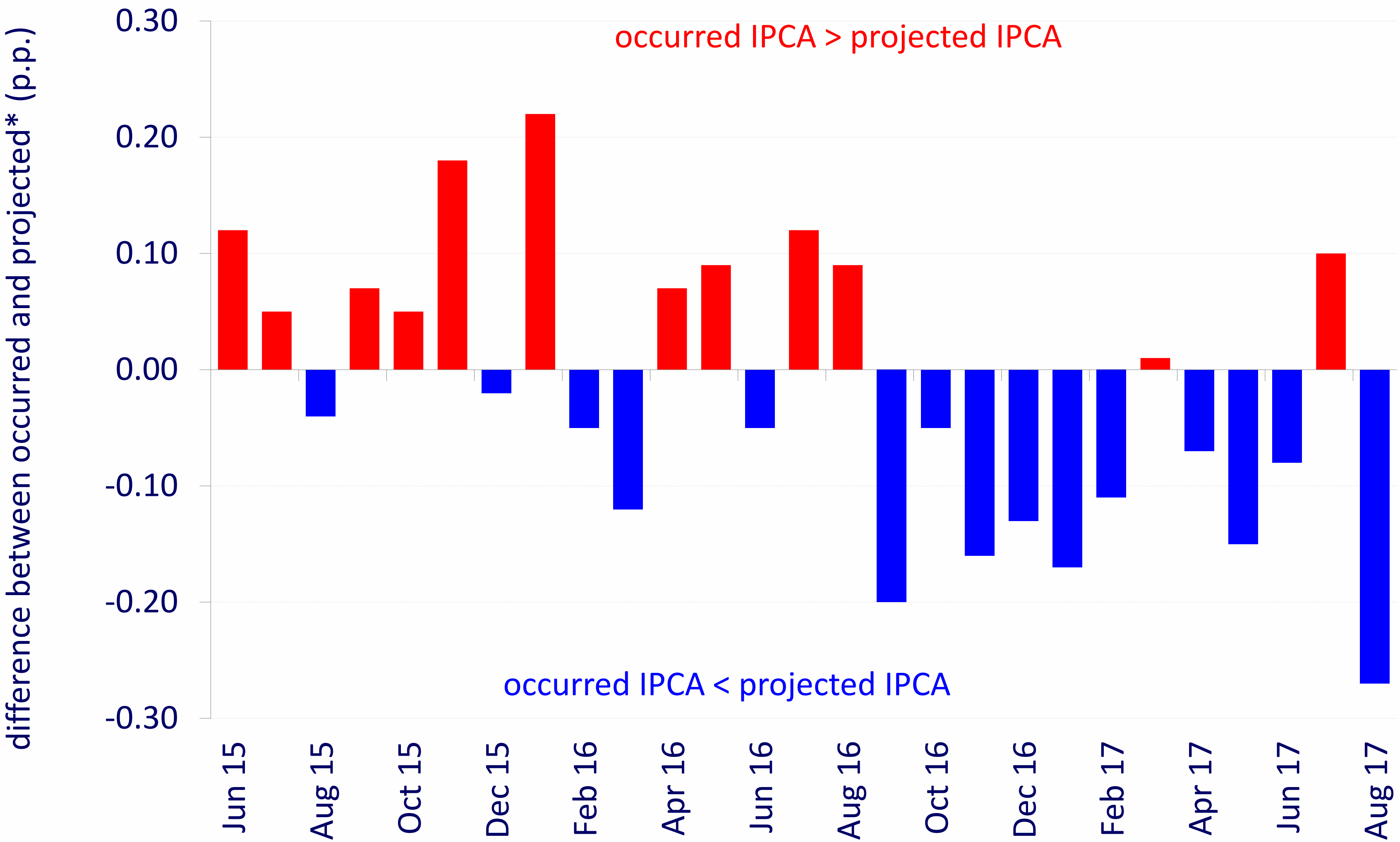



through Sep 15th

Source: Bloomberg

# iii. Inflation

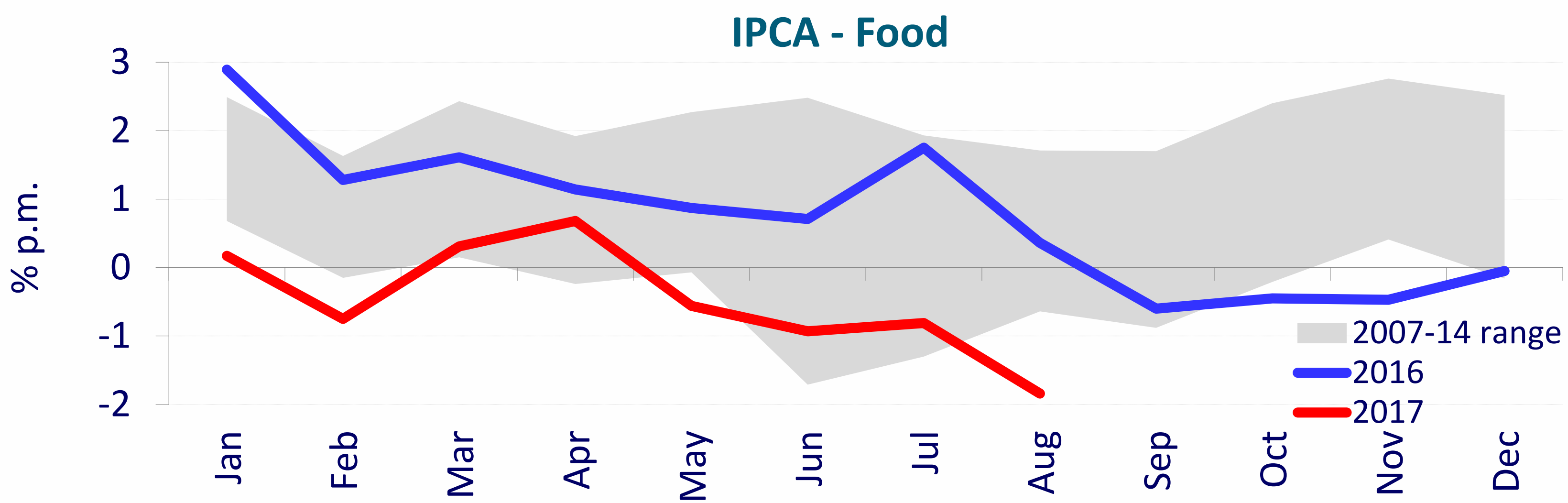
# Monthly IPCA – Expectations x Projected



