Brazilian Economy:
Hold Time Until the Election

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Banco Central Del Uruguay,
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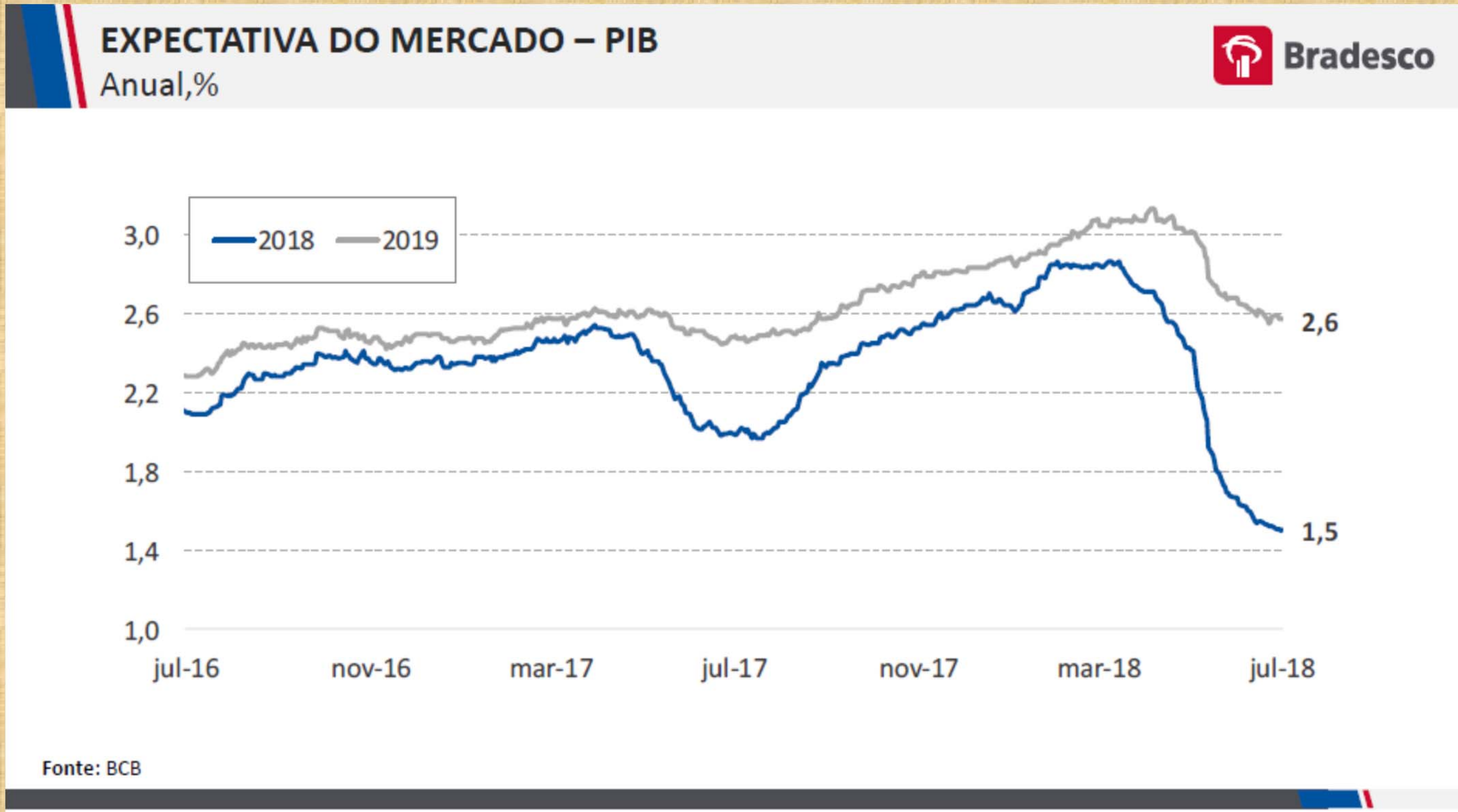
I thank Raphael Vasconcelos and Felipe Paixão for excellent reserch assistance, as well as AC Pastore and Bradesco, for data.

Current State of the Brazilian Economy

- Low GDP growth .
- Inflation remais under the target.
- Exchange rate very volatile, but capital flows and current account are fine.
- High foreign reserves.
- Investment paralyzed due to electoral uncertainty.
- Long-term fiscal situation is dire; public debt is not sustainable if reforms don’t happen.

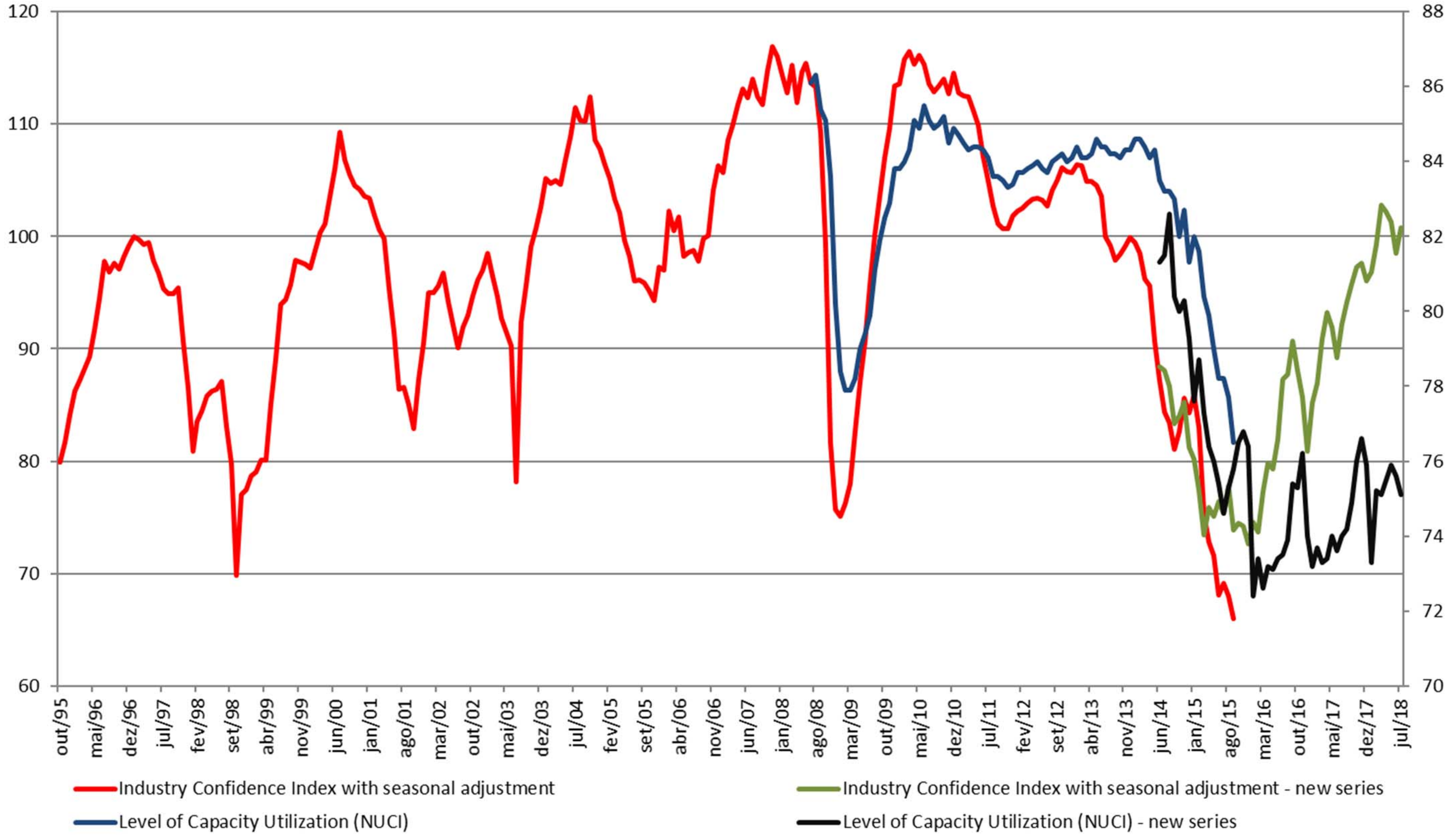
ECONOMIC ACTIVITY:

GDP Growth Expectations



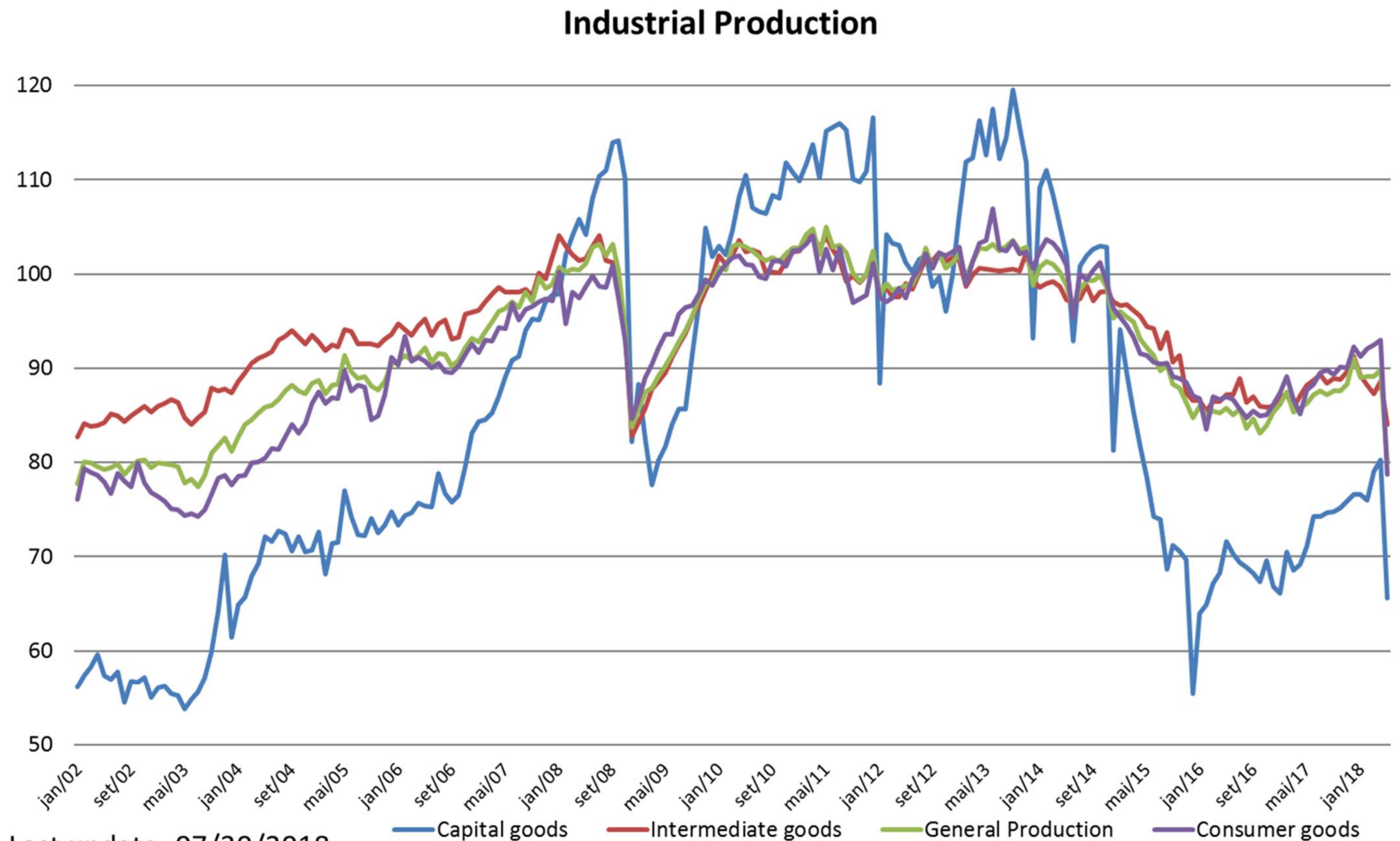
Data from 07/27/2018

Manufacturing: Capacity Utilization & Confidence Index (FGV)



