Santander

ECONOMICS

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Brazil — Economic Activity

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Ladder or Trapdoor?

The Major Role of Investments

- **The latest round of activity indicators reinforced our expectation that the Brazilian economy has hit bottom. Going forward, the central questions, in our view, concern the pace of economic recovery and which sectors will lead the process.**
- **We believe that investments will play a major role in the economic recovery we expect next year, mainly reflecting a consistent decline in risk perception, a recovery of business confidence, and a substantial reduction in real interest rates, which should offset the low capacity utilization rate in the economy, in our opinion.**
- **Based on our econometric estimates, investments should increase 6.0% in 2017, following a steep decline of 11.2% in 2016E. Combining this figure with the positive contribution of the external sector, we reiterate our base case scenario that GDP will grow 2.0% next year.**
- **Although the improvement we see in macro fundamentals potentially creates a more favorable scenario for total investments in 2017, questions have emerged about which sectors will effectively expand their production capacity.**
- **In our view, some manufacturing activities will be essential to reverse the downward trend of investments, particularly those closely related to the external sector. In spite of the low utilization of installed capacity in industry, we believe that rising manufactured exports and import substitution will require investments in new production and distribution processes and technologies, among others.**
- **We see some signs of improvement in capital goods dynamics, led by the manufacturing industry (particularly "machinery and equipment for industrial use"). Additionally, although there is no evidence of resumption in the production of civil construction and transportation vehicles, we think the worst is over, and some stabilization of these sectors next year should also contribute to better results in total investments, in our opinion.**
- **While we acknowledge the more optimistic tone of our scenario vs. market consensus, our forecast of a 6.0% increase in gross fixed capital formation in 2017 is not a steep reversal, in view of its plunge of nearly 30% in the last three years.**
- **Contrasting with the positive contribution we expect from investments and the external sector, depressed private consumption will likely prevent a stronger resumption of GDP growth, in our view. In addition to the weak fundamentals for consumption, it is also worth noting that the significant worsening of the macroeconomic environment in recent years affected the total productivity of the Brazilian economy and its potential growth. For these reasons, we see GDP expanding 2.0% in 2017 and 3.0% in 2018, following a total decline of around 7.5% in the 2014-2016 period.**

Gross Fixed Capital Formation (GFCF) Growth just after Recession Periods

Period of Recovery	GDP Growth (%)	GFCF Growth (%)	GFCF - Construction (pp)	GFCF - Machinery and Equipment (pp)
1984 - 1986	6.9	10.4	5.1	5.3
1993 - 1995	4.8	9.3	2.5	6.8
2000	4.3	5.0	1.7	3.3
2004	5.7	9.1	4.4	4.7
2010	7.5	21.3	8.3	13.0

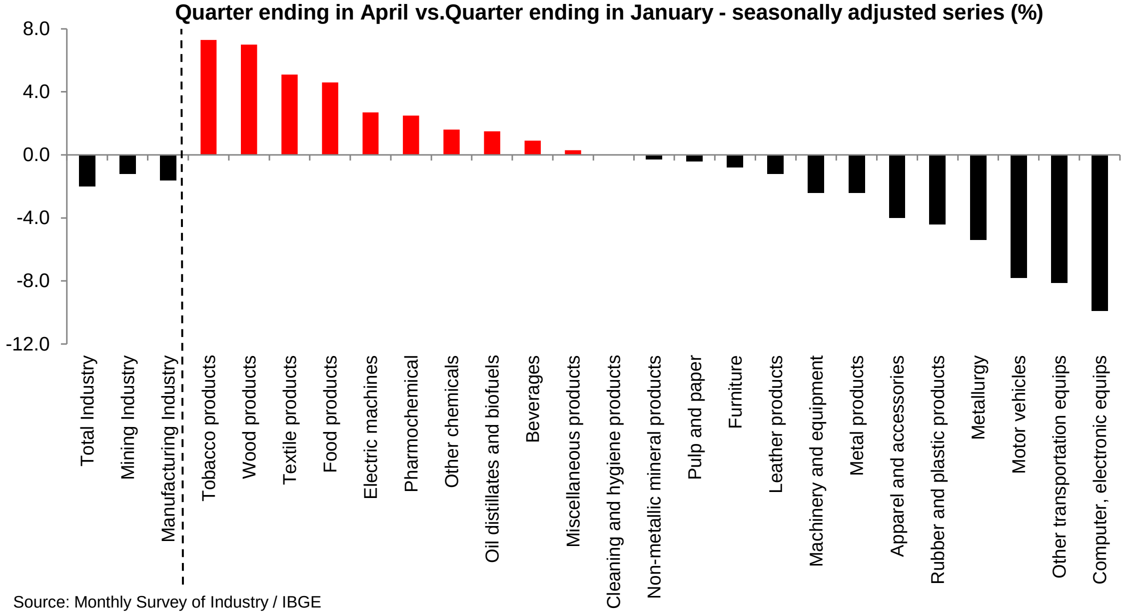
Source: IPEA and Santander estimates

Hitting Bottom

The latest round of economic activity indicators unveiled significant upward surprises. We highlight the above-expected GDP performance in 1Q16 (actual: -0.3% q/q; consensus: -0.8% q/q) and the second consecutive increase in industrial production registered in April (actual: +0.1% m/m; consensus: -0.9% m/m). Furthermore, we have noted some factors such as continued inventories adjustment – particularly in the manufacturing industry – a strong expansion in net exports, and improvement in business confidence, all of which reinforce our expectation that the Brazilian economy will stabilize in 2H16.