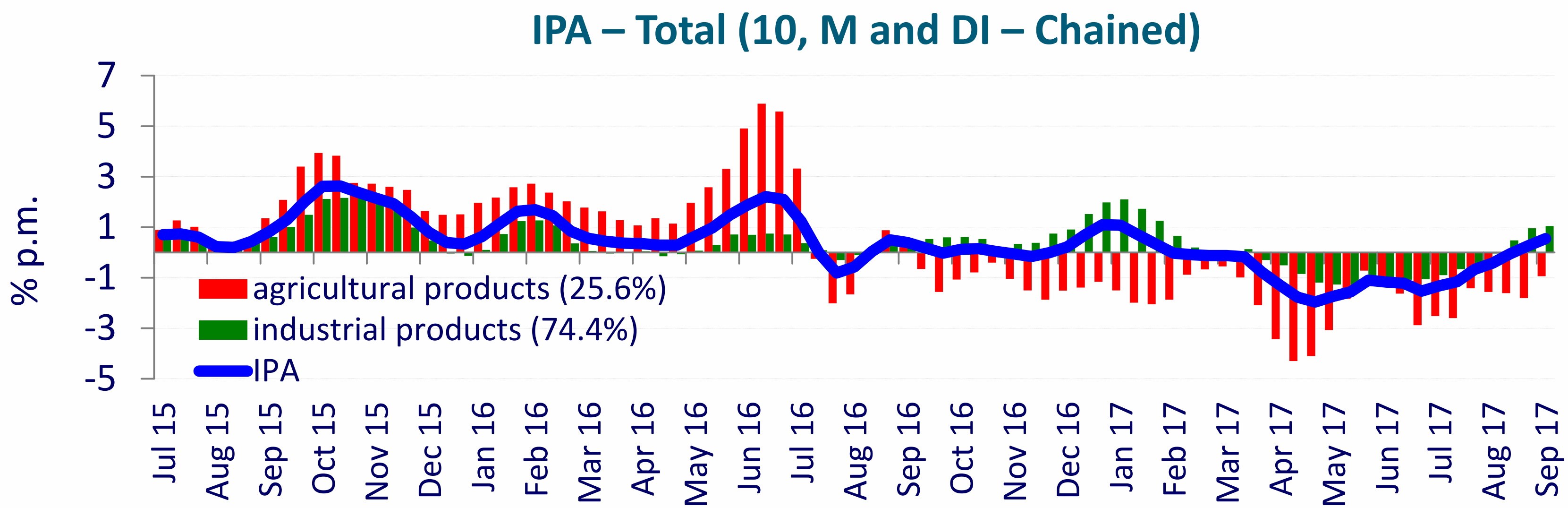

*projected on the IPCA Top 5 reference dates

Sources: IBGE and BC (Focus Survey))