Last update: 07/30/2018 Last data: jul/18

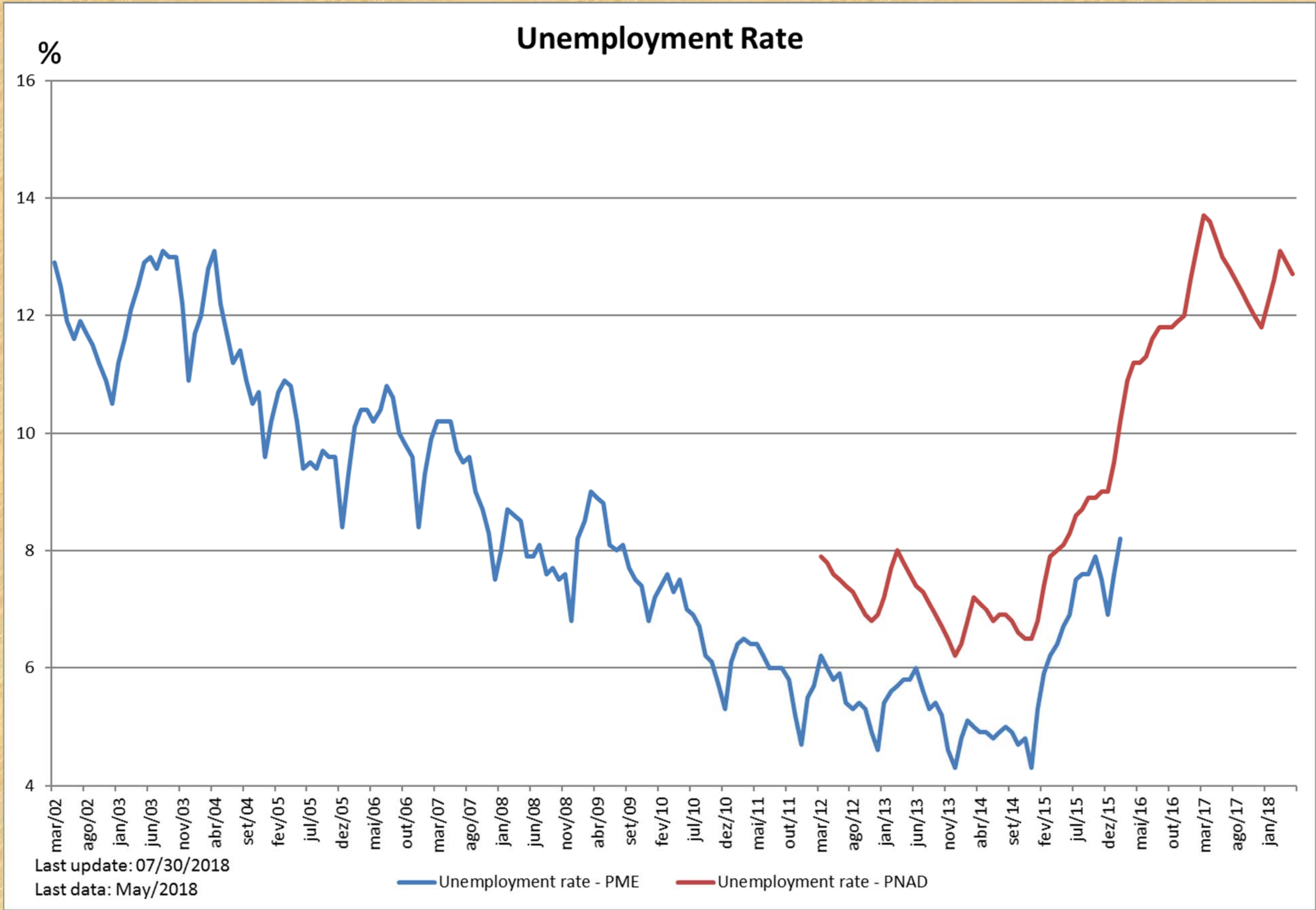
Source: IBRE



Last update: 07/30/2018
Last data: May/2018

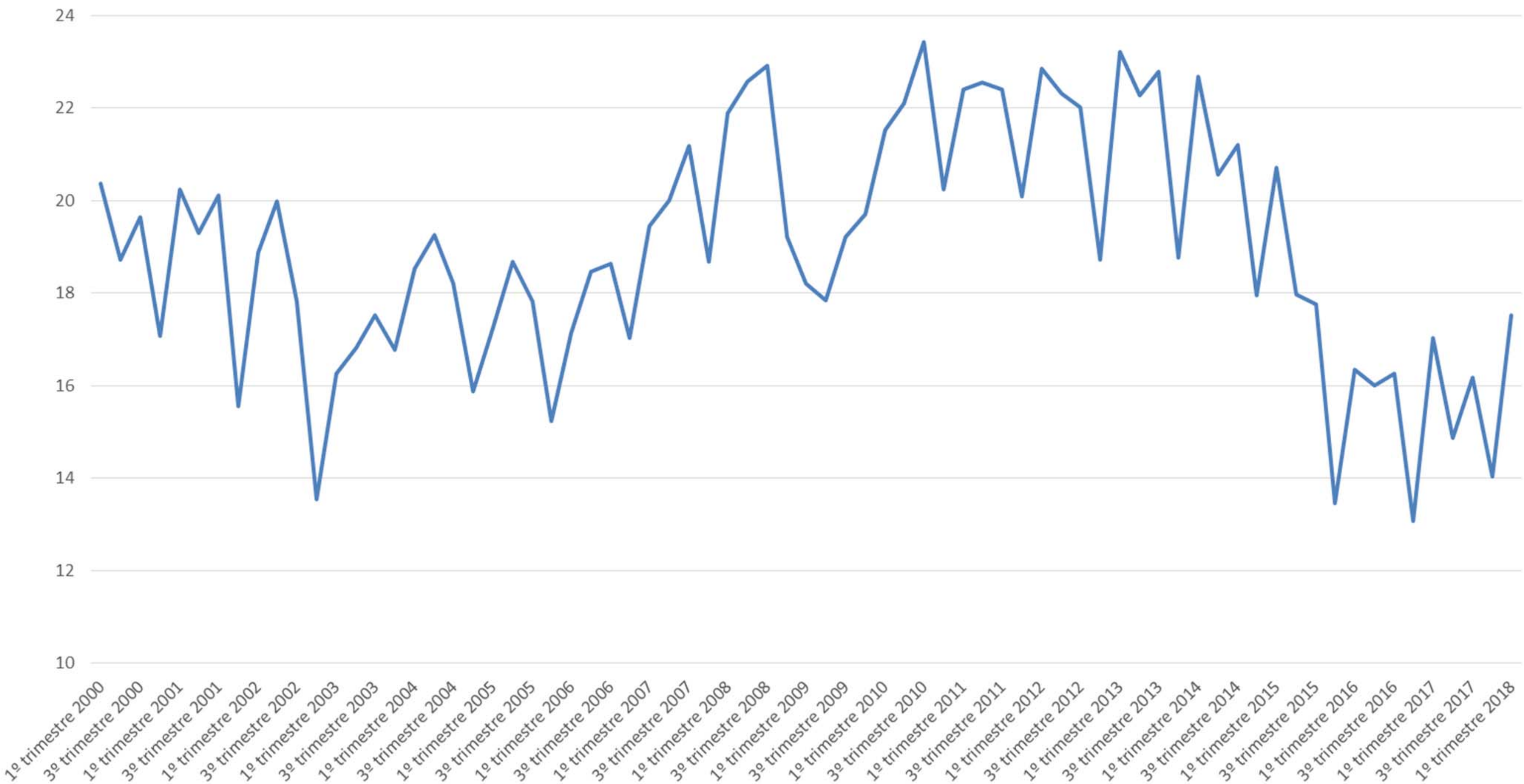
Source: IBGE

Unemployment Remains Very High



Source: Ipea

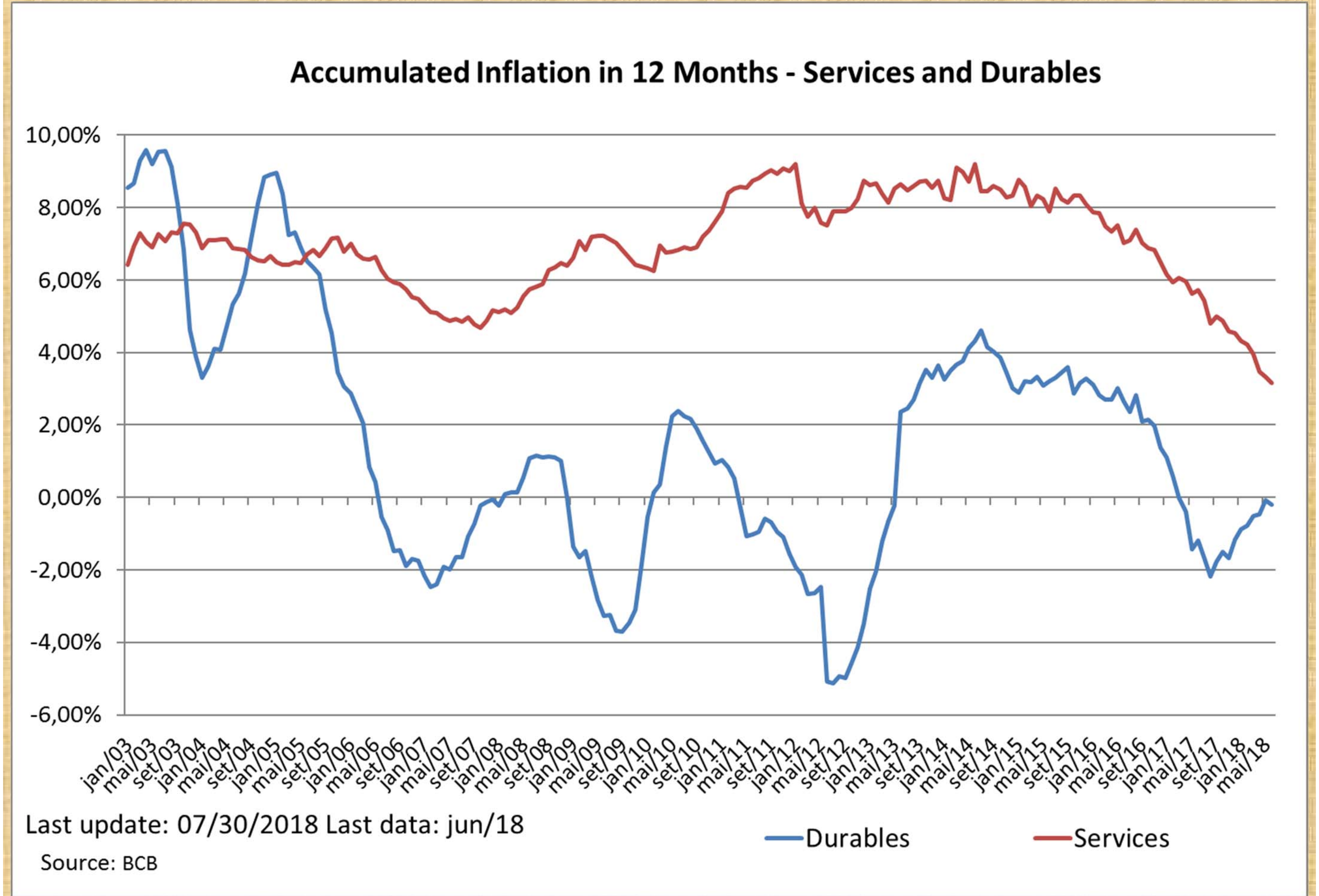
Investment/GDP



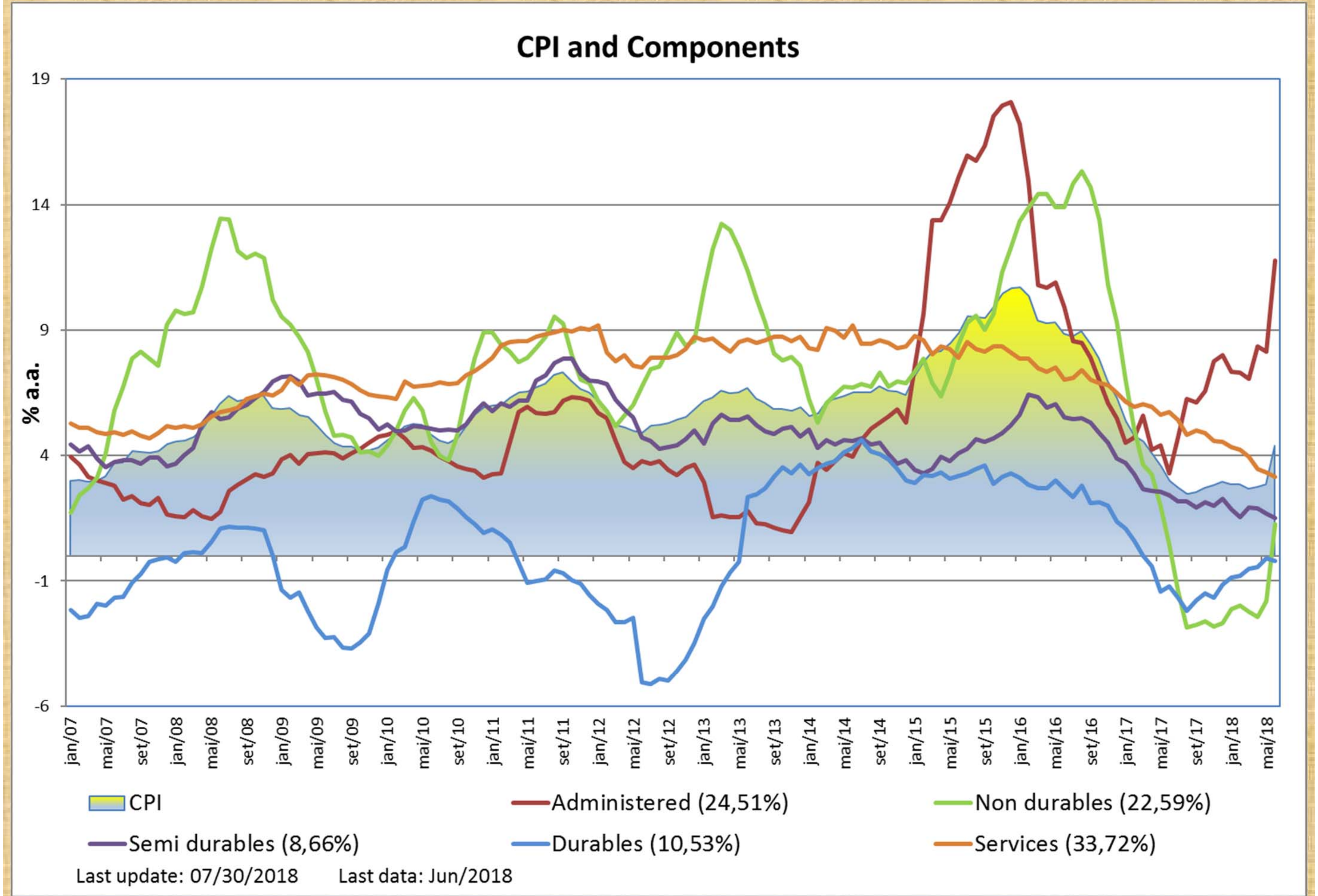
Source: IBGE

Last update: 08/01/2018 Last datum: 2018 first quarter

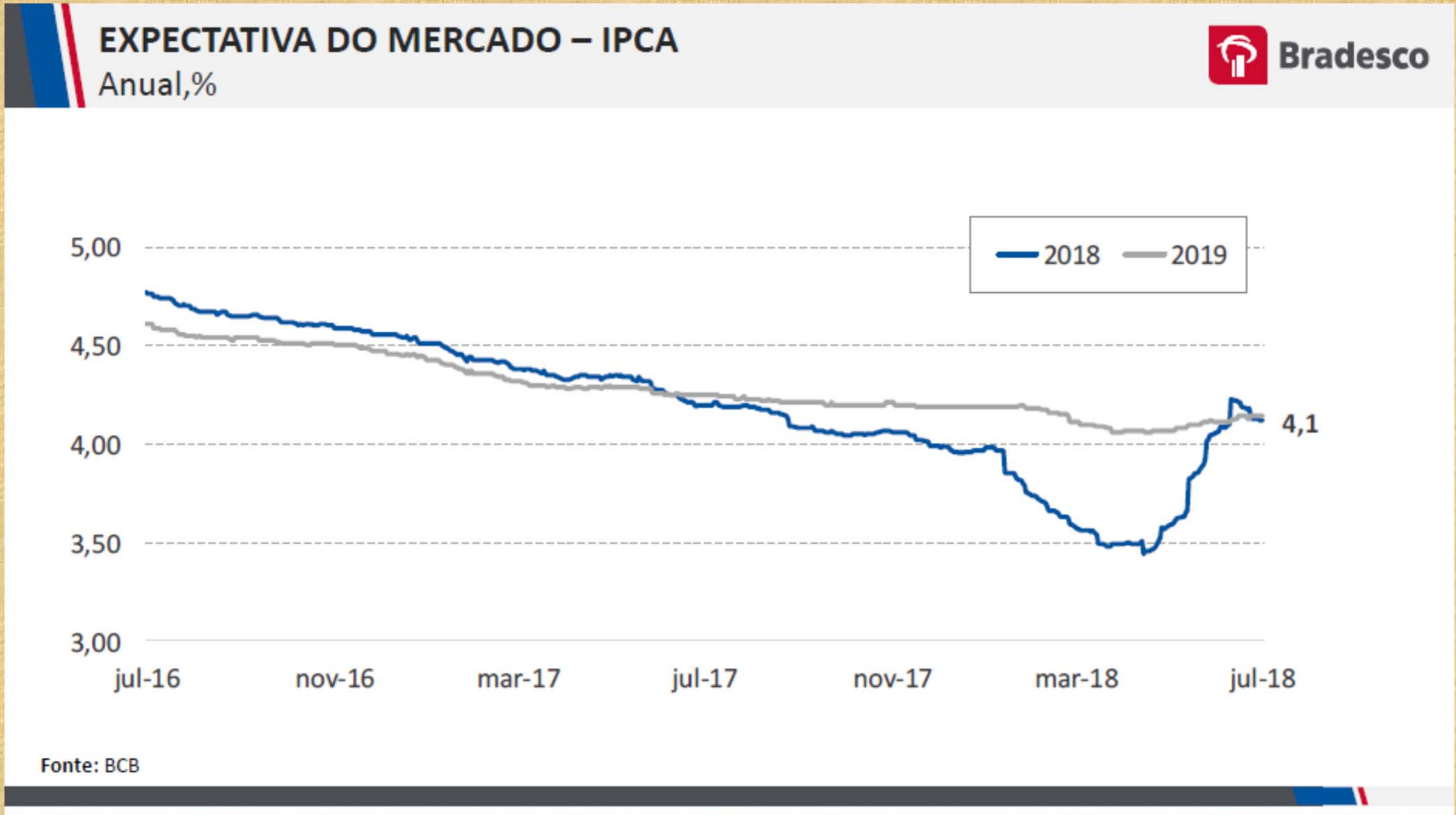
INFLATION:



Accumulated Inflation in 12 Months - Services and Durables
10,00%
8,00%
6,00%
4,00%
2,00%
0,00%
-2,00%
-4,00%
-6,00%
jan/03
mai/03
set/03
jan/04
mai/04
set/04
jan/05
mai/05
set/05
jan/06
mai/06
set/06
jan/07
mai/07
set/07
jan/08
mai/08
set/08
jan/09
mai/09
set/09
jan/10
mai/10
set/10
jan/11
mai/11
set/11
jan/12
mai/12
set/12
jan/13
mai/13
set/13
jan/14
mai/14
set/14
jan/15
mai/15
set/15
jan/16
mai/16
set/16
jan/17
mai/17
set/17
jan/18
mai/18
Last update: 07/30/2018 Last data: jun/18
Durables
Services
Source: BCB

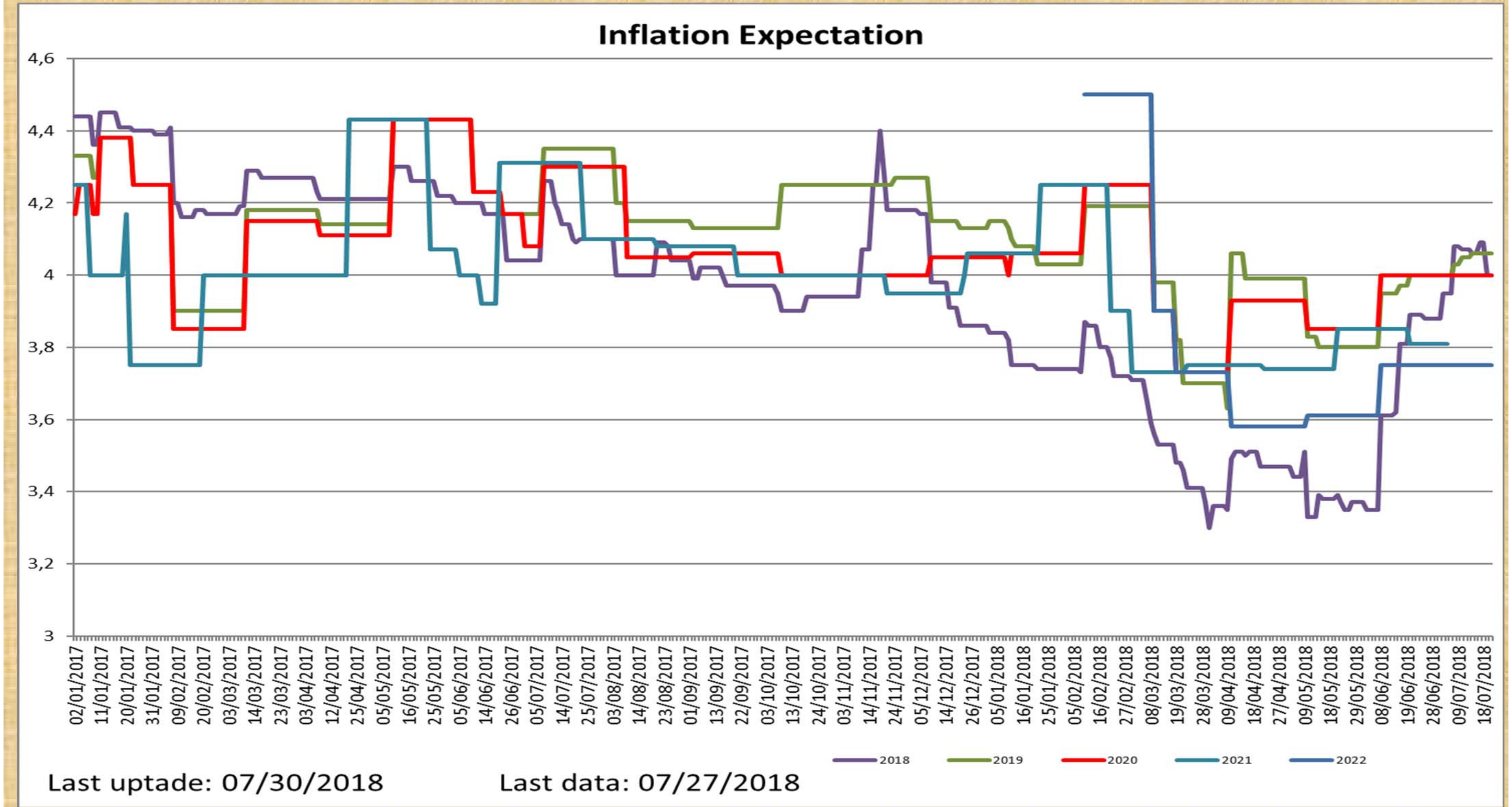

CPI and Components
19
14
9
4
-1
-6
% a.a.
jan/07
mai/07
set/07
jan/08
mai/08
set/08
jan/09
mai/09
set/09
jan/10
mai/10
set/10
jan/11
mai/11
set/11
jan/12
mai/12
set/12
jan/13
mai/13
set/13
jan/14
mai/14
set/14
jan/15
mai/15
set/15
jan/16
mai/16
set/16
jan/17
mai/17
set/17
jan/18
mai/18
CPI
Administered (24,51%)
Non durables (22,59%)
Semi durables (8,66%)
Durables (10,53%)
Services (33,72%)
Last update: 07/30/2018
Last data: Jun/2018

Source: BCB



Data from 07/27/2018

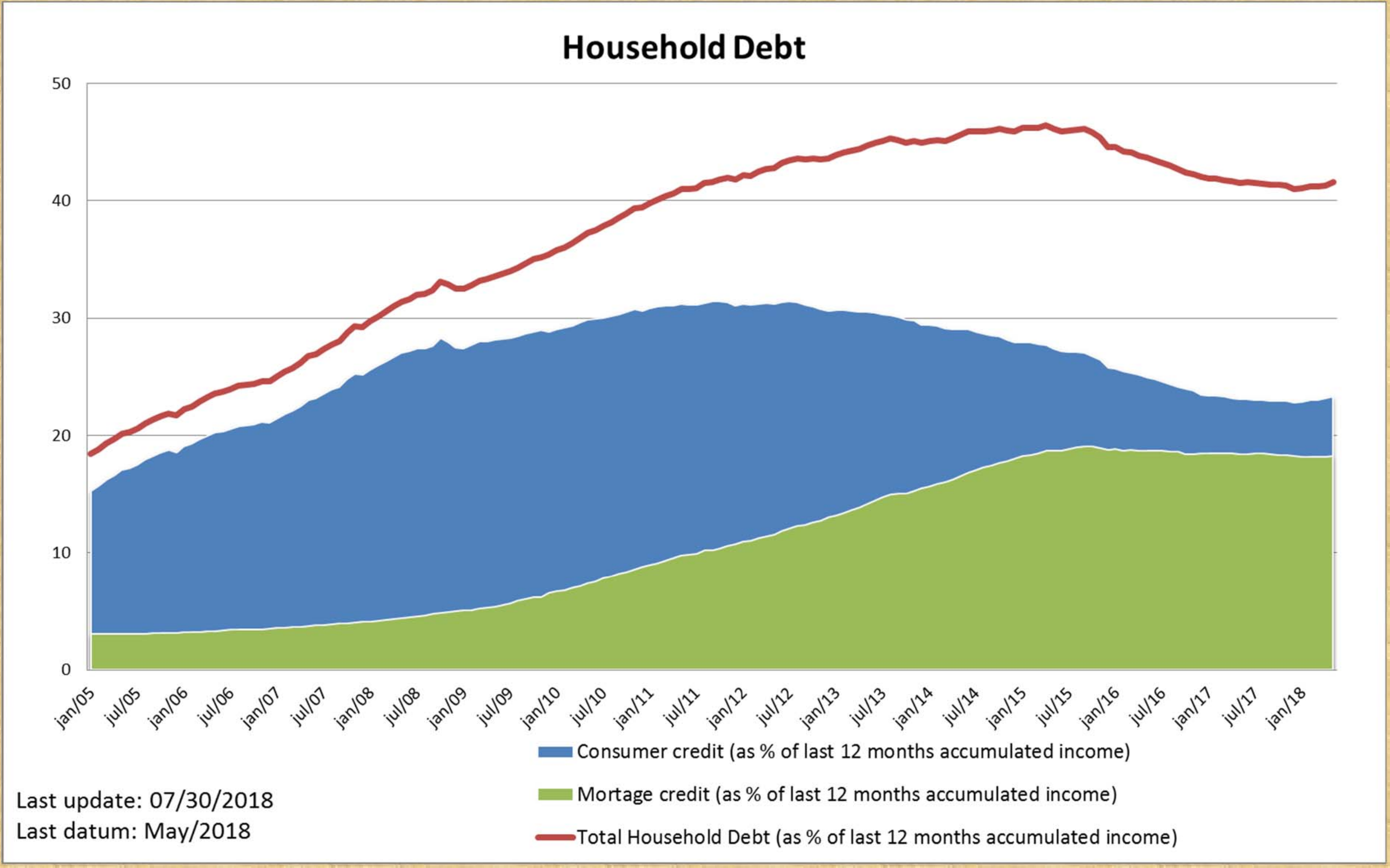
Long-Term Inflation Expectations On Target