Looking at industry, for example, some activities have shown clear signs of reviving, mainly those highly correlated to the external sector, which we believe is set to end a long recessionary cycle that began in mid-2013. Considering the Monthly Survey of Industry, we note better dynamics in sectors like food products, beverages, textile products, leather and footwear, pulp and paper, wood products, biofuels, and chemicals. In addition to stimulating an increase in manufactured exports, FX depreciation also drives import substitution to some degree. Thus, we reiterate our assessment that the import penetration ratio will continue to decrease, albeit at a moderate pace (for more details, please see our report *Can the External Sector Lead to Recovery?, December 18, 2015*), notably in the capital goods and intermediate goods categories.

Industrial Production Breakdown
Quarter ending in April vs.Quarter ending in January - seasonally adjusted series (%)

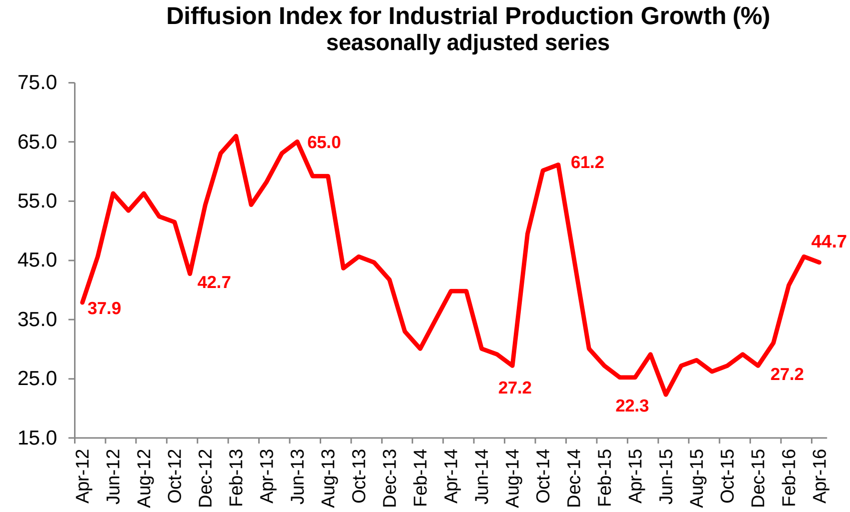


Source: Monthly Survey of Industry / IBGE

Other positive evidence from industrial production corresponds to the recent performance of its growth diffusion index[1]. Based on our estimates, the indicator posted a substantial increase in recent months (to nearly 45% in April 2016 from about 22% in July 2015), which indicates that the recovery of production is not restricted to a few sectors. However, we think it is important to bear in mind that the poor performance in domestic demand should prevent a rapid recovery of the industrial sector in the short term, mostly due to the negative path of such representative activities as durable goods production (e.g., motor vehicles, household appliances, and furniture), which heavily depend on credit conditions and consumer confidence.

In short, we think the main message of the latest economic activity numbers is that the Brazilian economy is hitting bottom. Going forward, the central questions, in our view, concern the pace of economic recovery and which sectors (or GDP components) will lead the process.

[1] Share of 103 industrial activities with positive growth rate, considering the moving quarter average (in quarter-over-quarter terms).



Source:IBGE Estimates: Santander
Note: estimates consider the moving quarter average - % QoQ

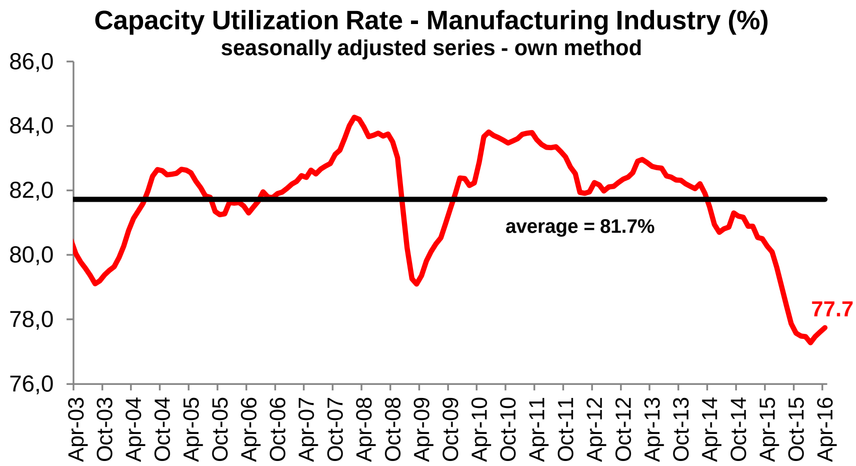
Recovery in Confidence Is the First Step