# Food Disinflation

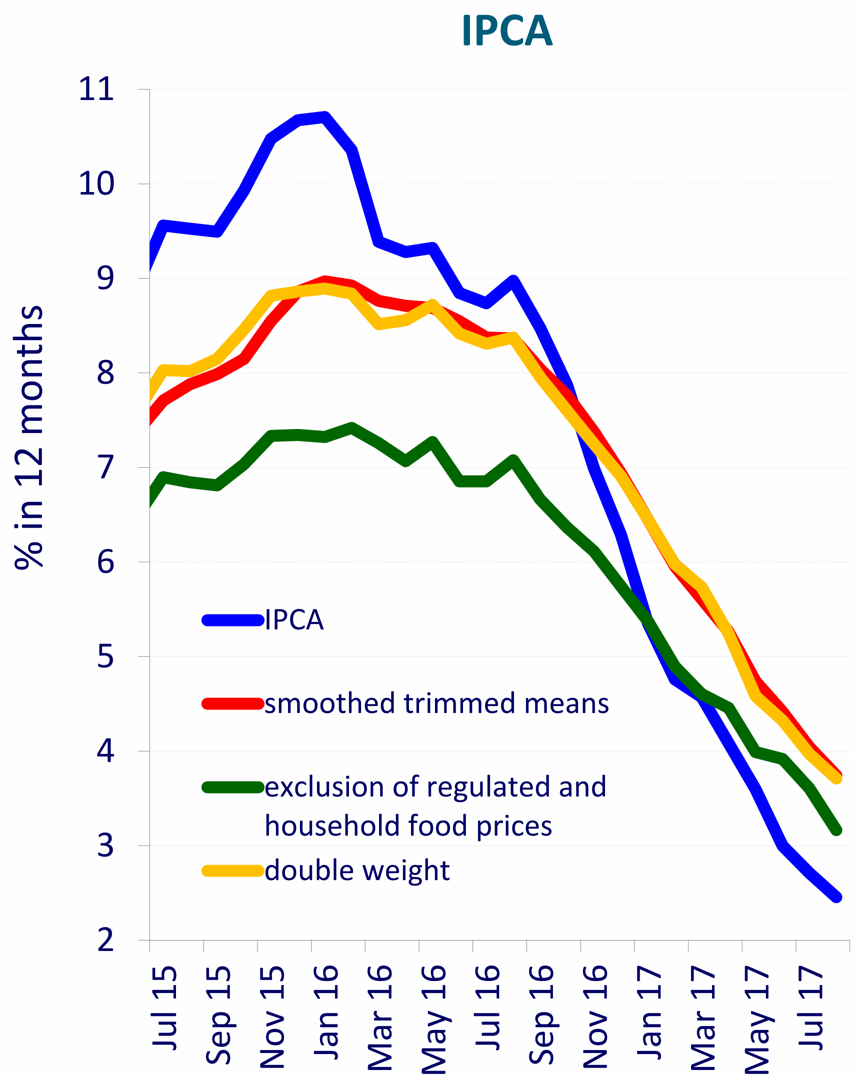


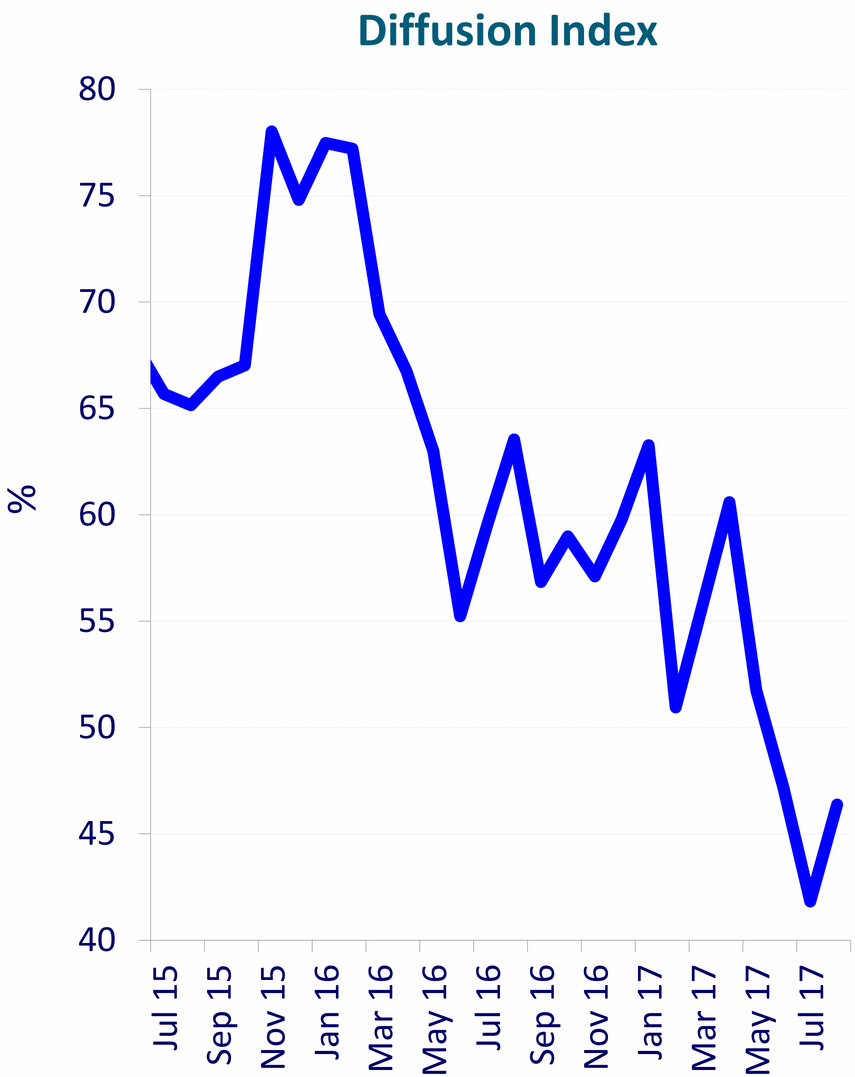

shadowed area: highs and lows for each month of 2007-2014




Sources: IBGE, FGV and BC

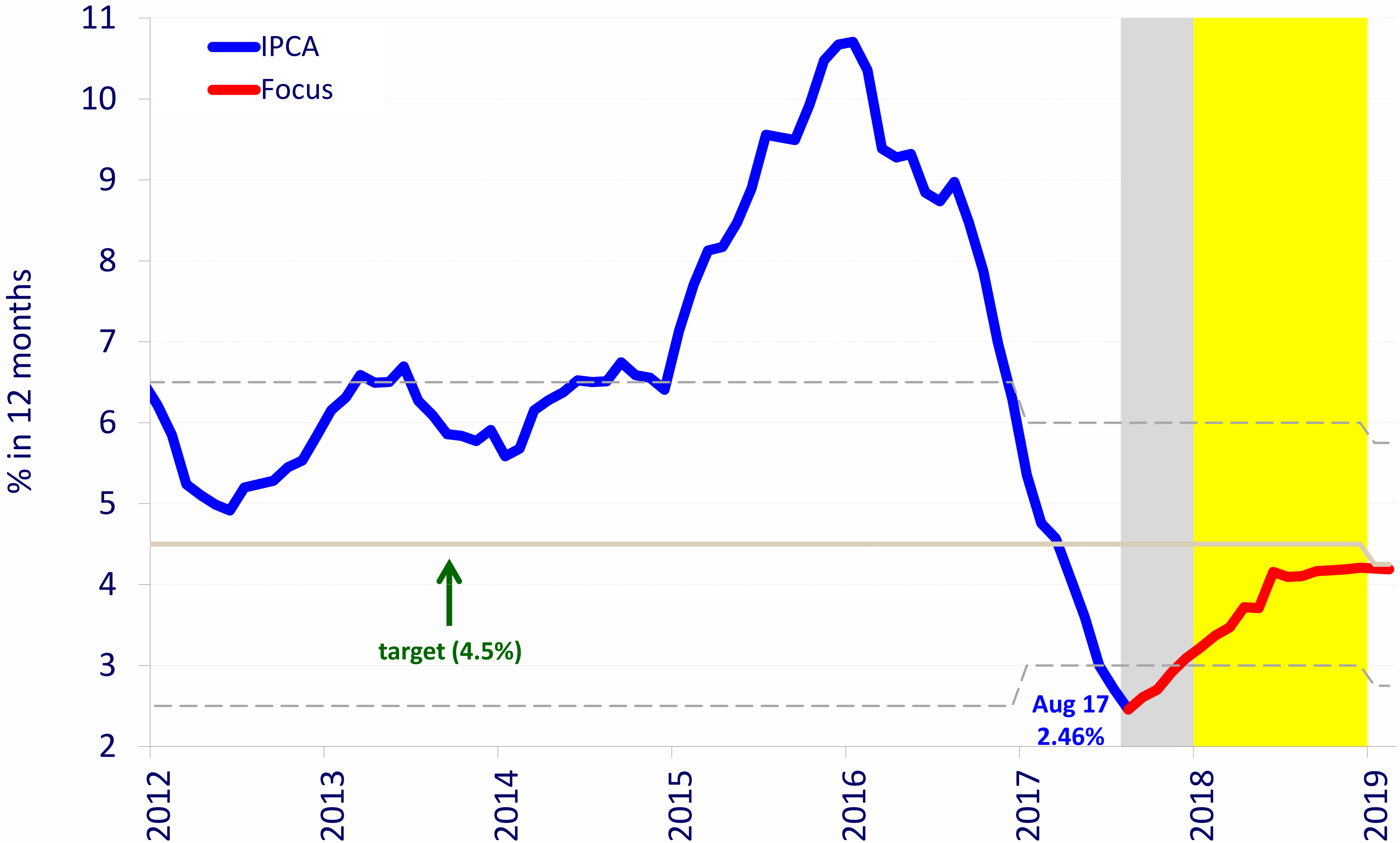
# IPCA – Headline, Cores and Diffusion Index