Source: BCB

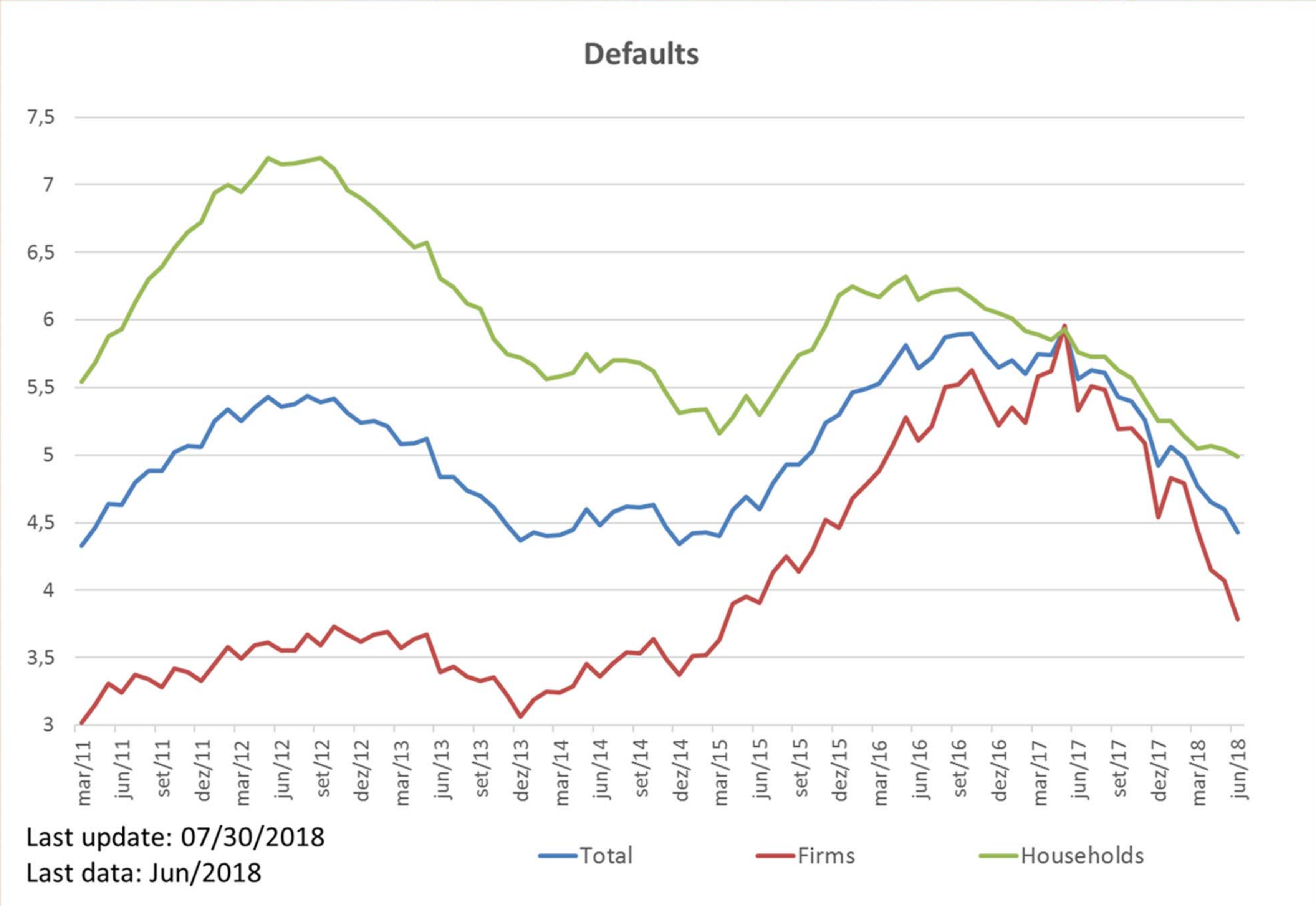
CREDIT:

Consumer Credit and Mortgages are flat

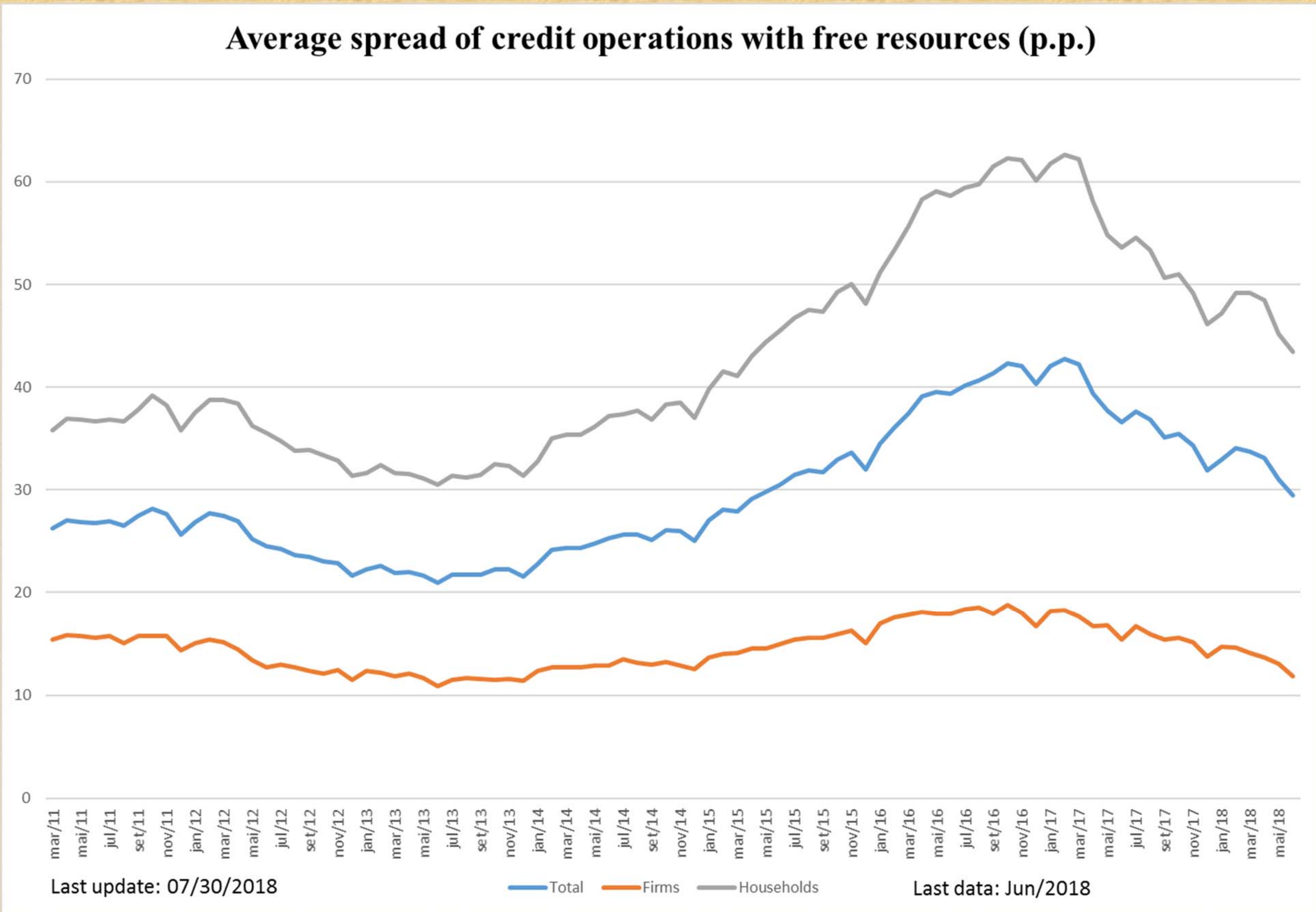


Source: BCB

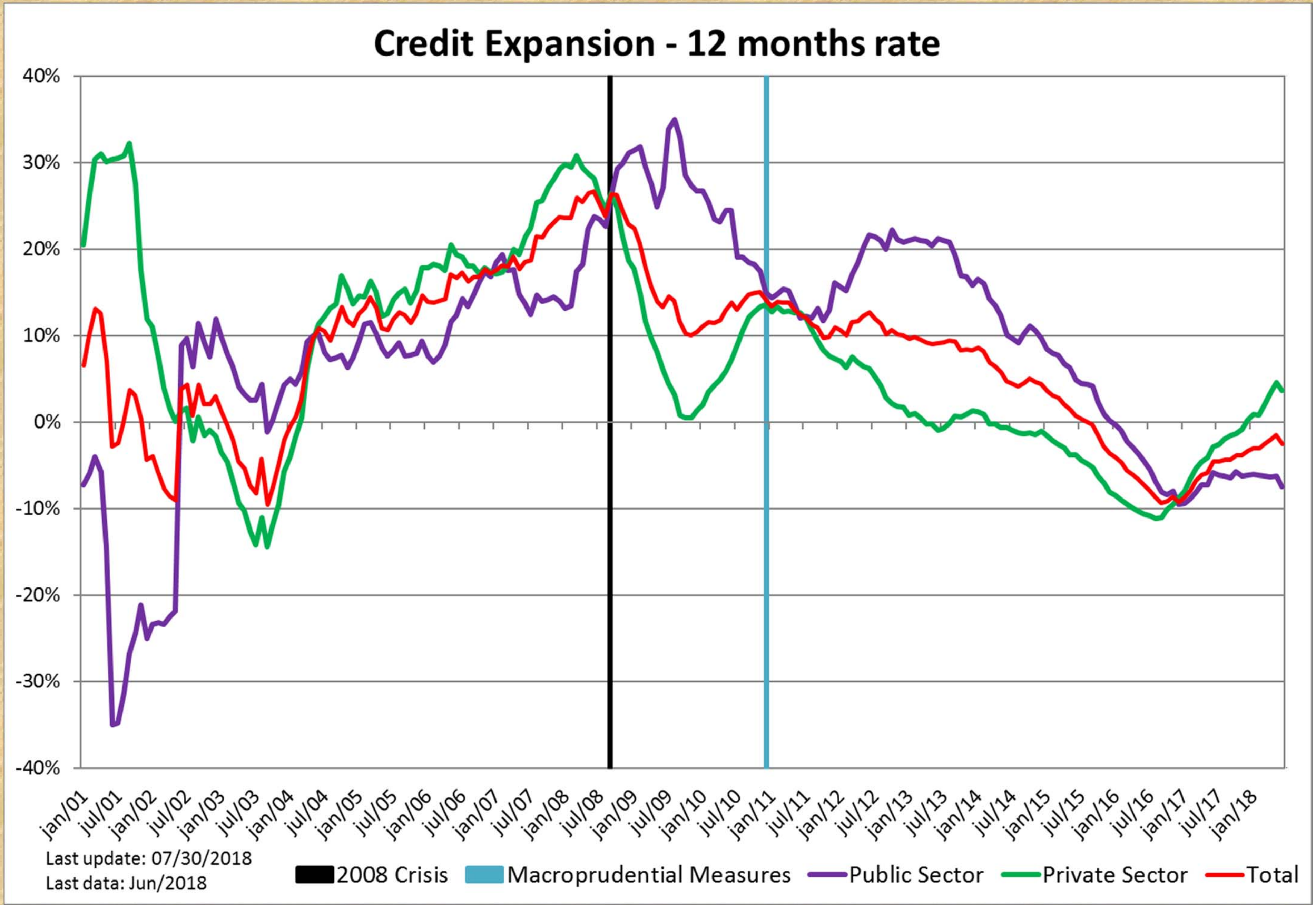
Delinquency Rates Falling



Source: BCB


Average spread of credit operations with free resources (p.p.)
70
60
50
40
30
20
10
0
mar/11
mai/11
jul/11
set/11
nov/11
jan/12
mar/12
mai/12
jul/12
set/12
nov/12
jan/13
mar/13
mai/13
jul/13
set/13
nov/13
jan/14
mar/14
mai/14
jul/14
set/14
nov/14
jan/15
mar/15
mai/15
jul/15
set/15
nov/15
jan/16
mar/16
mai/16
jul/16
set/16
nov/16
jan/17
mar/17
mai/17
jul/17
set/17
nov/17
jan/18
mar/18
mai/18
Last update: 07/30/2018
Total
Firms
Households
Last data: Jun/2018

Source: BCB

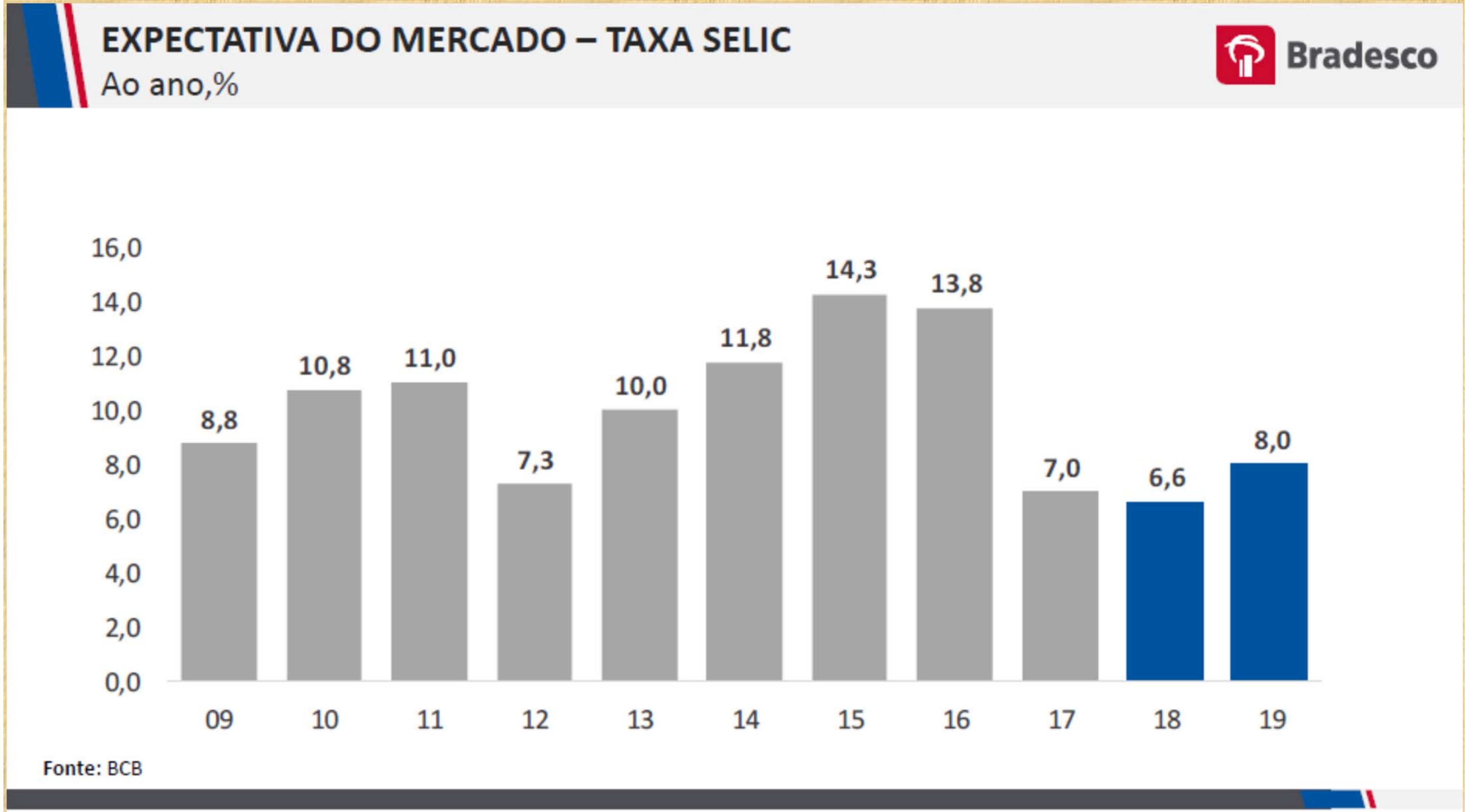


Credit Expansion - 12 months rate
40%
30%
20%
10%
0%
-10%
-20%
-30%
-40%
jan/01
jul/01
jan/02
jul/02
jan/03
jul/03
jan/04
jul/04
jan/05
jul/05
jan/06
jul/06
jan/07
jul/07
jan/08
jul/08
jan/09
jul/09
jan/10
jul/10
jan/11
jul/11
jan/12
jul/12
jan/13
jul/13
jan/14
jul/14
jan/15
jul/15
jan/16
jul/16
jan/17
jul/17
jan/18
Last update: 07/30/2018
Last data: Jun/2018
2008 Crisis
Macroprudential Measures
Public Sector
Private Sector
Total

Source: BCB

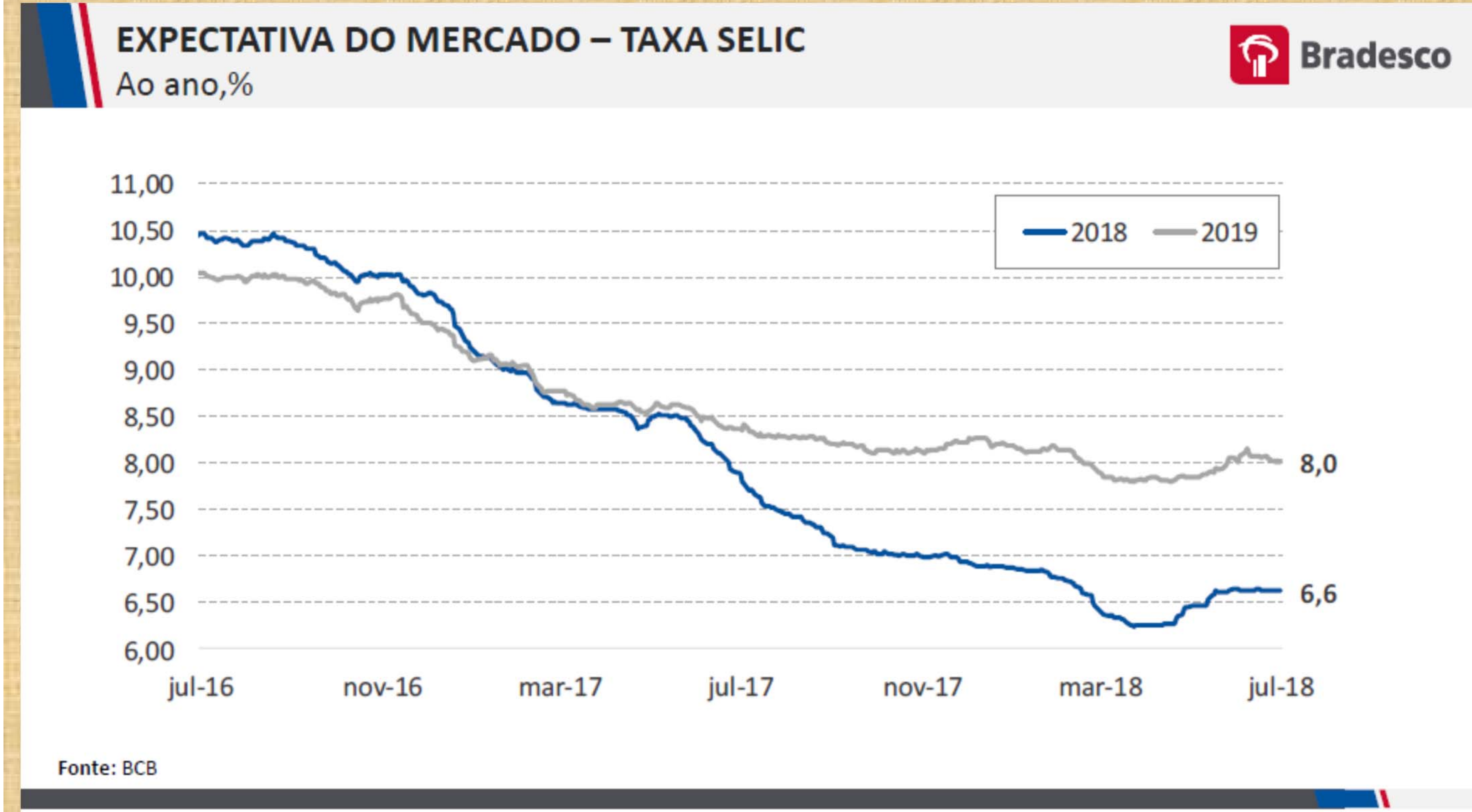
INTEREST RATES:

Nominal Interest Rates Expectations



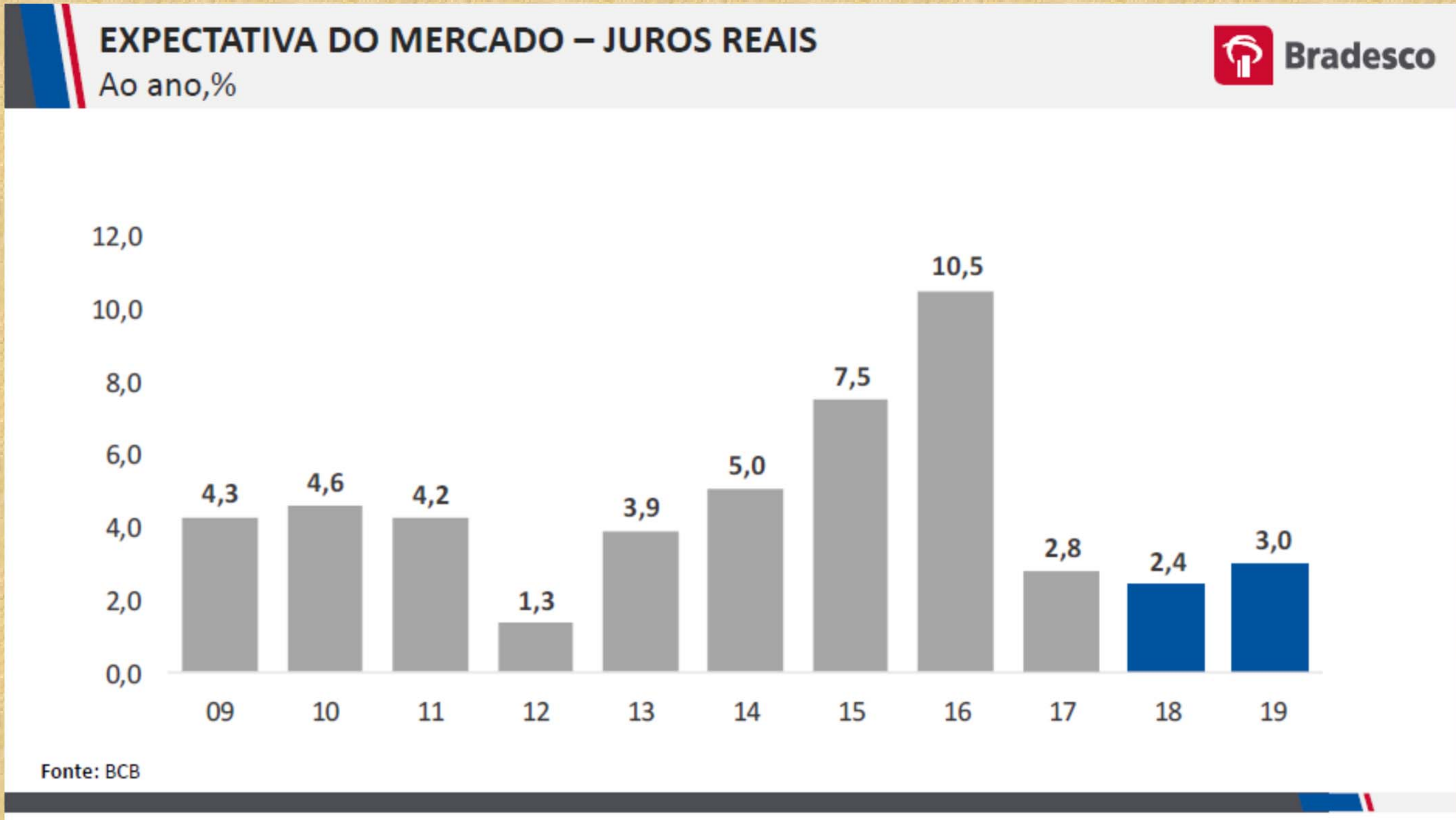
Data from 07/27/2018

The Fall in Selic Rates Was Surprising

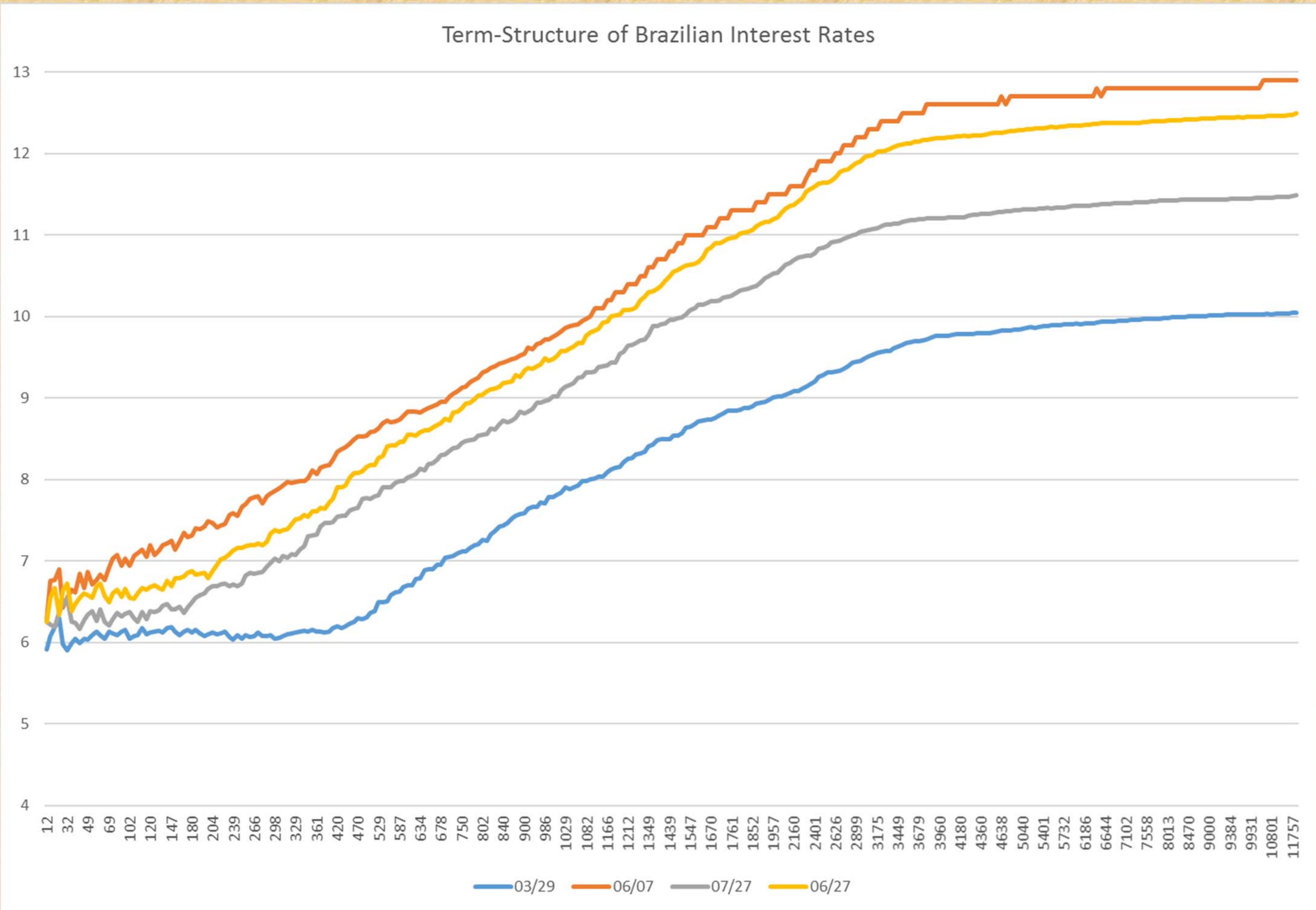


Data from 07/27/2018

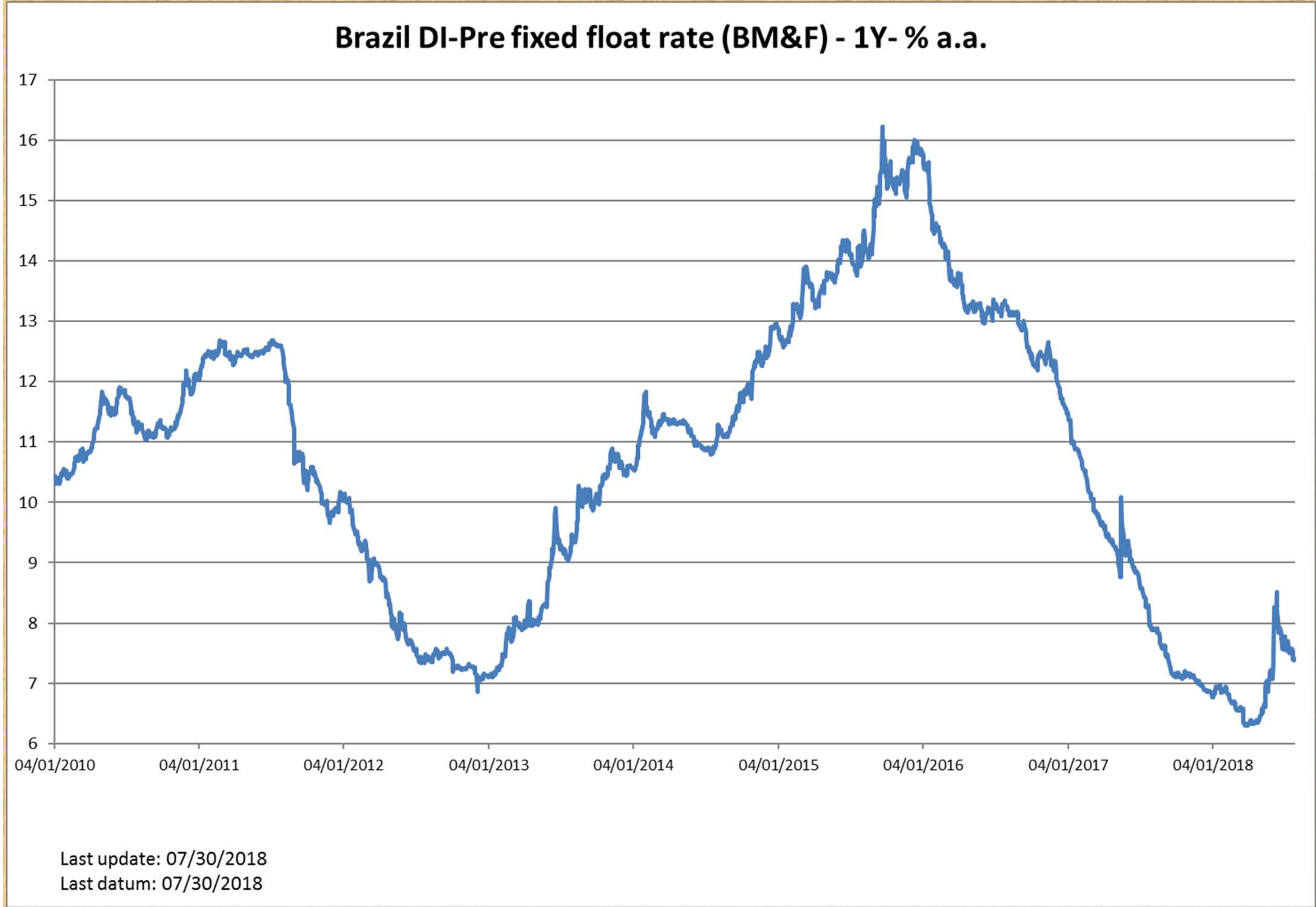
Real Interest Rates Expectations



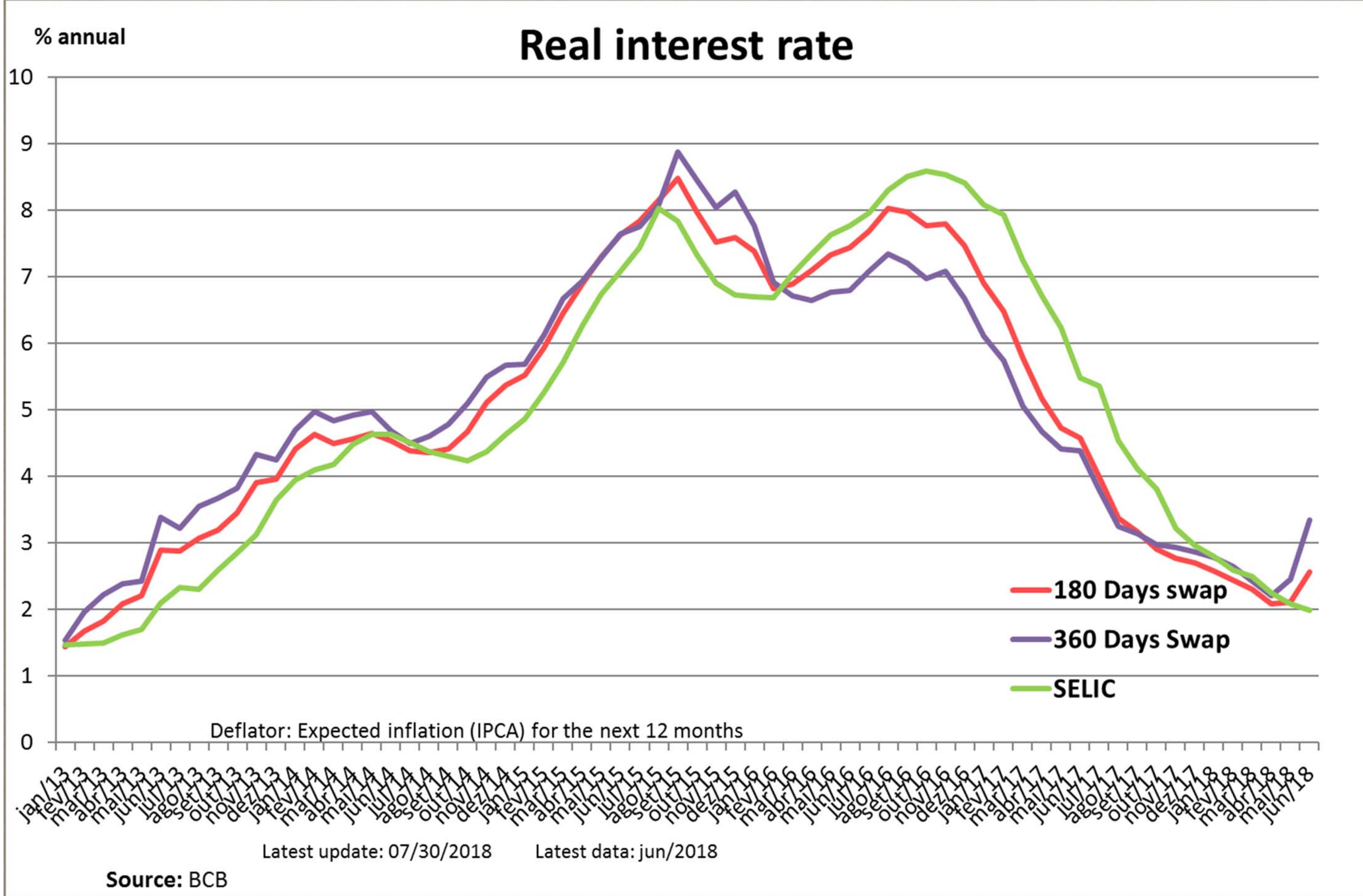
Data from 07/27/2018

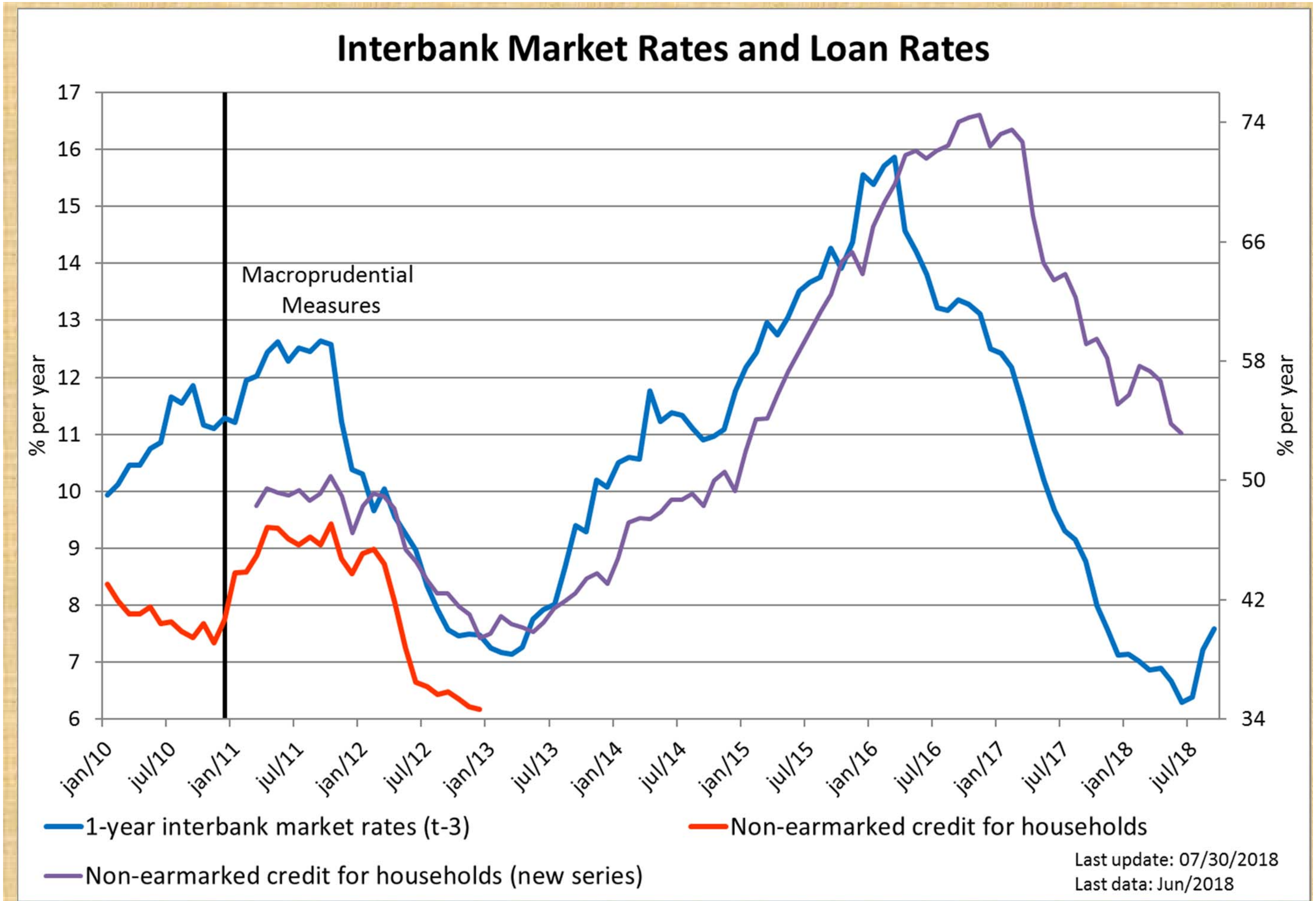

Term-Structure of Brazilian Interest Rates
13
12
11
10
9
8
7
6
5
4
12
32
49
69
102
120
147
180
204
239
266
298
329
361
420
470
529
587
634
678
750
802
840
900
986
1029
1082
1166
1212
1349
1439
1547
1670
1761
1852
1957
2160
2401
2626
2899
3175
3449
3679
3960
4180
4360
4638
5040
5401
5732
6186
6644
7102
7558
8013
8470
9000
9384
9931
10801
11757
03/29
06/07
07/27
06/27

Source: B3


Brazil DI-Pre fixed float rate (BM&F) - 1Y- % a.a.
17
16
15
14
13
12
11
10
9
8
7
6
04/01/2010
04/01/2011
04/01/2012
04/01/2013
04/01/2014
04/01/2015
04/01/2016
04/01/2017
04/01/2018
Last update: 07/30/2018
Last datum: 07/30/2018