In our view, investments will play a major role in any economic recovery next year. Indeed, in-line with the continuing deterioration in labor market conditions and high household debt, we do not project a significant resumption in private consumption (which accounts for about 60% of total GDP). For instance, we forecast the unemployment rate will increase until early 2017 (for more information, please see our report *Deterioration in the Labor Market: The Worst Consequence of the Economic Downturn,* April 8, 2016). Concerning public administration, the ongoing fiscal adjustment will likely exert some negative contribution to the overall internal demand, in our view. In addition, we continue to forecast a positive contribution from the external sector in 2017, but to a lesser extent compared with the previous two years due to the lower FX depreciation and some stabilization of domestic income.

The dynamics of investments show a high sensitivity to the degree of risk perception about the macroeconomic scenario and, consequently, to business confidence. Thus, much of the collapse of investments in recent years – gross fixed capital formation plunged nearly 30% from 2014 to 2016 – can be explained by risk measures and skyrocketing interest rates, reflecting the dismal performance of fiscal accounts and political turmoil, in our opinion. Indeed, we believe that low visibility and high uncertainties with respect to economic policy decisions worsened the funding conditions and discouraged investors, which, combined with the negative outlook for large sectors (e.g., oil and gas, civil construction, truck production) led the investment rate to decline to 16.9% in 1Q16 from 20.9% in 1Q14.

Nevertheless, looking ahead, we expect a substantial improvement in the main investment fundamentals. First, we believe that the willingness and ability of government to slow the rise of the public-debt to GDP ratio and implement structural reforms relative to a long-term competitiveness agenda will likely result in a consistent decline in risk perception – we see Brazil CDS declining to some 275 bps by the next year – and a recovery of business confidence. At the same time, the falling trend of inflation will create room for a long monetary easing cycle, in our view – we project that the Selic rate will decrease from the current 14.25% to 12.75% in December 2016 and 10.00% in December 2017 – which means a significant reduction in the real interest rate.

In contrast, we recognize the negative effects on investments of low capacity utilization levels. Considering the national manufacturing industry as a whole, capacity utilization is around 4 pp below the historical average, and there have been no significant signs of improvement in the last few months.



Source: National Confederation of Industry and Santander estimates

Taking into account all these factors, questions have arisen about the potential contribution of investments to economic growth. **In order to shed light on this discussion, we developed an econometric model relating gross fixed capital formation (GFCF) to the following variables: (i) real interest rate – 1-year fixed rate discounted to 12-month-ahead inflation expectations; (ii) business confidence index; (iii) capacity utilization rate; (iv) country risk measure – Brazil 5-year CDS; and (v) world GDP growth – OECD countries + 6 major emerging countries.**

We estimated a VAR – Vector AutoRegressive – model, considering the year-over-year changes on a quarterly basis. The variables of risk perception measure (CDS) and world GDP growth were treated as exogenous in our econometric specification. The appendix to this report includes charts showing the crossed impact among the variables (Impulse Response Functions)[2].

In order to assess the performance of our econometric model, we used its coefficients output to back-test the historical data series of investments – the comparison between the actual data series with the estimated data series provides relevant information about the model's accuracy. As shown in the table below, the differences between the annual growth rates of the actual and estimated data series are relatively small.

Model Backtesting - Gross Fixed Capital Formation

Year	Actual Results (%)	Estimated Results (%)
2003	-3.9	-1.6
2004	8.6	8.0
2005	2.0	4.1
2006	6.7	5.7
2007	11.9	13.3
2008	12.3	9.8
2009	-2.2	-1.5
2010	18.7	14.3
2011	6.8	5.3
2012	0.8	0.7
2013	5.8	8.6
2014	-4.3	-2.4
2015	-14.1	-9.2

Source: IBGE and Santander estimates

Based on the model described above, we developed some simulations for investment dynamics in 2016 and 2017. We assumed different hypotheses for the country risk measure in order to capture the effects of the fiscal and political environment on investments. Additionally, for world GDP growth, we used our expected interest rate curve and forecasts by international institutions – average of IMF and OECD numbers.

[2] As expected, investments have a negative relationship with the real interest rate and a positive relationship with the business confidence index and capacity utilization level. With respect to exogenous variables, the risk perception measure exerts a negative effect on investments, contrasting with the positive effect from world growth. Furthermore, econometric tests of autocorrelation, heteroskedasticity, normality, and stability also presented satisfactory results.