Source: IBGE

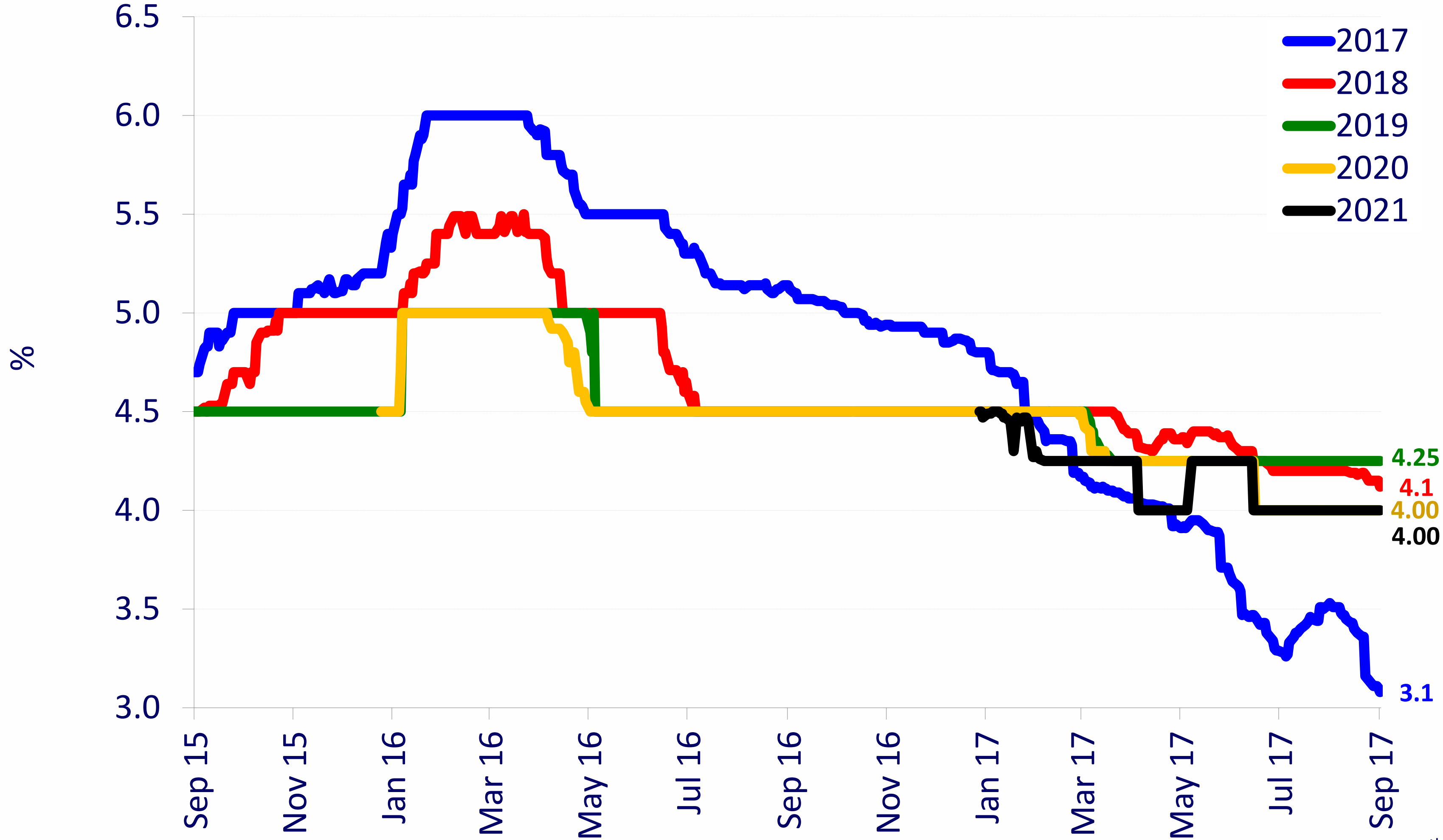
# Consumer Price Inflation (IPCA)




Focus: expectations as of Sep 15th

Source: BC (Focus Survey)