Source: BCB

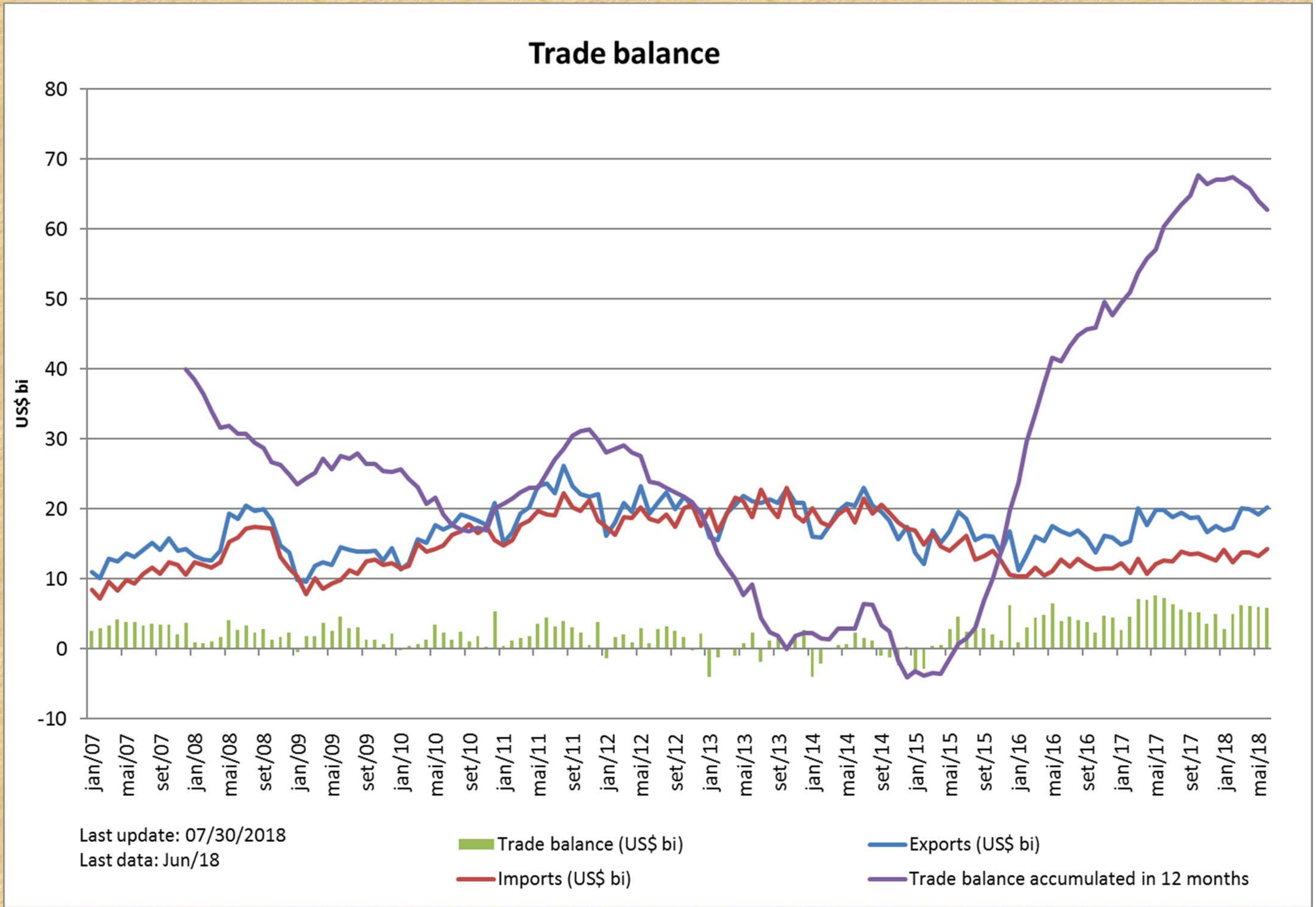

% annual
Real interest rate
10
9
8
7
6
5
4
3
2
1
0
180 Days swap
360 Days Swap
SELIC
Deflator: Expected inflation (IPCA) for the next 12 months
jan/13 fev/13 mar/13 abr/13 mai/13 jun/13 jul/13 ago/13 set/13 out/13 nov/13 dez/13 jan/14 fev/14 mar/14 abr/14 mai/14 jun/14 jul/14 ago/14 set/14 out/14 nov/14 dez/14 jan/15 fev/15 mar/15 abr/15 mai/15 jun/15 jul/15 ago/15 set/15 out/15 nov/15 dez/15 jan/16 fev/16 mar/16 abr/16 mai/16 jun/16 jul/16 ago/16 set/16 out/16 nov/16 dez/16 jan/17 fev/17 mar/17 abr/17 mai/17 jun/17 jul/17 ago/17 set/17 out/17 nov/17 dez/17 jan/18 fev/18 mar/18 abr/18 mai/18 jun/18
Latest update: 07/30/2018
Latest data: jun/2018
Source: BCB



Interbank Market Rates and Loan Rates
17
16
15
14
13
12
11
10
9
8
7
6
% per year
74
66
58
50
42
34
% per year
Macroprudential
Measures
jan/10
jul/10
jan/11
jul/11
jan/12
jul/12
jan/13
jul/13
jan/14
jul/14
jan/15
jul/15
jan/16
jul/16
jan/17
jul/17
jan/18
jul/18
1-year interbank market rates (t-3)
Non-earmarked credit for households
Non-earmarked credit for households (new series)
Last update: 07/30/2018
Last data: Jun/2018

Source: BCB

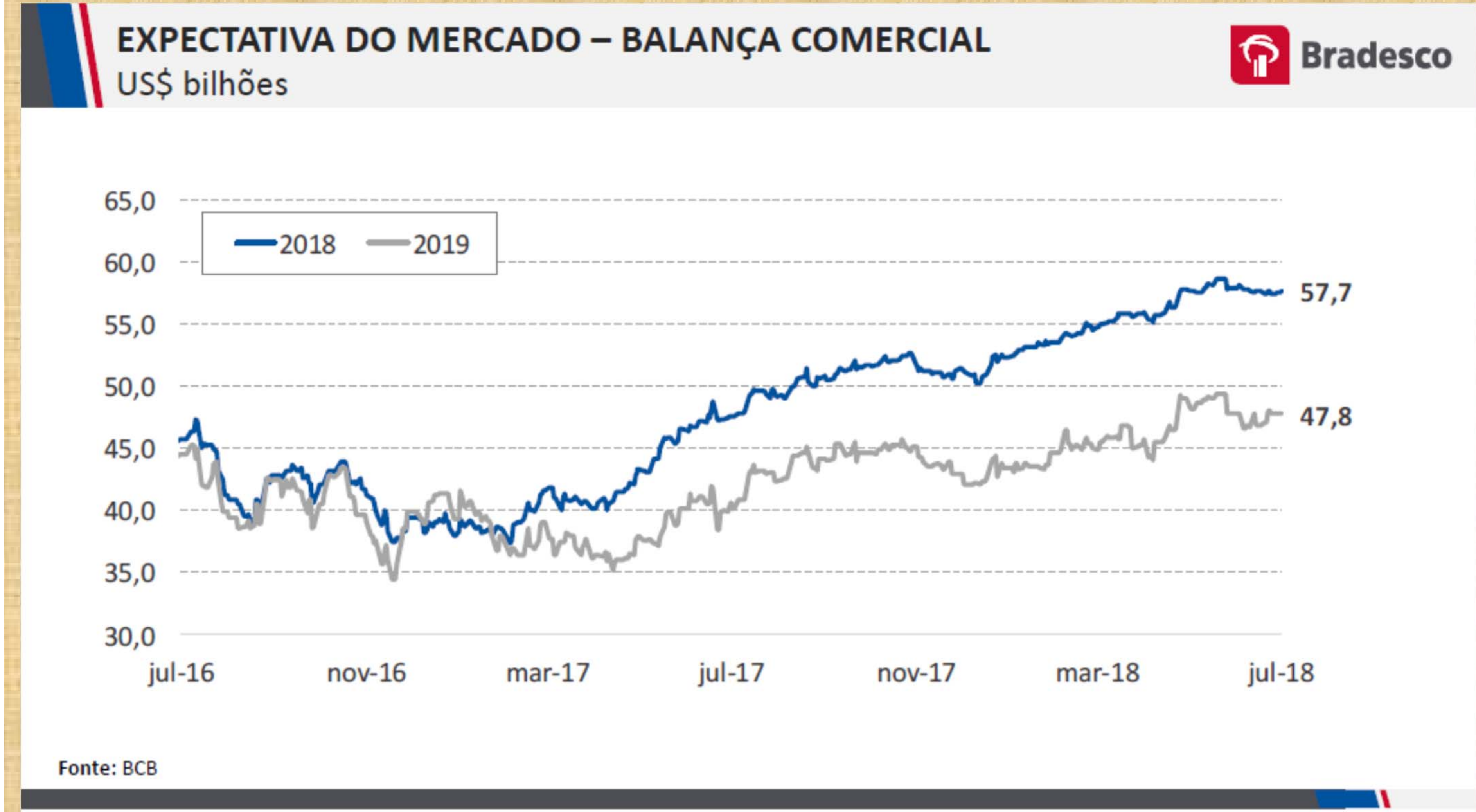
EXTERNAL SECTOR AND EXCHANGE RATE:



Trade balance
80
70
60
50
40
30
20
10
0
-10
US$ bi
jan/07
mai/07
set/07
jan/08
mai/08
set/08
jan/09
mai/09
set/09
jan/10
mai/10
set/10
jan/11
mai/11
set/11
jan/12
mai/12
set/12
jan/13
mai/13
set/13
jan/14
mai/14
set/14
jan/15
mai/15
set/15
jan/16
mai/16
set/16
jan/17
mai/17
set/17
jan/18
mai/18
Last update: 07/30/2018
Last data: Jun/18
Trade balance (US$ bi)
Exports (US$ bi)
Imports (US$ bi)
Trade balance accumulated in 12 months