The main results of the simulations are shown in the table below. Our base case scenario points to a 6.0% increase in investments in 2017, following a steep decline of 11.2% in 2016. As mentioned, this scenario contemplates a gradual and consistent recovery of business confidence based on lower risk perception about the Brazilian economy, as well as a substantial decline in real interest rates.

If the fiscal adjustment is not successful, due to an insufficient commitment by the government to rebalance its accounts or limited support from Congress, combined with a lack of stabilization on the political front (our pessimistic scenario), we project another significant contraction in investments next year – a plunge of 7.5%, according to our simulation. In this case, we assume the country risk measure rising to 500 bps at 2017 year-end, close to the average observed from October 2015 to February 2016, and an increase of real interest rates compared with current levels.

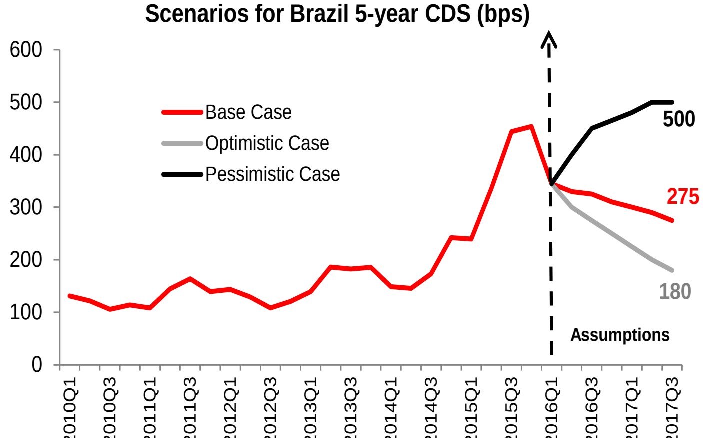
In contrast, our optimistic case considers an earlier stabilization of the public-debt ratio to GDP, leading Brazil CDS to below 200 bps by 2017 year-end – close to levels seen through 2014 – and a steeper decrease in interest rates. With this, we estimate an expansion of 11.3% for GFCF next year.

Simulations for Investments Growth in 2016 and 2017

Base Case		
Variable	**2016**	**2017**
CDS - eop (bps)	325	275
Real Interest Rate - eop (%)	6.7	5.0
Business Confidence - eop (bps)	88.5	97.2
Capacity Utilization Rate - eop (%)	75.5	80.7
Gross Fixed Capital Formation (%)	-11.2	6.0
Optimistic Case		
Variable	**2016**	**2017**
CDS - eop (bps)	275	180
Real Interest Rate - eop (%)	6.0	4.5
Business Confidence - eop (bps)	92.3	105.6
Capacity Utilization Rate - eop (%)	76.8	82.6
Gross Fixed Capital Formation (%)	-9.4	11.3
Pessimistic Case		
Variable	**2016**	**2017**
CDS - eop (bps)	450	500
Real Interest Rate - eop (%)	8.0	7.5
Business Confidence - eop (bps)	74.8	72.0
Capacity Utilization Rate - eop (%)	73.0	72.4
Gross Fixed Capital Formation (%)	-15.7	-7.5

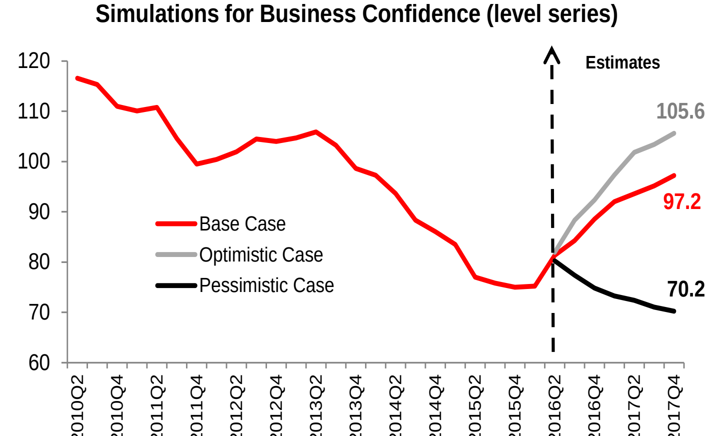
Source: IBGE, BCB, BM&FBOVESPA, FGV, Reuters, OECD and Santander estimates

Scenarios for Brazil 5-year CDS (bps)



Source: Reuters and Santander estimates

Simulations for Business Confidence (level series)



Source: FGV and Santander estimates

In short, we reiterate our assessment that, if real interest rates fall and risk perception improves noticeably, there is room for resumption of investments in 2017, even taking into account the limiting effects coming from the depressed levels of the capacity utilization rate in the manufacturing industry. A potential increase in investments combined with a positive contribution of the external sector – we calculate 0.8 pp – supports our scenario that GDP will grow 2.0% next year, which is more optimistic than the current market consensus of +1.0%.