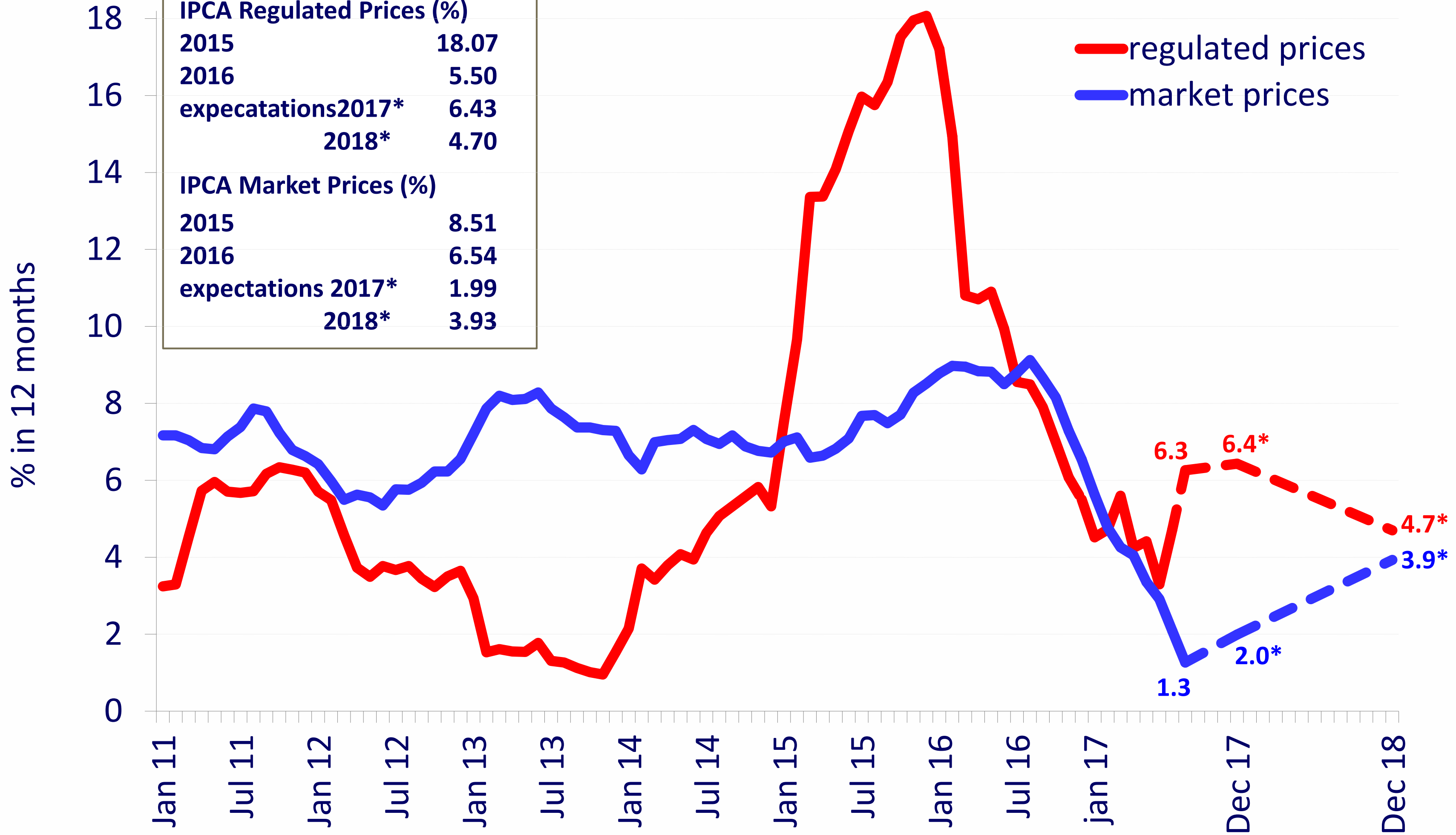
# Evolution of 2017-2021 IPCA Market Expectations




through Sep 15th

Source: BC (Focus)

# Market and Regulated Prices




| IPCA Regulated Prices (%) | |
|---|---|
| 2015 | 18.07 |
| 2016 | 5.50 |
| expecatations2017* | 6.43 |
| 2018* | 4.70 |
| **IPCA Market Prices (%)** | |
| 2015 | 8.51 |
| 2016 | 6.54 |
| expectations 2017* | 1.99 |
| 2018* | 3.93 |

*expectations on Sep 15th

Sources: IBGE and BC (Focus)

# Box: Reformulation of Models for Regulated Prices Medium Term Projection

- Regulated prices projection
  - Specialists' horizon
  - Longer horizons: main instruments are models, whose last revision had occurred in 2012
- New model "semi-structural calibrated": each of the 23 regulated prices items is modeled by an equation that captures basic relations of behavior of the variable based on information about the concession contracts, adjustment rules and methodologies used by IBGE to measure the variation of the items
- Projection determinants involve specific factors of the sector, energy commodity prices and macroeconomic variables, such as changes in IPCA, IGP-M and exchange rate

# Box: Structural Interest Rate and Conduction of Monetary Policy in Brazil

- Structural interest rate (or neutral interest rate): reference point for conducting monetary policy
    - If the real interest rate is below the structural rate: stimulating effect on the economy, tends to increase inflation
    - If the real interest rate is above the structural rate: contractionary effect on the economy, tends to decrease inflation
- The structural or neutral rate depends on structural factors, which can change over time. Reforms and adjustments in the economy affect the structural rate, which is independent of cyclical factors
- *Ex-ante* real interest rate in the Brazilian economy: currently around 3%

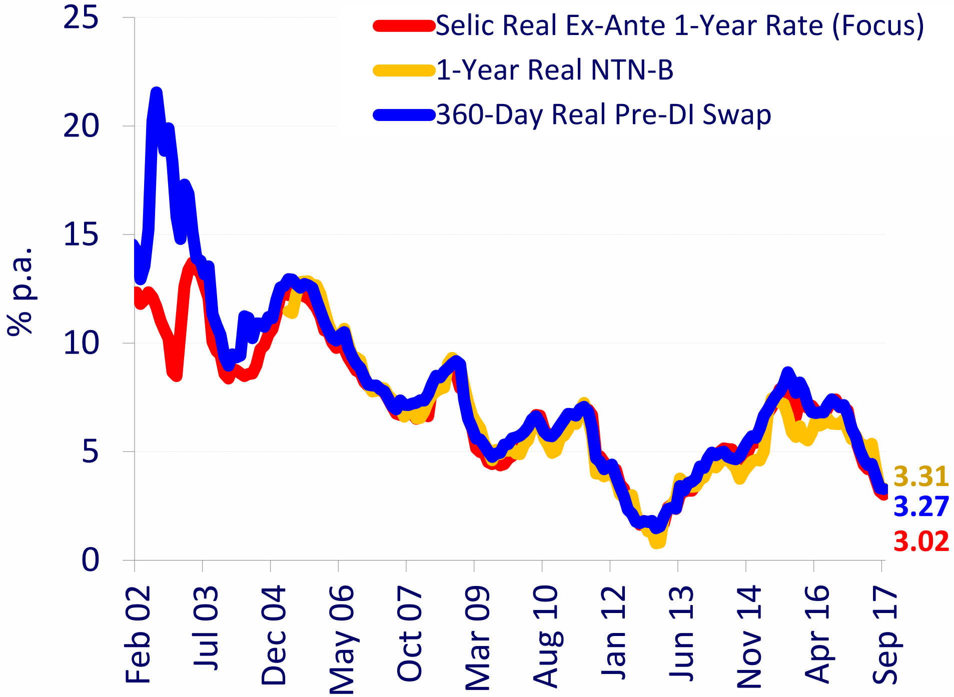
# Box: Structural Interest Rate and Conduction of Monetary Policy in Brazil

## Statistics of the Survey about Neutral Real Interest Rate

| Period | Short term | 2 years | 5 years |
|---|---|---|---|
| Mode (%) | 5.0 | 4.0 | 4.0 |
| Median (%) | 5.0 | 4.5 | 4.0 |
| Number of Answers | 82 | 79 | 75 |

Source: BC
Obs.: Survey conducted by the BC with the participants of the Market Expectations System in April 2017.