Source: BCB

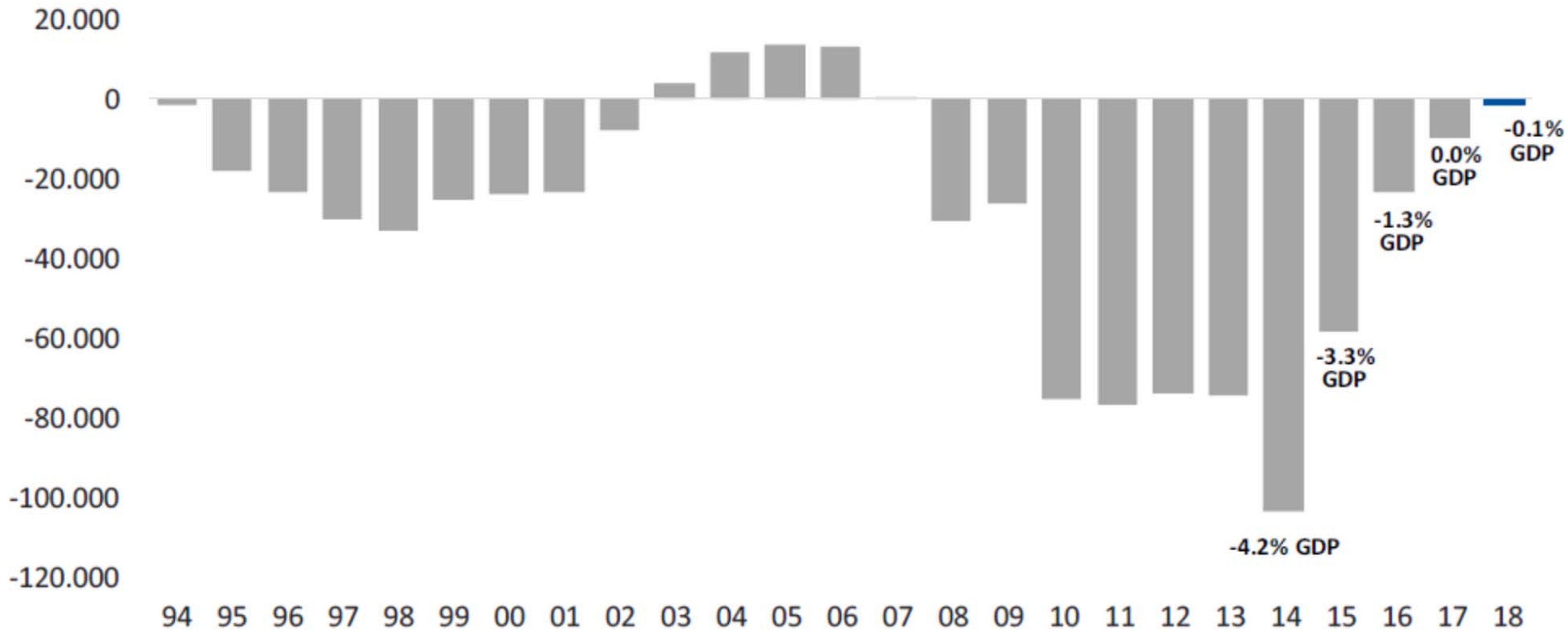
Trade Balance Expectations



Data from 07/27/2018

BRAZILIAN CURRENT ACCOUNT
US$ million, deficit as % of GDP

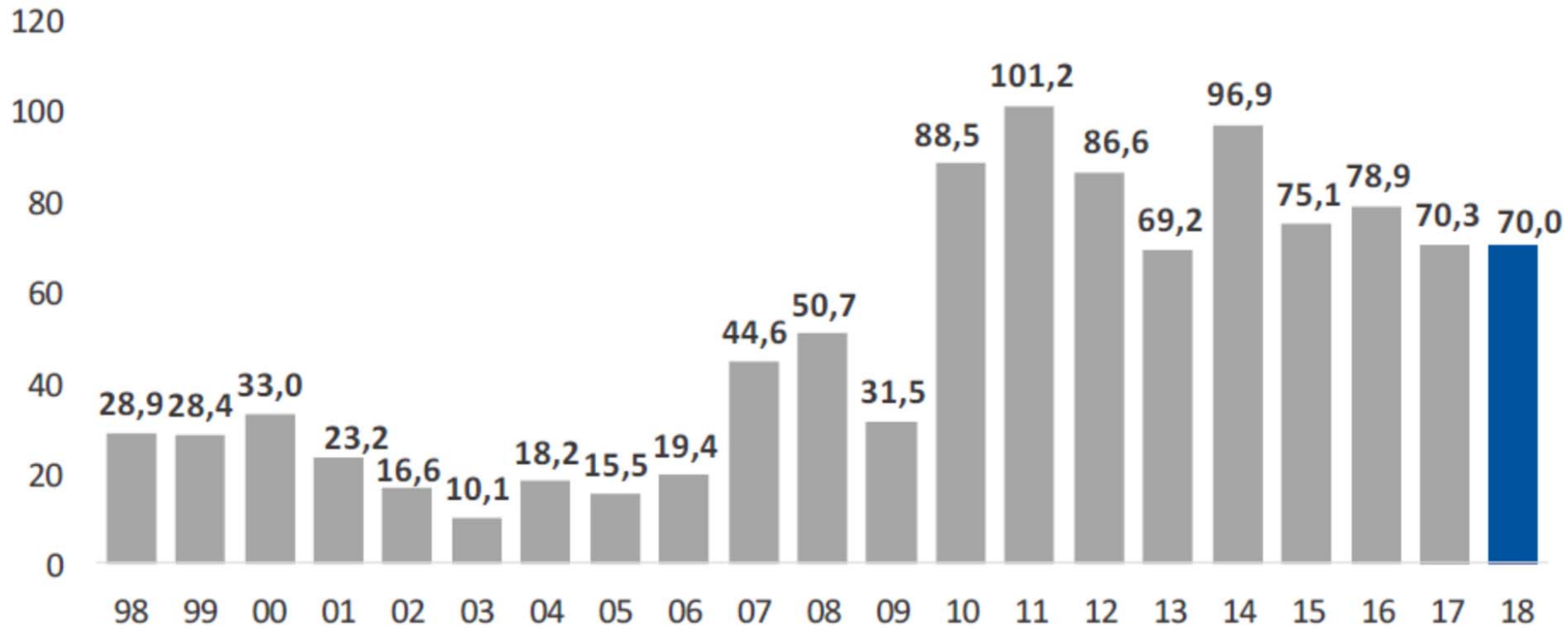
Bradesco



Source: BCB, Bradesco

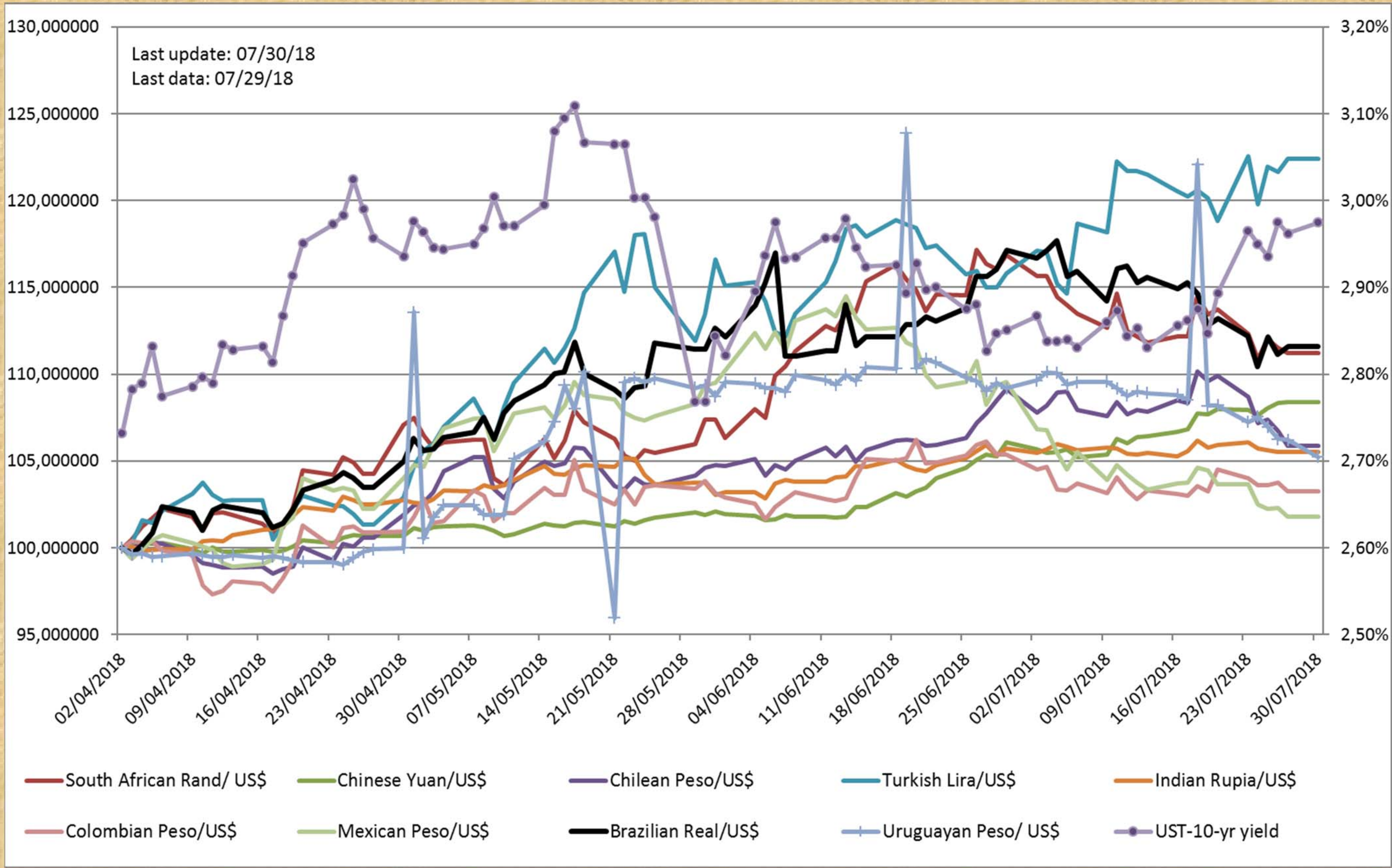
FOREIGN DIRECT INVESTMENT
US$ billion

Bradesco

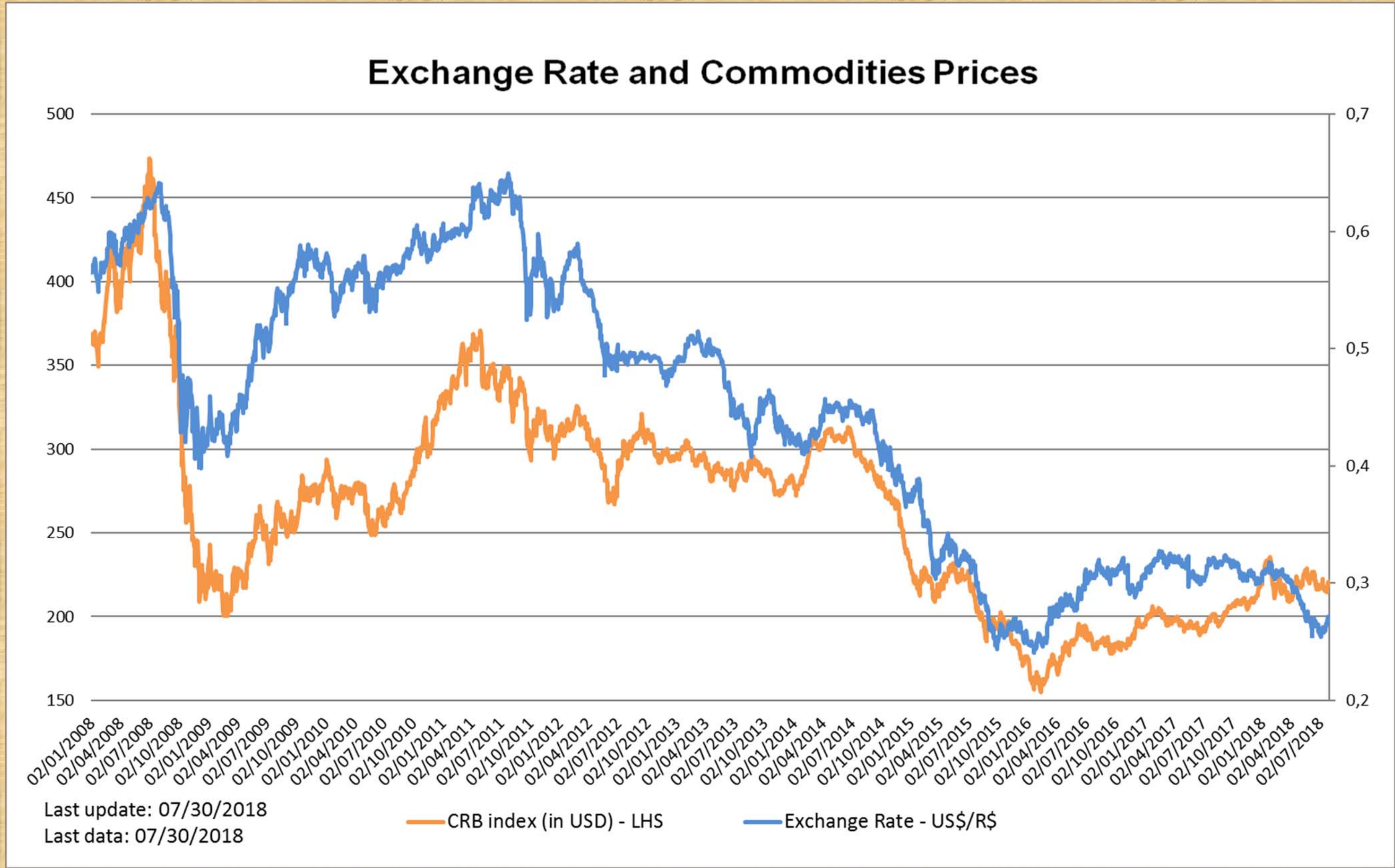


Source: BCB, Bradesco

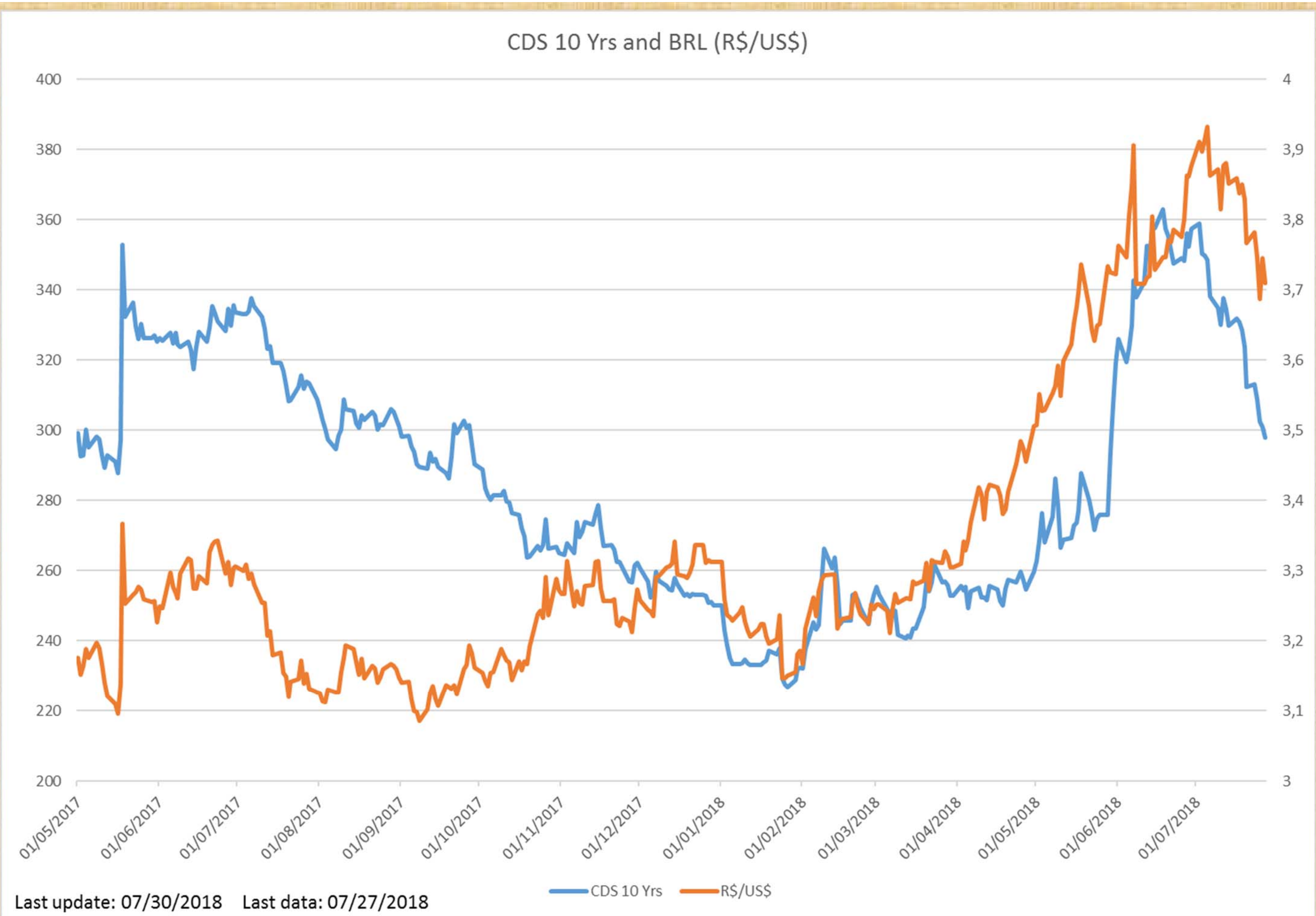
Emerging markets Exchange rates



Fonte: Reuters

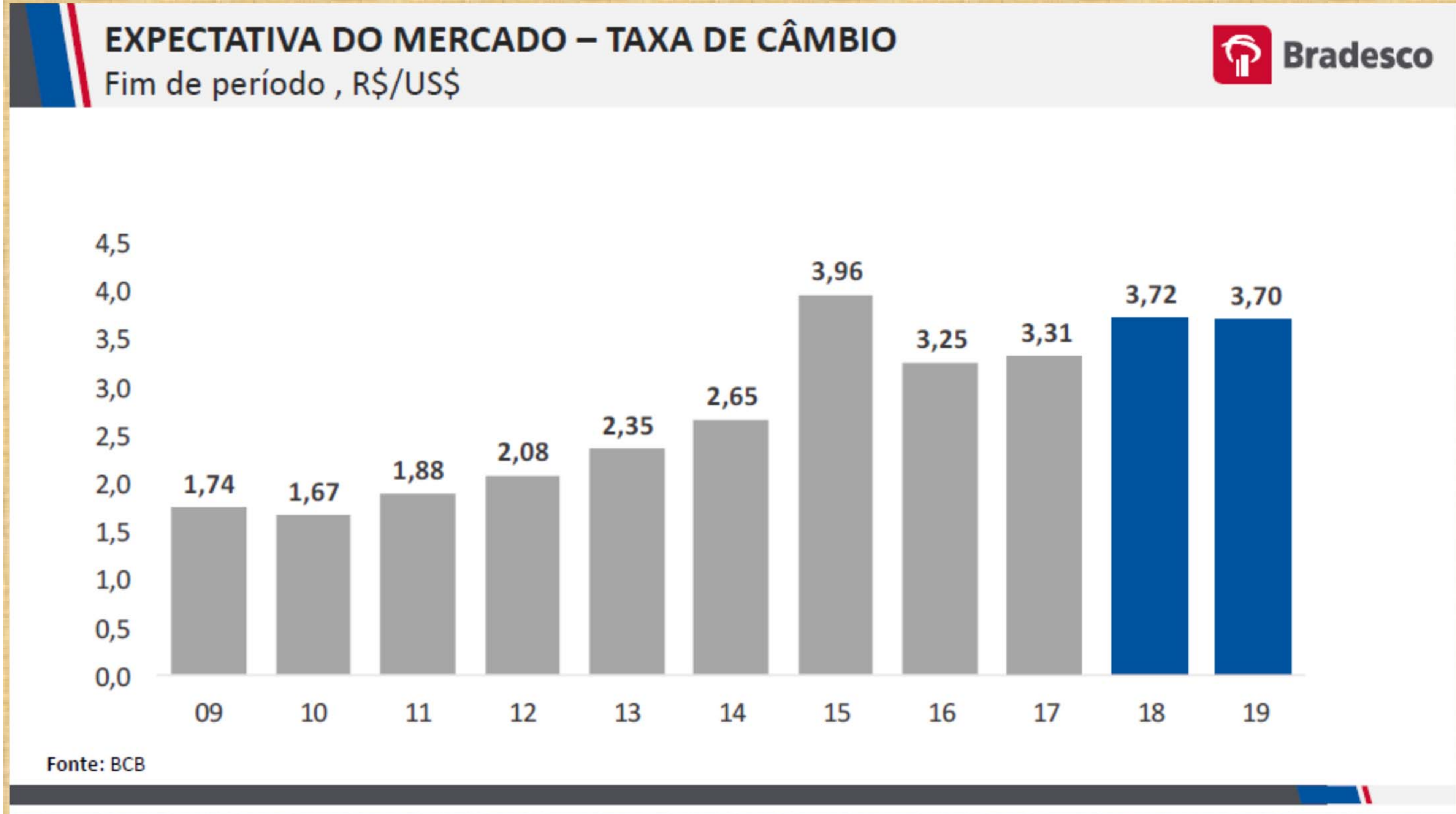


Source: Reuters



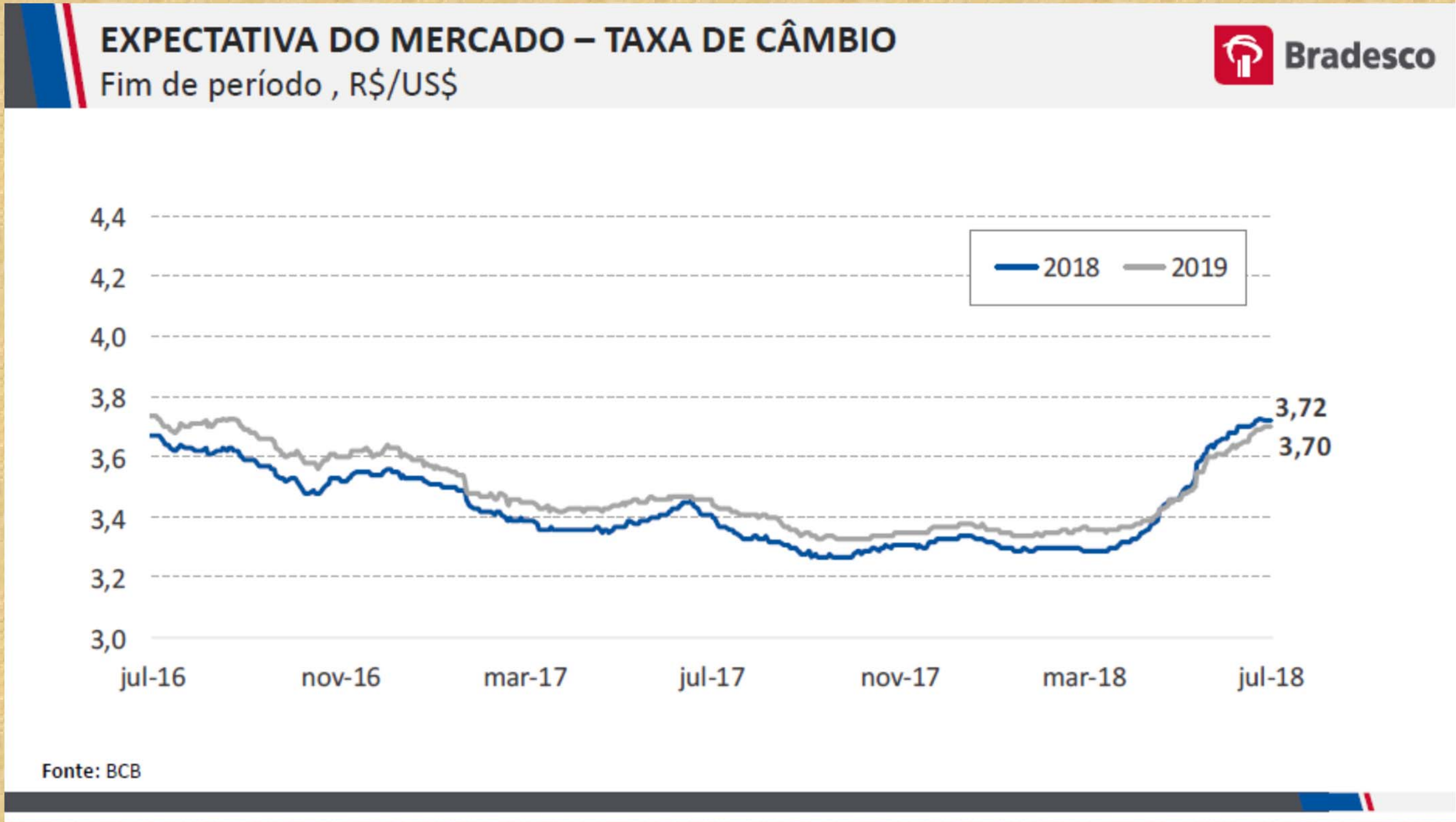
Source: Reuters

(BAD) Exchange Rate Expectations

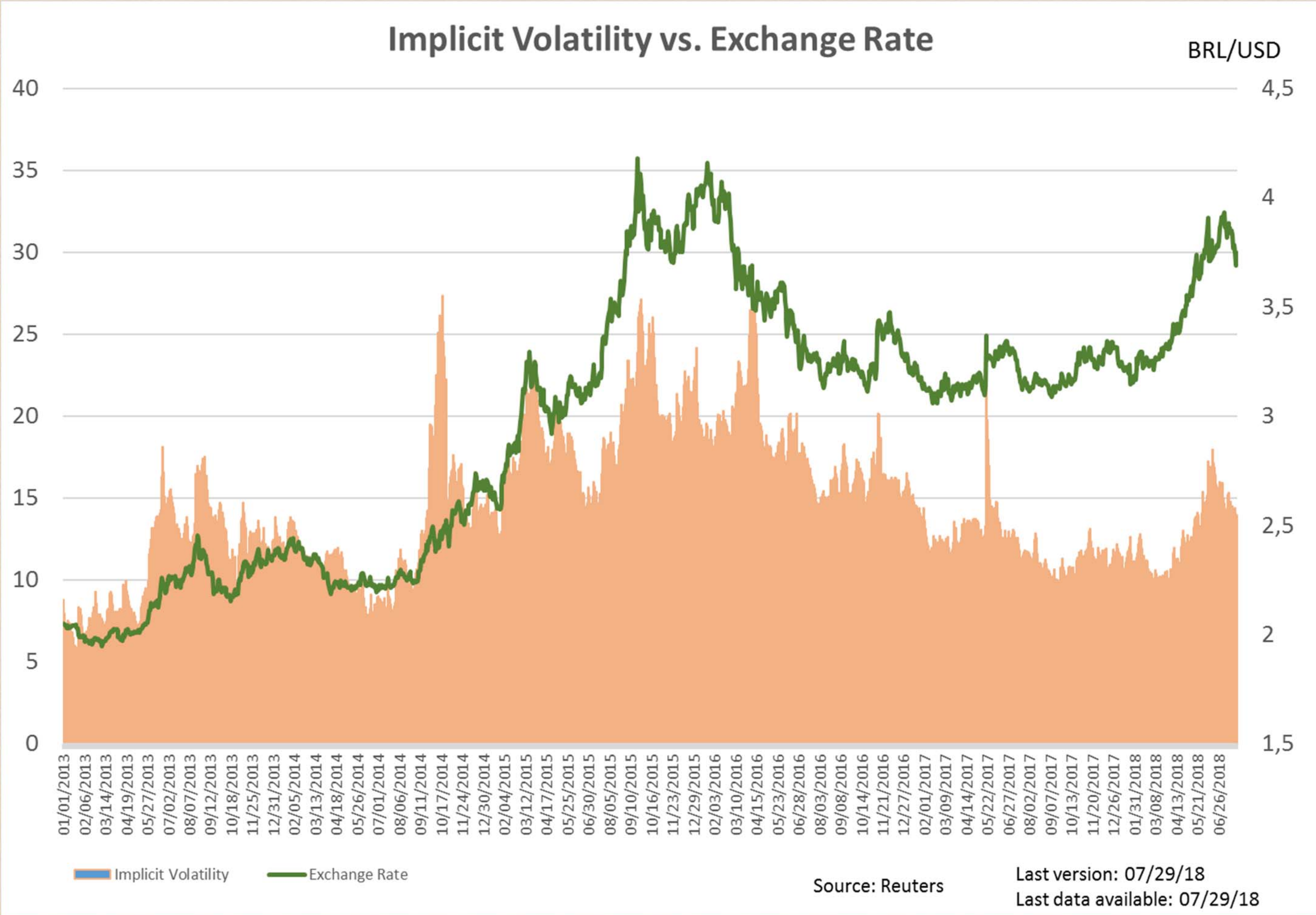


Data from 07/27/2018

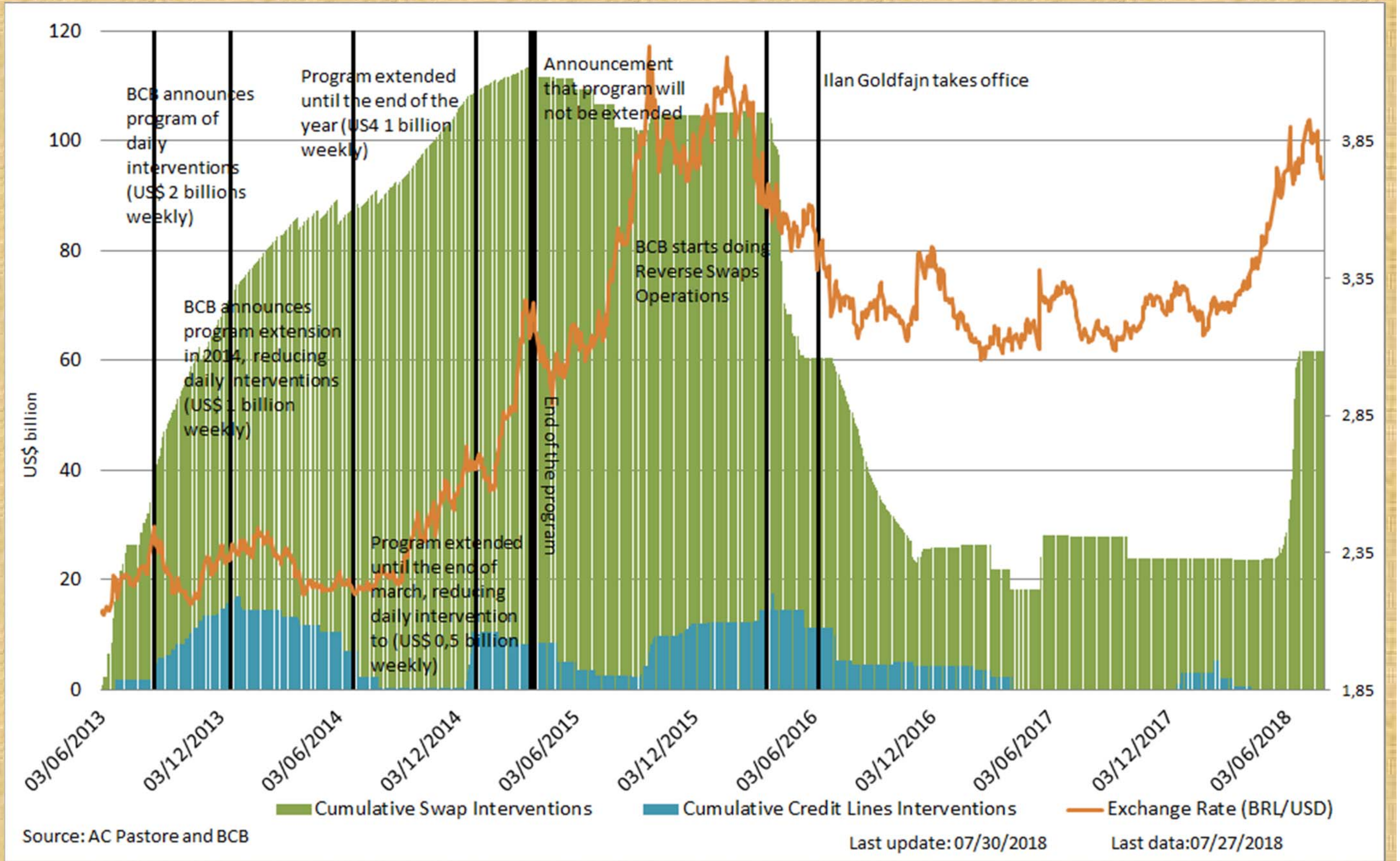
(BAD) Exchange Rate Expectations



Data from 07/27/2018



Source: Reuters

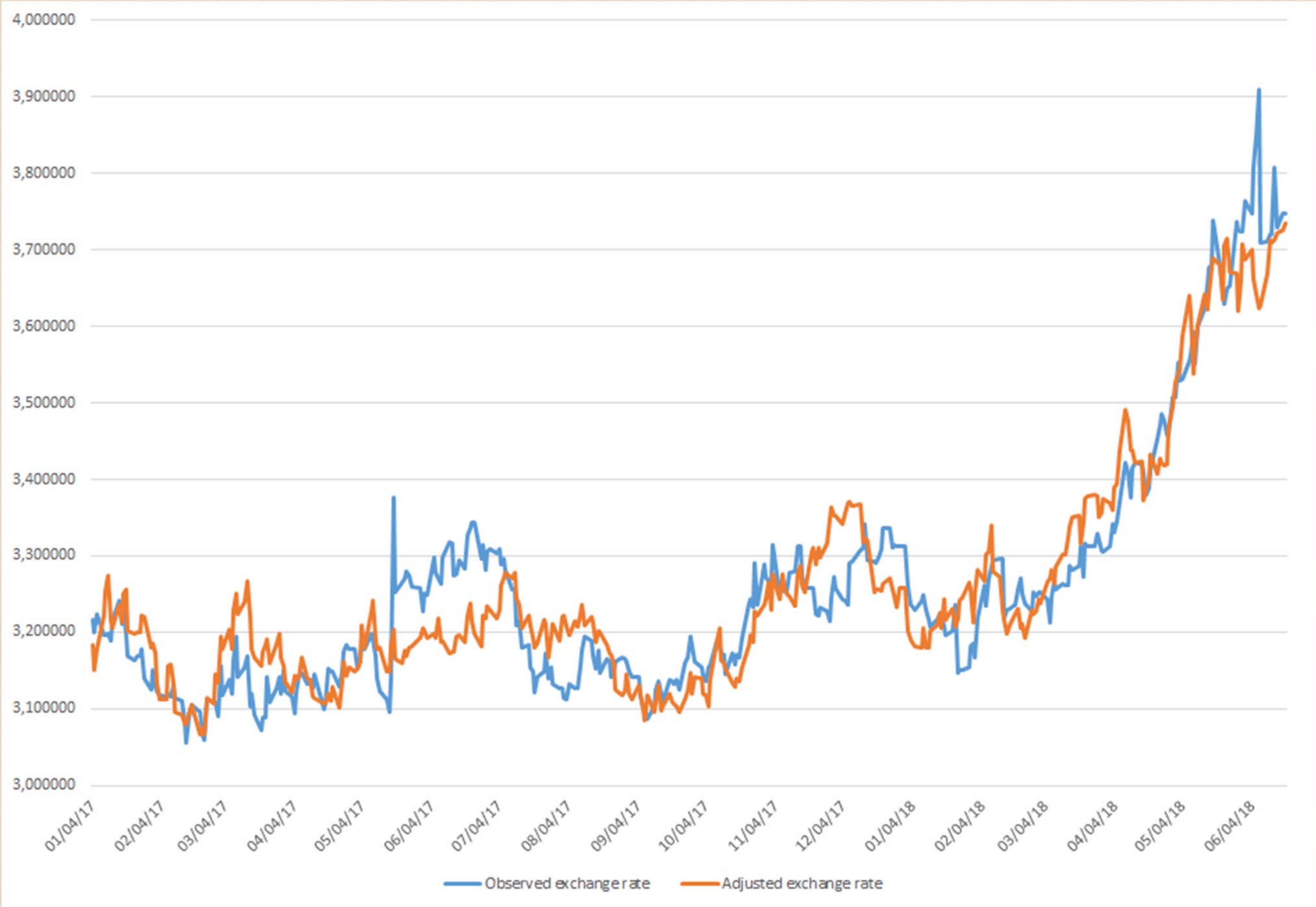

BCB announces program of daily interventions (US$ 2 billions weekly)
Program extended until the end of the year (US4 1 billion weekly)
Announcement that program will not be extended
Ilan Goldfajn takes office
BCB announces program extension in 2014, reducing daily interventions (US$ 1 billion weekly)
BCB starts doing Reverse Swaps Operations
End of the program
Program extended until the end of march, reducing daily intervention to (US$ 0,5 billion weekly)
US$ billion
120
100
80
60
40
20
0
3,85
3,35
2,85
2,35
1,85
03/06/2013
03/12/2013
03/06/2014
03/12/2014
03/06/2015
03/12/2015
03/06/2016
03/12/2016
03/06/2017
03/12/2017
03/06/2018
Cumulative Swap Interventions
Cumulative Credit Lines Interventions
Exchange Rate (BRL/USD)
Source: AC Pastore and BCB
Last update: 07/30/2018
Last data:07/27/2018

Coefficients

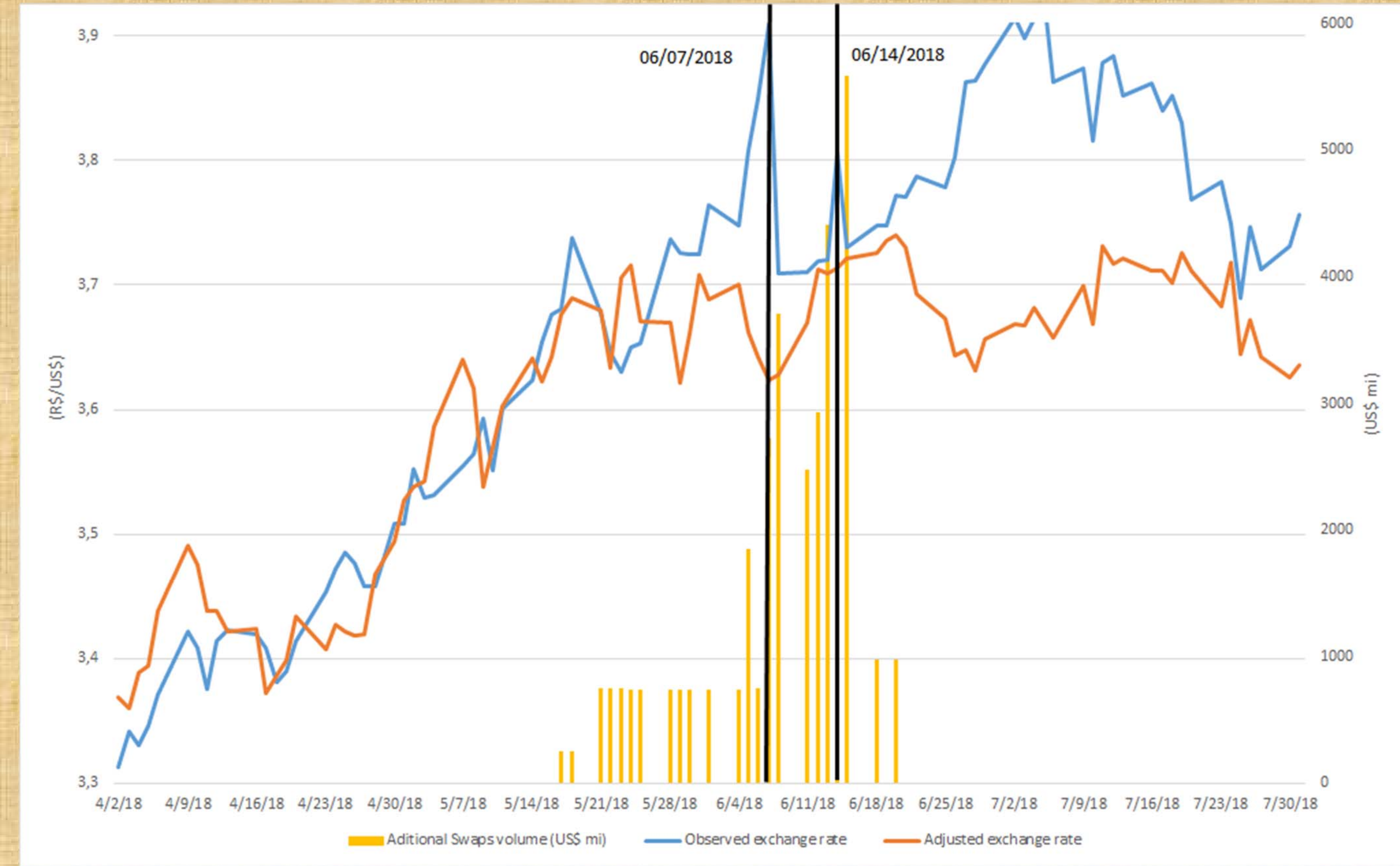
```
Call:
lm(formula = Câmbio ~ USDZAR + USDCNY + USDCLP + USDTRY + USDINR
 +
    USDRUB + USDCOP + USDMXN + Commodity + Dollarind, data = reg
renivel)

Residuals:
      Min        1Q    Median        3Q       Max
-0.135327 -0.041191  0.000254  0.034654  0.266408

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)  2.536e+00  4.854e-01   5.226 2.95e-07 ***