Although the improvement in some fundamentals suggests to us a more favorable scenario for total investments in 2017, questions have emerged about which sectors will effectively expand their production capacity. In particular, we note the negative outlook for civil construction, which accounts for around 50% of total GFCF in Brazil, according to our estimates. As we noted previously in this report, we believe the widespread deterioration in labor markets, high real estate inventories in large regions, and low dynamism of public investments in infrastructure will likely prevent a recovery of this sector next year. Where would the impulse for a recovery come from?

Unlocking the Gears: From Top-Down to Bottom-Up Analysis

To further explore this topic, we analyzed a long historical data series of total GDP and GFCF, breaking down the components of “civil construction” and “machinery and equipment.” Considering the period from 1970 to 2013, we calculated the contribution (in percentage points) of each of these two groups to overall GFCF growth. The following chart presents these relative contributions, as well as the annual growth rate in total GDP and total GFCF.

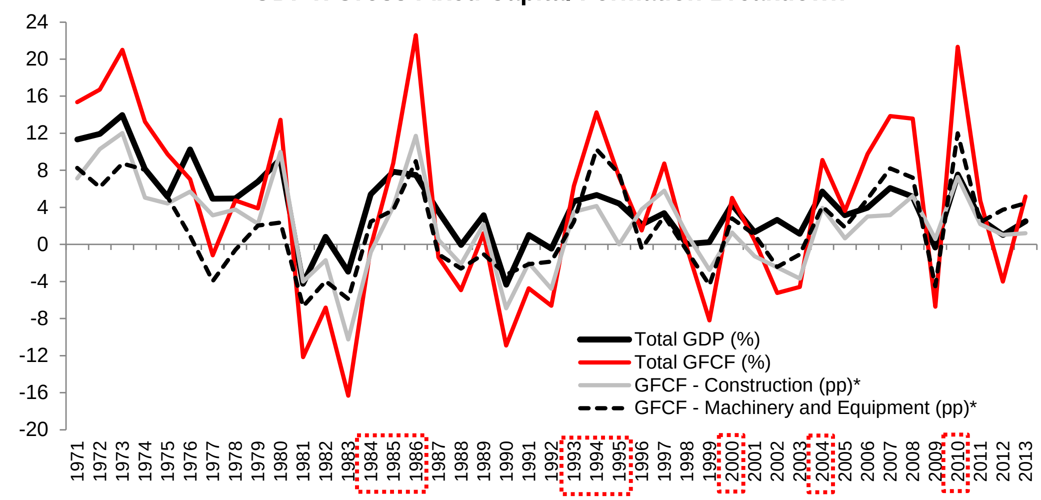
After that, we investigated the five periods of significant economic downturn – (i) 1981-1983; (ii) 1990-1992; (iii) 1998-1999; (iv) 2003; (v) 2009 – and observed the major role of investments for growth recovery in the following years. Looking at the available GFCF breakdown, we highlight that the most significant contribution has come from the component “machinery and equipment,” especially following the economic shrinkage registered in 2009.

Gross Fixed Capital Formation (GFCF) Growth just after Recession Periods

Period of Recovery	GDP Growth (%)	GFCF Growth (%)	GFCF - Construction (pp)	GFCF - Machinery and Equipment (pp)
1984 - 1986	6.9	10.4	5.1	5.3
1993 - 1995	4.8	9.3	2.5	6.8
2000	4.3	5.0	1.7	3.3
2004	5.7	9.1	4.4	4.7
2010	7.5	21.3	8.3	13.0

Source: IPEA and Santander estimates

GDP x Gross Fixed Capital Formation Breakdown

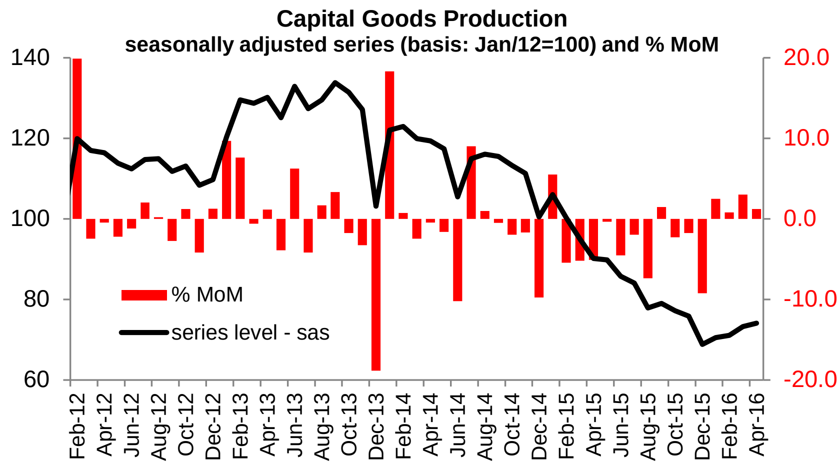


Source: IPEA and Santander estimates
* Sum of "Construction" and "Machinery and Equipment" contributions are equal to the Total GFCF growth

In other words, we believe the weakness in civil construction does not invalidate our base case scenario of expansion in investments next year, as suggested by the historical data series. But with respect to the capital goods category (”machinery and equipment”), which activities could lead to an increase of productive capacity? As mentioned, we expect some of the largest sectors, such as “automotive industry” and “oil and gas” to take longer to show more benign indicators. Regarding the former, we highlight truck production, which has grown significantly in recent years due to attractive financing conditions via public banks (Finame funds); nevertheless, looking ahead, we do not expect similar impulses for this activity.