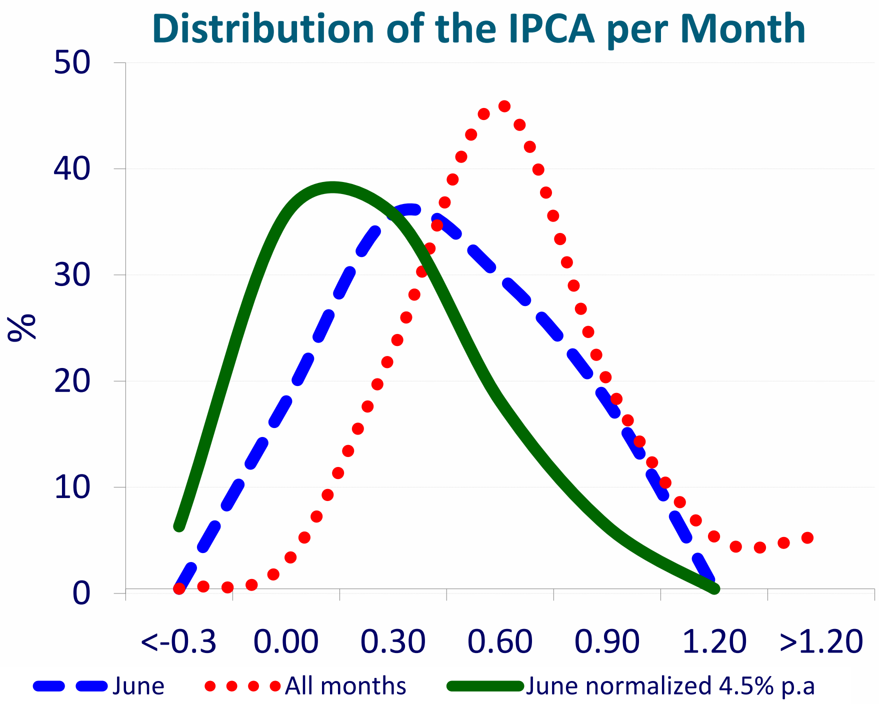
## Real Interest Rates: Selic Real Ex-Ante 1-Year Rate, 360-Day Real Pre-DI Swap and 1-Year Real NTN-B

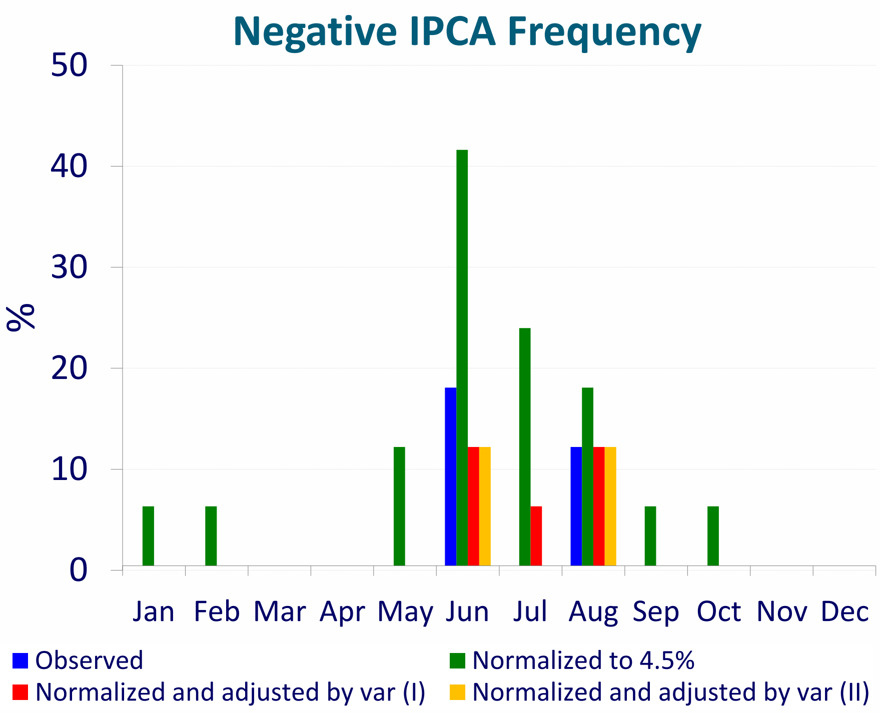



Obs: The values of the swap and NTN-B rates in September refer to averages up to 9/15.

# Box: Punctual Deflation and Inflation Historical Behavior

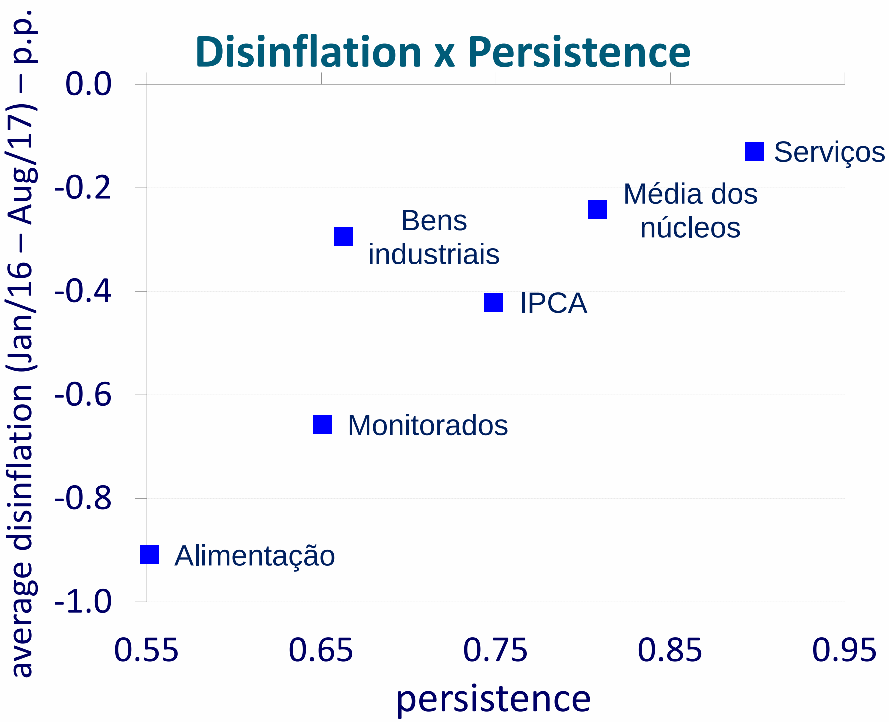
- Negative monthly changes in the IPCA become more frequent in periods of low inflation, especially in June and August, without configuring a deflation process