USDZAR      -2.711e-02  7.619e-03  -3.559 0.000422 ***
USDCNY      -4.988e-01  9.864e-02  -5.057 6.82e-07 ***
USDCLP       3.876e-03  4.037e-04   9.602  < 2e-16 ***
USDTRY       3.845e-01  3.110e-02  12.363  < 2e-16 ***
USDINR      -1.305e-02  5.652e-03  -2.309 0.021533 *
USDRUB       1.630e-02  2.811e-03   5.797 1.48e-08 ***
USDCOP       8.117e-05  6.746e-05   1.203 0.229667
USDMXN       5.914e-03  7.436e-03   0.795 0.426935
Commodity   -6.596e-05  5.150e-05  -1.281 0.201072
Dollarind    2.096e-03  4.209e-03   0.498 0.618803
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 0.0569 on 359 degrees of freedom
  (1 observation deleted due to missingness)
Multiple R-squared:  0.8591,    Adjusted R-squared:  0.8552
F-statistic: 218.9 on 10 and 359 DF,  p-value: < 2.2e-16
```

Cointegration test

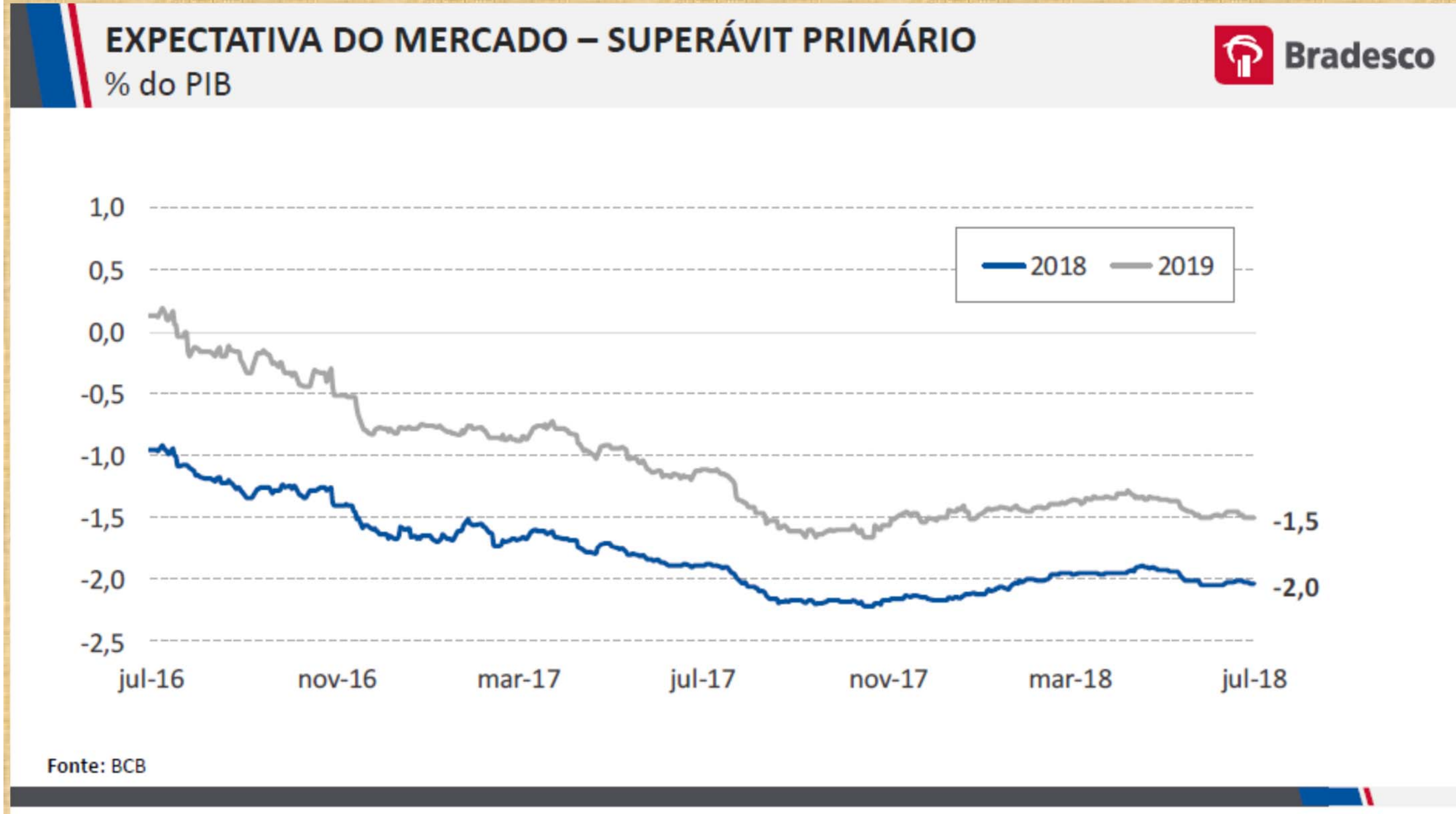
```
###############################################
# Augmented Dickey-Fuller Test Unit Root Test #
###############################################

Call:
lm(formula = z.diff ~ z.lag.1 + 1 + z.diff.lag)

Residuals:
      Min        1Q    Median        3Q       Max 
-0.140280 -0.016350  0.000899  0.013354  0.210930 

Coefficients:
              Estimate Std. Error t value Pr(>|t|)    
(Intercept)  0.0004025  0.0014860   0.271   0.7867    
z.lag.1     -0.1163190  0.0278471  -4.177 3.71e-05 ***
z.diff.lag  -0.1157818  0.0559957  -2.068   0.0394 *  
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.02829 on 360 degrees of freedom
Multiple R-squared:  0.0765,    Adjusted R-squared:  0.07137 
F-statistic: 14.91 on 2 and 360 DF,  p-value: 6.004e-07


Value of test-statistic is: -4.1771 8.7778 

Critical values for test statistics: 
      1pct  5pct 10pct
tau2 -3.44 -2.87 -2.57
phi1  6.47  4.61  3.79
```



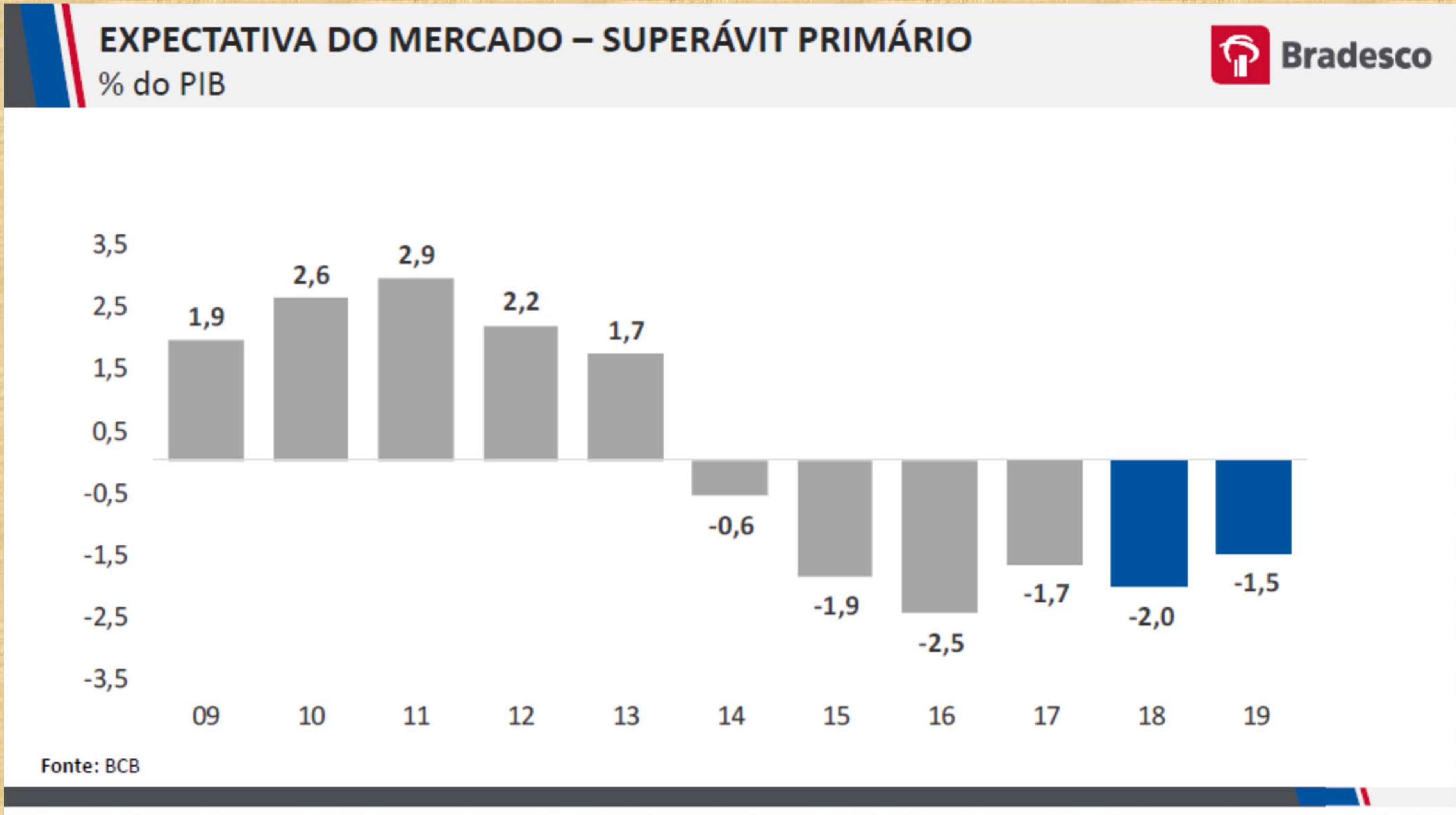
4,000000
3,900000
3,800000
3,700000
3,600000
3,500000
3,400000
3,300000
3,200000
3,100000
3,000000
01/04/17
02/04/17
03/04/17
04/04/17
05/04/17
06/04/17
07/04/17
08/04/17
09/04/17
10/04/17
11/04/17
12/04/17
01/04/18
02/04/18
03/04/18
04/04/18
05/04/18
06/04/18
Observed exchange rate
Adjusted exchange rate