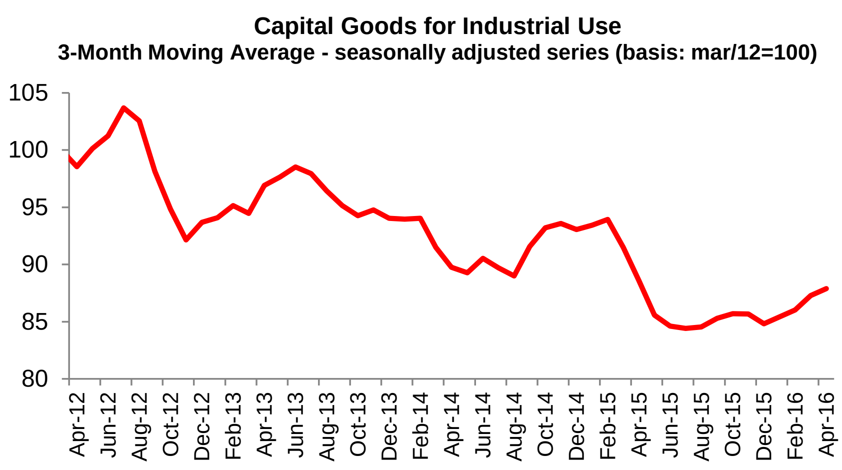
In our opinion, some manufacturing activities will be essential to reverse the downward trend of investments in the Brazilian economy. Again, we emphasize activities closely related to the external sector. First, it is worth noting that some sectors have already shown higher levels of capacity utilization in recent months (for some examples, please see the Appendix). Besides, even in some cases of low utilization of installed capacity – current levels below the historical average – we anticipate that rising manufactured exports and import substitution will require investments in new production and distribution processes and technologies, among others.

According to the Monthly Survey of Industry published by IBGE, capital goods production posted only positive variations in 2016, in month-over-month terms. We believe that this industrial category will continue to increase in the next few years, albeit at a moderate pace, in-line with continued inventory adjustment.



Source: Monthly Survey of Industry / IBGE

Considering the Special Indexes of Physical Production of Capital Goods, also released by IBGE, the improvement registered in recent months appears to have been driven by the following groups: (i) capital goods for industrial use – series production[3]; (ii) capital goods for industrial use – customized production[4]; and (iii) capital goods for electricity production[5].



Source: Monthly Survey of Industry - IBGE

With regard to the other groups – capital goods for agriculture; capital goods for mixed use; capital goods for civil construction; and transportation equipment – the latest results for physical production showed some stabilization at the margin. Although there is no consistent evidence of resumption in such activities currently, especially the last two (e.g., production of tractors, bulldozers, motor graders, compactor machines, buses, trucks, trailers), our assessment is that the worst is over, which should

[3] Examples of goods: drilling tools; compressors; industrial bearings; scales for weighing, dosing and counting; machining centers; hydraulic tools; lathes; machines for molding; electrodes; machines for textiles; machines for manufacturing footwear; machines for molding rubber and plastic.

[4] Examples of goods: central heating boilers; steam-generating boilers; turbines and water wheels; electric and nonelectric industrial furnaces; machines for the sugar industry; metal silos to store grain.

[5] Examples of goods: electrical transformers, AC generators, circuit breakers, fuses, consumption meters.

also contribute to better results in total investments, in our view. Charts illustrating the dynamics of all capital goods categories are presented in the Appendix.

Therefore, we see some incipient signs of improvement in capital goods dynamics, led by the manufacturing industry, which also corroborates our expectation that investments will play a major role in the economic recovery in the next two years.

Final Considerations:

This report aims to provide evidence that the Brazilian economy will enter on a positive path by next year, mainly due to a recovery in investments. While acknowledging the more optimistic tone of our scenario vs. market consensus, we think our forecast of a 6.0% increase in gross fixed capital formation in 2017 is not a steep resumption, in view of its plunge of about 30% in the last three years.

However, despite the positive contribution from investments and the external sector, depressed private consumption will likely prevent a stronger resumption of GDP growth, in our view. In addition to the weak fundamentals for consumption, it is also worth noting that the significant worsening of the macroeconomic environment in recent years affected the total productivity of the Brazilian economy and its potential growth.