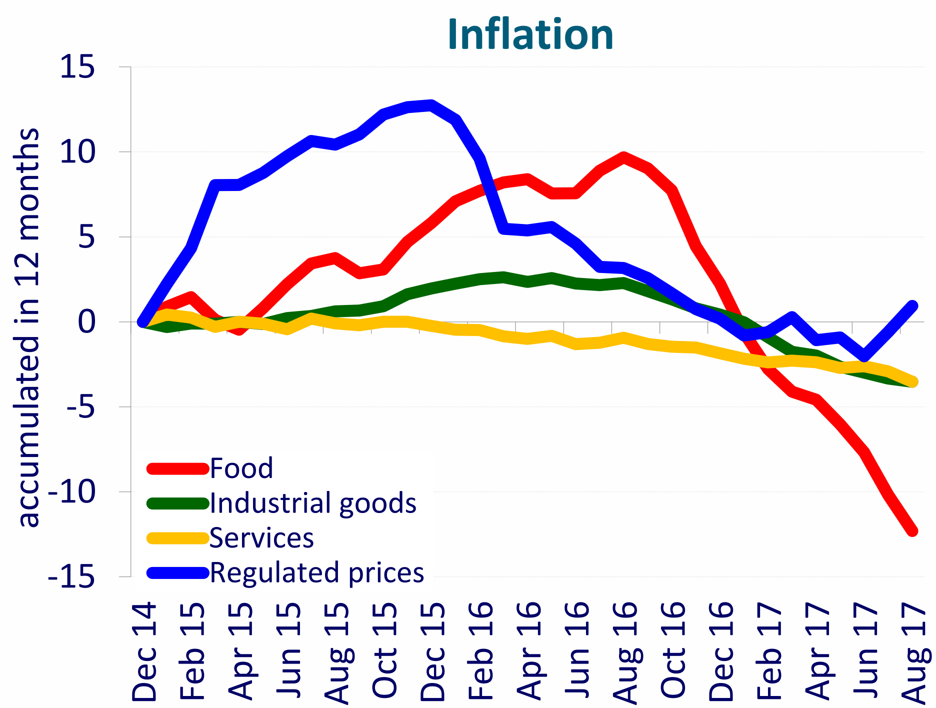


# Box: Inflationary Cycles and Persistence

- Persistence estimates illustrate the relevance of fluctuations in food and regulated prices for inflationary cycles, even more pronounced in the cycle observed since 2015



# III. Conditional Forecasts

# Revisions and Short-Term Forecasts

## IPCA – Inflationary Surprise

% change

| | 2017 | | | | |
|---|---|---|---|---|---|
| | Jun | Jul | Aug | in the quarter | 12 months through Aug |
| Copom Scenario[1/] | -0.10 | 0.30 | 0.27 | 0.47 | 2.73 |
| Observed IPCA | -0.23 | 0.24 | 0.19 | 0.20 | 2.46 |
| Surprise | -0.13 | -0.06 | -0.08 | -0.27 | -0.27 |

1/ At the June 2017 Inflation Report reference date

## IPCA – Short-Term Forecasts

% change

| | 2017 | | | | |
|---|---|---|---|---|---|
| | Sep | Oct | Nov | in the quarter | 12 months through Nov |
| Copom Scenario[1/] | 0.17 | 0.46 | 0.40 | 1.04 | 2.98 |