06/07/2018
06/14/2018
(R$/US$)
(US$ mi)
3,9
3,8
3,7
3,6
3,5
3,4
3,3
6000
5000
4000
3000
2000
1000
0
4/2/18
4/9/18
4/16/18
4/23/18
4/30/18
5/7/18
5/14/18
5/21/18
5/28/18
6/4/18
6/11/18
6/18/18
6/25/18
7/2/18
7/9/18
7/16/18
7/23/18
7/30/18
Aditional Swaps volume (US$ mi)
Observed exchange rate
Adjusted exchange rate

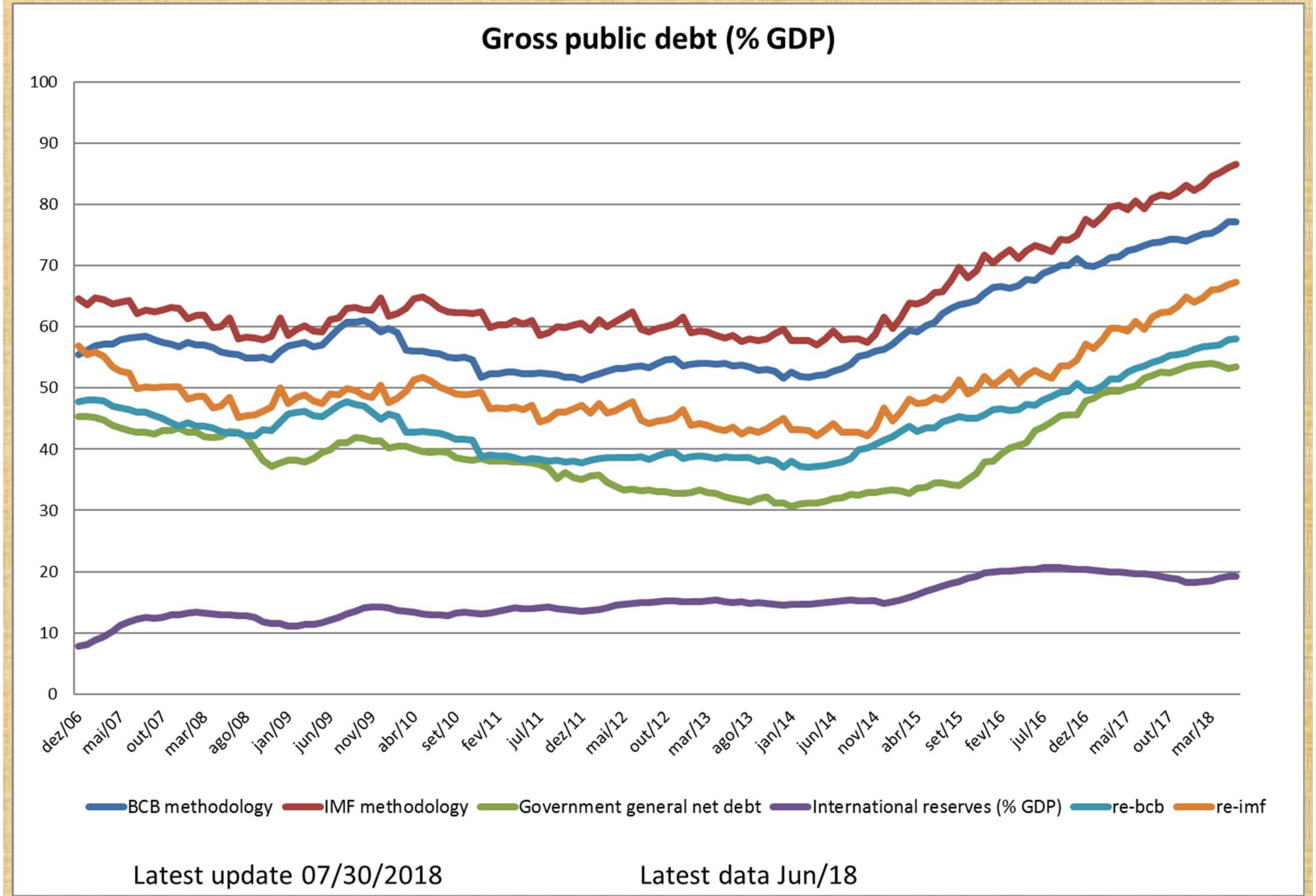
FISCAL STANCE AND PUBLIC DEBT (THE MAJOR PROBLEM):



Data from 07/27/2018



Data from 07/27/2018

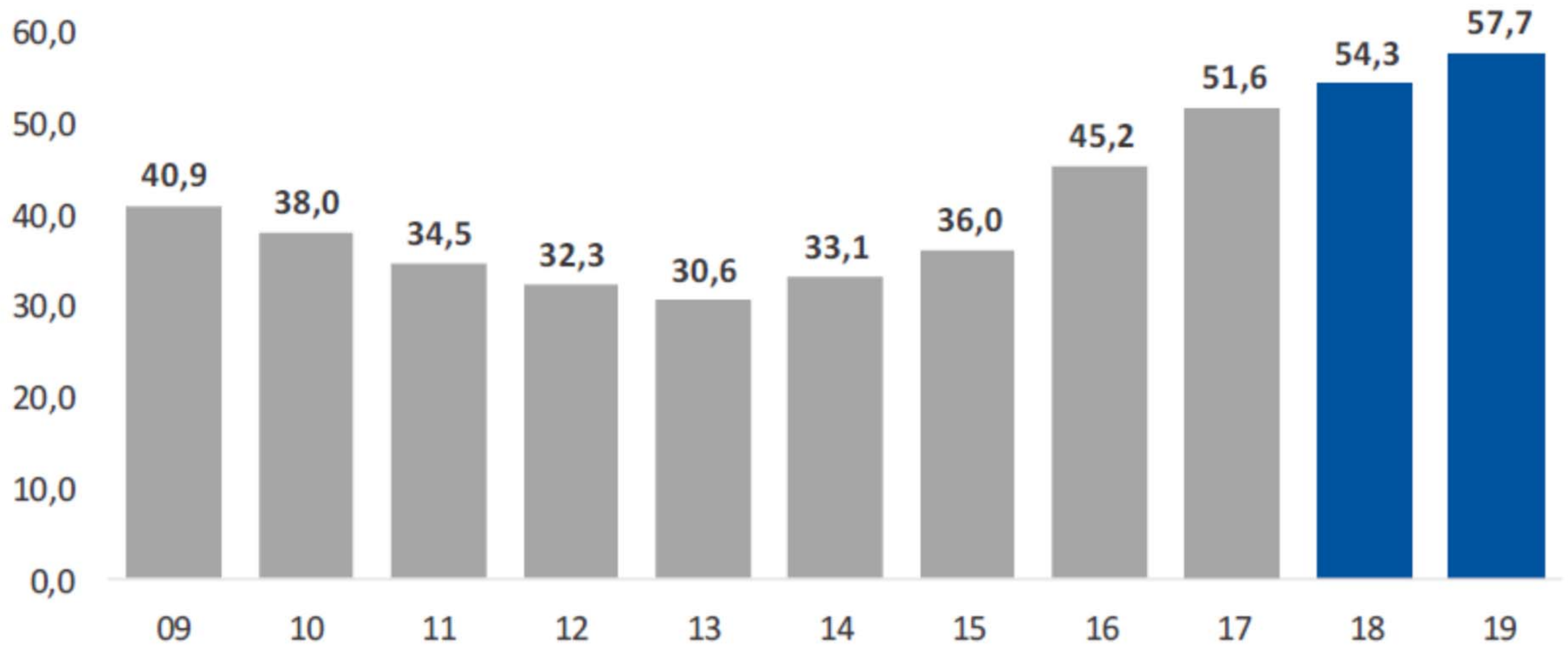


Gross public debt (% GDP)
100
90
80
70
60
50
40
30
20
10
0
dez/06
mai/07
out/07
mar/08
ago/08
jan/09
jun/09
nov/09
abr/10
set/10
fev/11
jul/11
dez/11
mai/12
out/12
mar/13
ago/13
jan/14
jun/14
nov/14
abr/15
set/15
fev/16
jul/16
dez/16
mai/17
out/17
mar/18
BCB methodology
IMF methodology
Government general net debt
International reserves (% GDP)
re-bcb
re-imf
Latest update 07/30/2018
Latest data Jun/18

Source: BCB

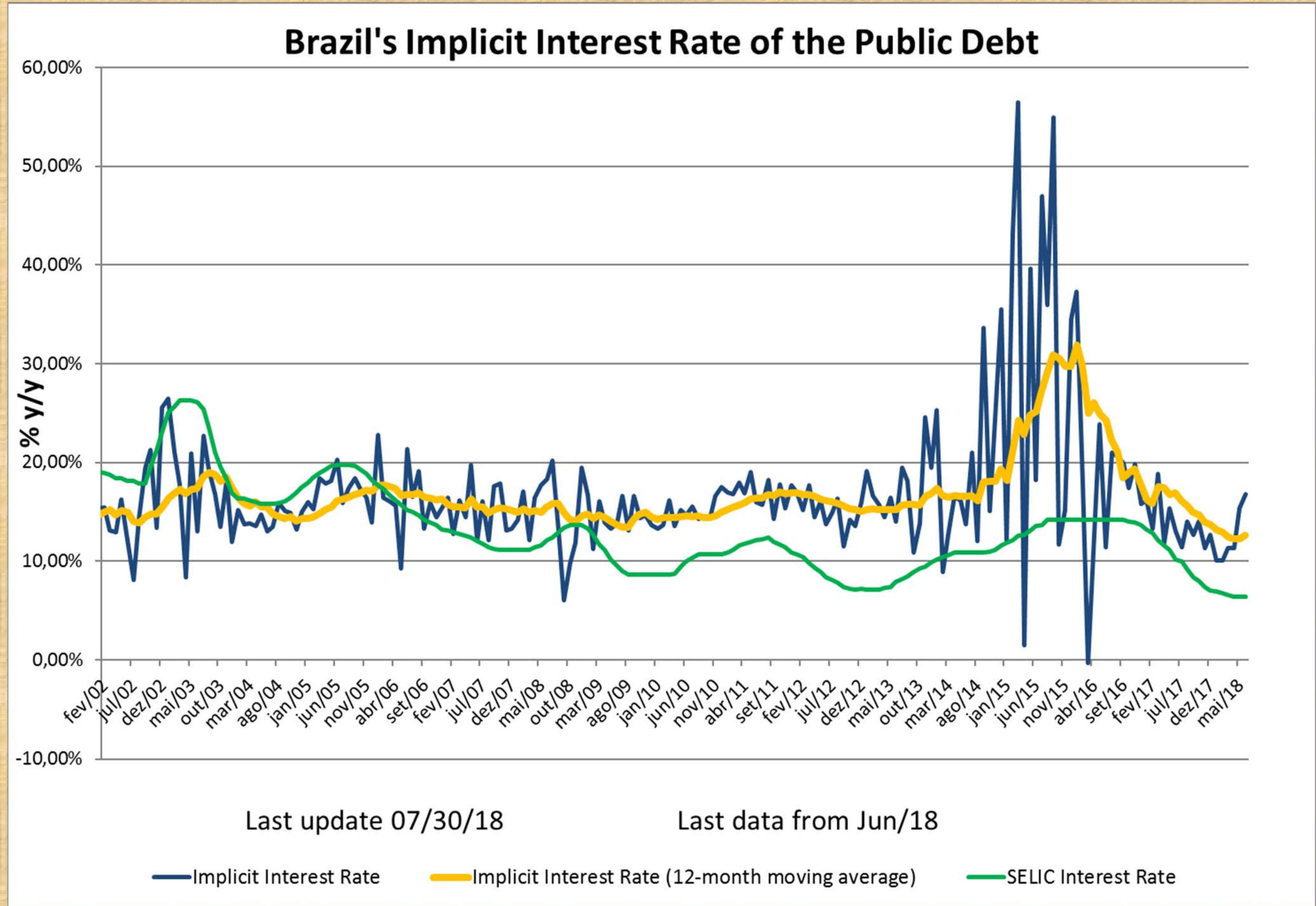
EXPECTATIVA DO MERCADO – DÍVIDA LÍQUIDA

% do PIB

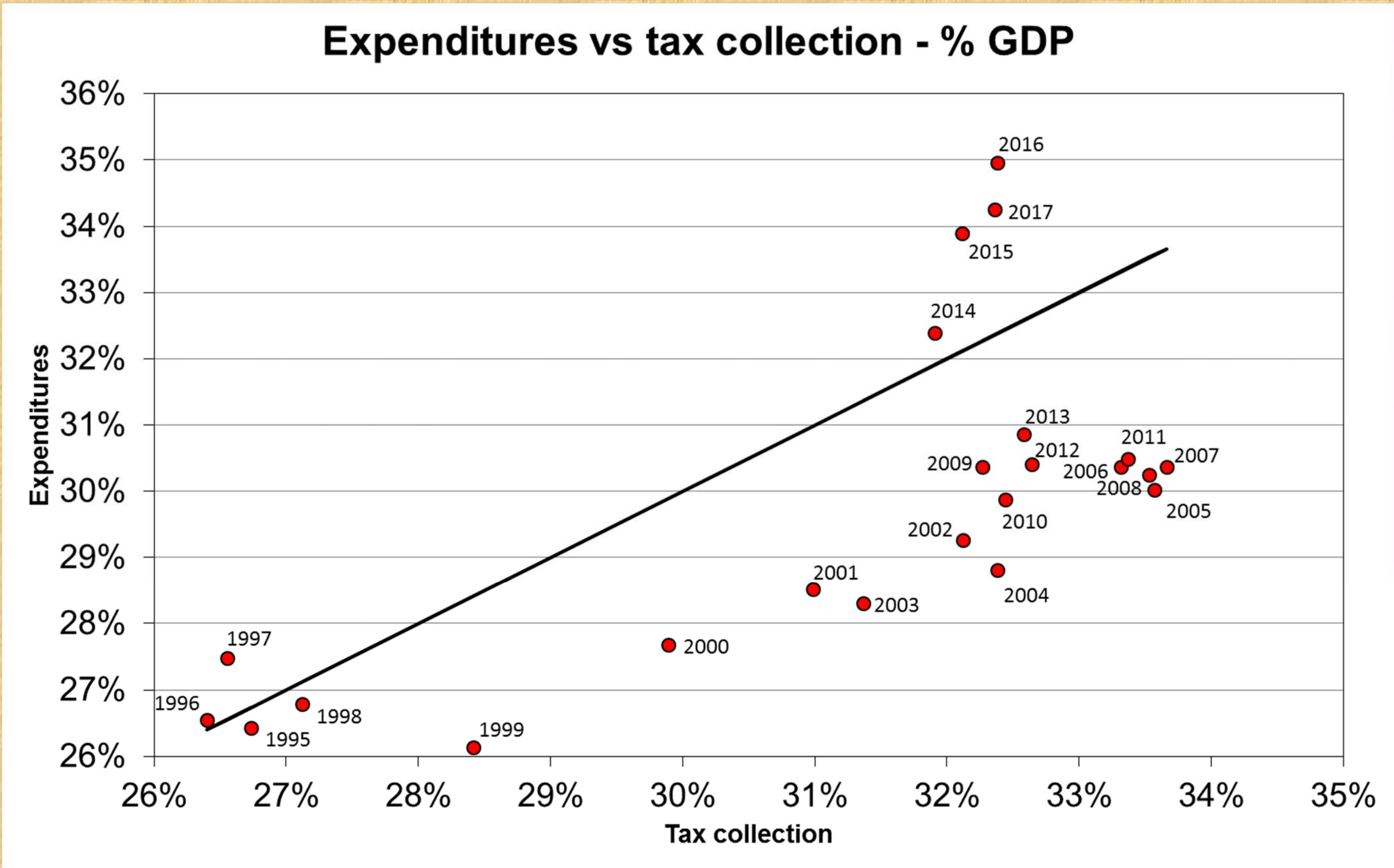


Fonte: BCB

Data from 07/27/2018


Brazil's Implicit Interest Rate of the Public Debt
60,00%
50,00%
40,00%
30,00%
20,00%
10,00%
0,00%
-10,00%
% y/y
fev/02
jul/02
dez/02
mai/03
out/03
mar/04
ago/04
jan/05
jun/05
nov/05
abr/06
set/06
fev/07
jul/07
dez/07
mai/08
out/08
mar/09
ago/09
jan/10
jun/10
nov/10
abr/11
set/11
fev/12
jul/12
dez/12
mai/13
out/13
mar/14
ago/14
jan/15
jun/15
nov/15
abr/16
set/16
fev/17
jul/17
dez/17
mai/18
Last update 07/30/18
Last data from Jun/18
Implicit Interest Rate
Implicit Interest Rate (12-month moving average)
SELIC Interest Rate

Source: BCB


Expenditures vs tax collection - % GDP
36%
35%
34%
33%
32%
31%
30%
29%
28%
27%
26%
Expenditures
2016
2017
2015
2014
2013
2011
2007
2009
2012
2006
2008
2005
2010
2002
2001
2004
2003
2000
1997
1996
1998
1995
1999
26%
27%
28%
29%
30%
31%
32%
33%
34%
35%
Tax collection

External scenario => Domestic scenario		Good external scenario: gradual monetary contraction in the US and the developed world; chinese growth keeps its pace.		Adverse external scenario: faster monetary contraction **or** new international crisis due to lower chinese growth, trade war or geopolitical factors.	
		Probability	75%	Probability	25%
The 2018 presidential election is won by a candidate commited to the economic reforms .		I. BRL appreciates; domestic asset prices rise; high growth in investment, consumption and GDP; unemployment falls. Lower interest rates and more abundant credit boost the economy .		II. BRL depreciates; domestic asset prices fall; good domestic fiscal outlook attenuates bad external scenario, helping to keep the levels of production and employment.	
Probability	40%	30%		10%	
The 2018 presidential election is NOT won by a candidate commited to the economic reforms .		III. BRL depreciates; interest rates rise; investment, consumption and GDP don´t recover due to fiscal uncertainty.		IV. BRL depreciates severely, stock market falls and interest rates rise; low levels of investment, consumption and GDP, and high level of unemployment. The economy enters (again) in a combination of high inflation and recession.	
Probability	60%	45%		15%	

Conclusions

- After muddling through for many years, Brazil must confront politically painful reforms in the next election.
- Whether the winning candidate does that or not will have very large consequences for the economy and the markets.
- The most likely scenario is to try to muddle through a little longer, but this means that a deep crisis would happen during the next presidential term.
- Such incentive may help!