For these reasons, we forecast GDP expanding 2.0% in 2017 and 3.0% in 2018, following a total decline of nearly 7.5% in the 2014-2016 period.

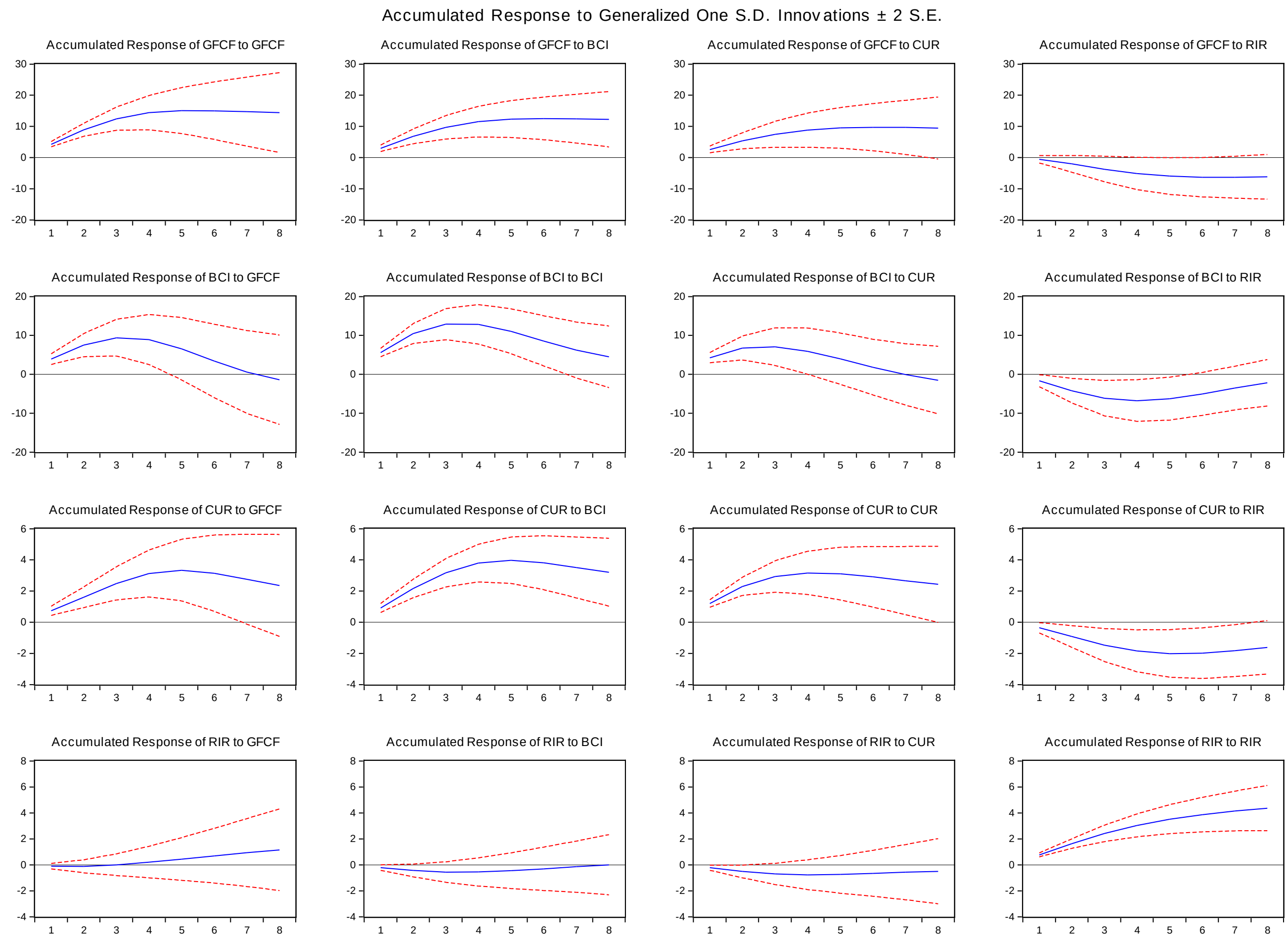
GDP Breakdown (%)

Components	2014 - 2016	2017
Total GDP	**-7.3**	**2.0**
Agriculture and Livestock	4.7	2.5
Industry	-12.4	1.8
Services	-4.8	2.1
Household Consumption	-6.8	0.9
Government Consumption	-1.4	-1.1
Gross Fixed Capital Formation	**-27.2**	**6.0**
Exports	12.3	3.6
Imports	-26.0	-2.2