1/ Scenario at the reference date

Sources: IBGE and BC

# Conditional Inflation Forecasts

## Scenario with Focus Selic and Exchange Rates

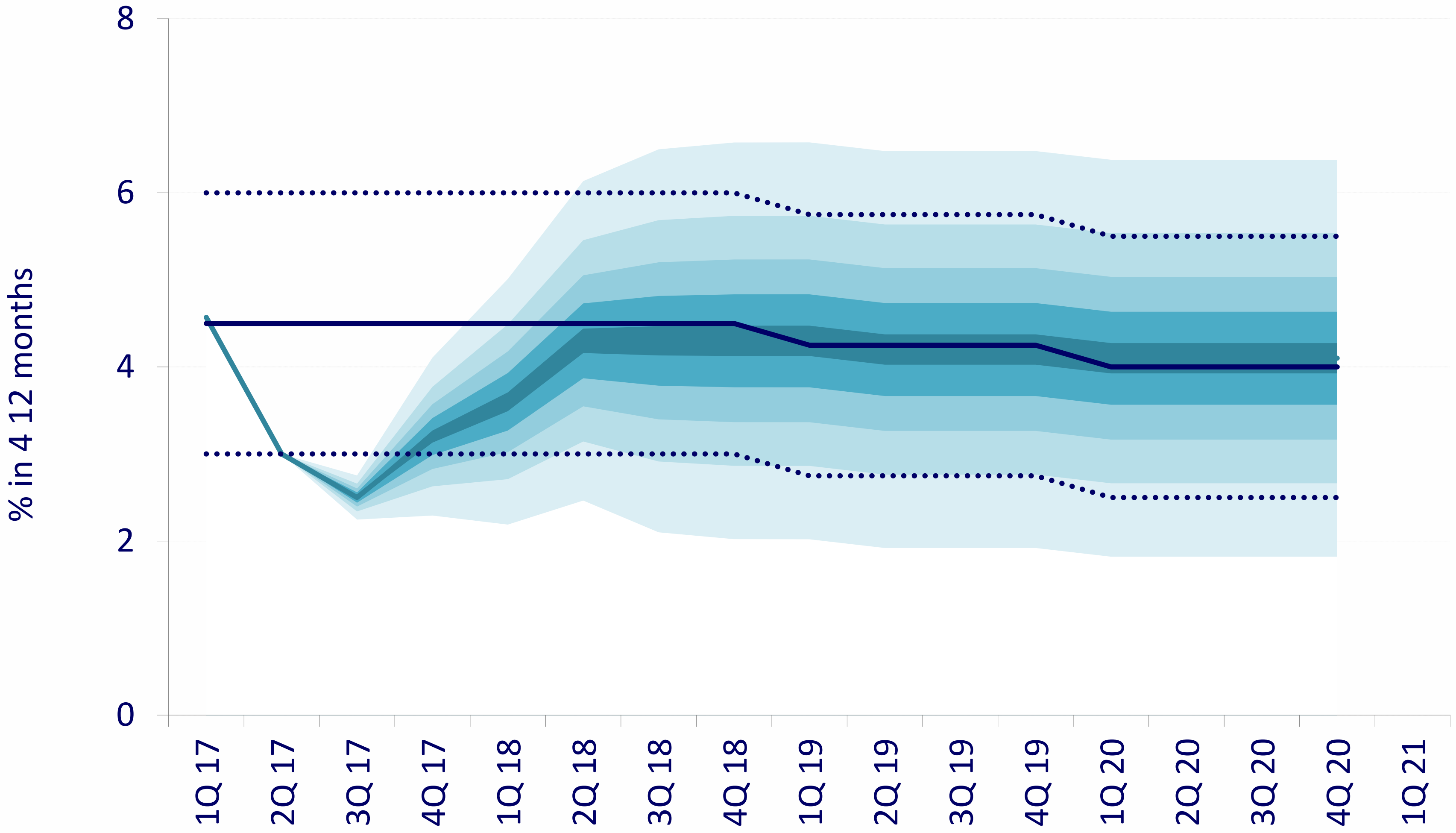
| Period | | June IR | September IR |
|---|---|---|---|
| 2017 | 3 | 2.9 | 2.5 |
| 2017 | 4 | 3.8 | 3.2 |
| 2018 | 1 | 4.4 | 3.6 |
| 2018 | 2 | 4.9 | 4.3 |
| 2018 | 3 | 4.7 | 4.3 |
| 2018 | 4 | 4.5 | 4.3 |
| 2019 | 1 | 4.4 | 43 |
| 2019 | 2 | 4.3 | 4.2 |
| 2019 | 3 | - | 4.2 |
| 2019 | 4 | - | 4.2 |
| 2020 | 1 | - | 4.1 |
| 2020 | 2 | - | 4.1 |
| 2020 | 3 | - | 4.1 |
| 2020 | 4 | - | 4.1 |

Obs.: 12-month accumulated inflation (%)

Source: BC

# Conditional Inflation Forecasts

## Scenario with Focus Selic and Exchange Rates




Source: BC

# Conditional Inflation Forecasts

## Reported Scenarios

| Período | | Focus Selic and Exchange Rates | Focus Selic and Constant Exchange Rate | Constant Selic and Exchange Rates | Constant Selic and Focus Exchange Rate |
|---|---|---|---|---|---|
| **2017** | **3** | **2.5** | **2.5** | **2.5** | **2.5** |
| **2017** | **4** | **3.2** | **3.2** | **3.2** | **3.2** |
| **2018** | **1** | **3.6** | **3.5** | **3.5** | **3.6** |
| **2018** | **2** | **4.3** | **4.1** | **4.0** | **4.2** |
| **2018** | **3** | **4.3** | **4.1** | **3.9** | **4.1** |
| **2018** | **4** | **4.3** | **4.1** | **3.8** | **4.1** |
| **2019** | **1** | **4.3** | **4.1** | **3.8** | **4.0** |
| **2019** | **2** | **4.2** | **4.0** | **3.7** | **4.0** |
| **2019** | **3** | **4.2** | **4.0** | **3.7** | **4.0** |
| **2019** | **4** | **4.2** | **3.9** | **3.7** | **4.0** |
| **2020** | **1** | **4.1** | **3.8** | **3.7** | **4.0** |
| **2020** | **2** | **4.1** | **3.8** | **3.7** | **4.0** |
| **2020** | **3** | **4.1** | **3.9** | **3.8** | **4.0** |
| **2020** | **4** | **4.1** | **3.9** | **3.8** | **4.0** |

Obs.: 12-month accumulated inflation (%)

Source: BC

# Conduct of Monetary Policy - 1

- In its meeting in September (209th meeting), the Copom unanimously decided for the reduction of the basic interest rate by one percentage point, to 8.25% p.y., without bias.
- The Committee judges that convergence of inflation to the 4.5% target over the relevant horizon for the conduct of monetary policy, which includes 2018, is compatible with the monetary easing process.
- At that time, the Copom communicated that its baseline scenario involves risk factors in both directions:
- On the one hand, possible second-round effects of the ongoing favorable food price shock and of low industrial goods inflation, and the possible propagation through inertial mechanisms of the low level of current inflation.
- On the other hand, frustration of expectations regarding the reforms and a reversal of the current benign global outlook for emerging economies.

# Conduct of Monetary Policy - 2

- The Committee members expressed the understanding that economic conditions, with anchored inflation expectations, underlying inflation measures running at low levels, inflation forecasts slightly below target for 2018, and high level of economic slack – prescribe accommodative monetary policy, i.e., interest rates below the structural level.

- The Copom emphasizes that the process of reforms, such as the recently approved credit policy measures, and of necessary adjustments in the Brazilian economy contributes to the reduction of its structural interest rate, whose estimates will be continuously reassesses over time.

# Conduct of Monetary Policy - 3

- The Copom emphasizes that economic conditions have allowed the Selic target rate to be reduced by one p.p. at the September meeting. Regarding the next Copom meeting, provided that the Committee's baseline scenario evolves as expected, and due to the stage of the monetary easing cycle, the Committee views a moderate reduction of the pace of easing as appropriate at this time. In addition, under those same circumstances, the Copom foresees a gradual ending to the cycle. Notwithstanding these perspectives, the Copom emphasizes that the monetary easing process 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 forecasts and expectations.

# Inflation Outlook

## Quarterly Inflation Report

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September 2017