Source: IBGE and Santander forecasts

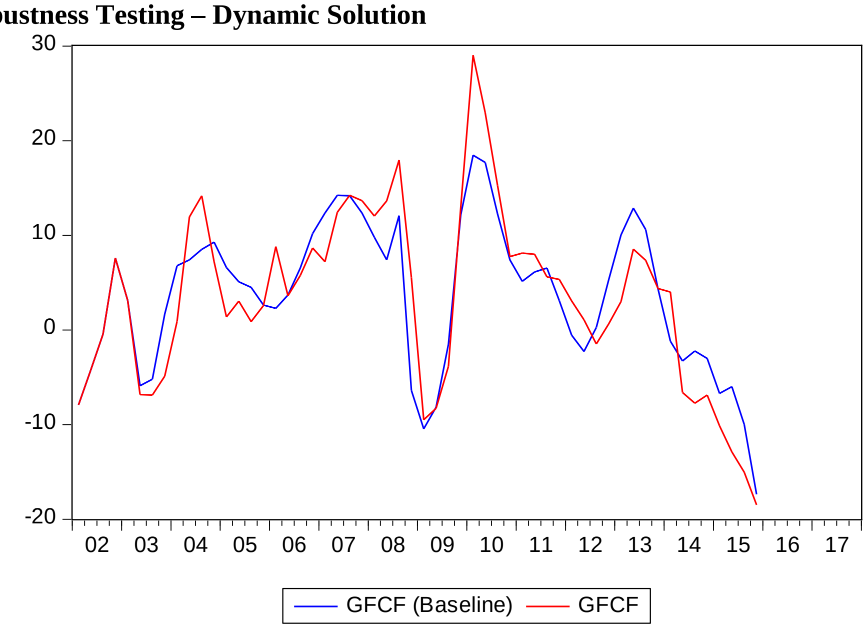
APPENDIX

I. VAR Model – Impulse Response Functions
Endogenous Variables: Gross Fixed Capital Formation (GFCF); Business Confidence Index (BCI); Capacity Utilization Rate (CUR); Real Interest Rate (RIR)



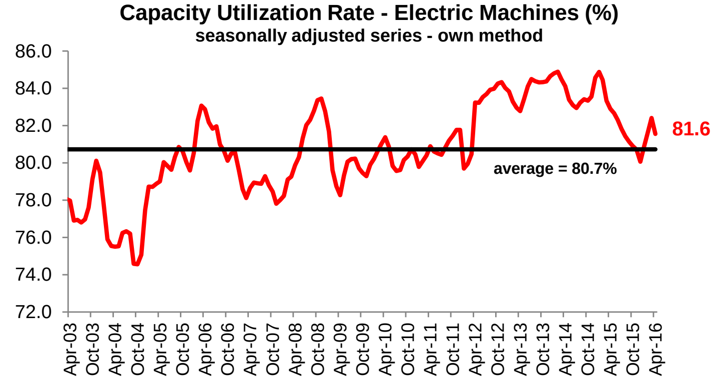
Source: IBGE, FGV, BCB, IMF, Reuters, and Santander estimates

II. Model Robustness Testing – Dynamic Solution

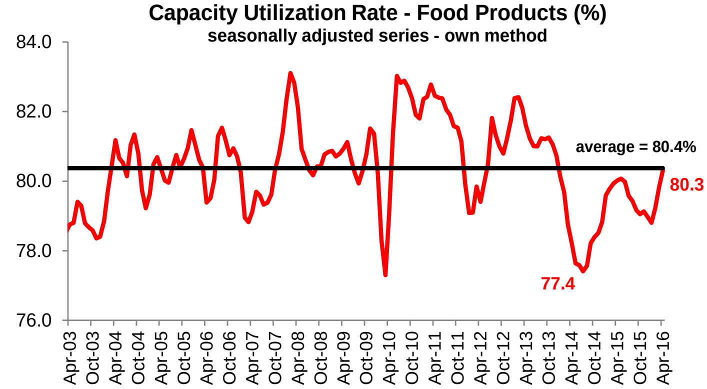


Source: IBGE, FGV, BCB, IMF, Reuters, and Santander estimates

III. Capacity Utilization Rate – Industrial Sectors



Source: National Confederation of Industry and Santander estimates



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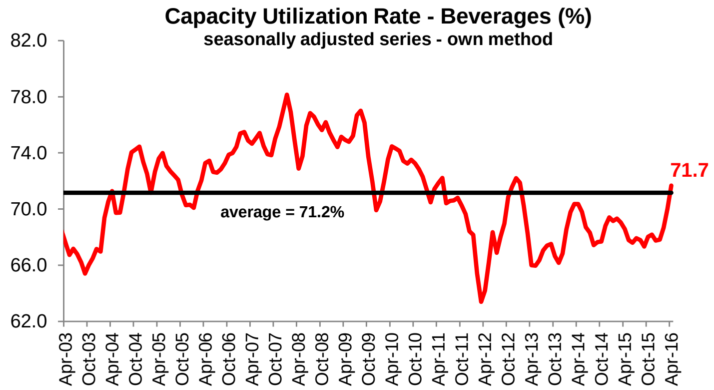

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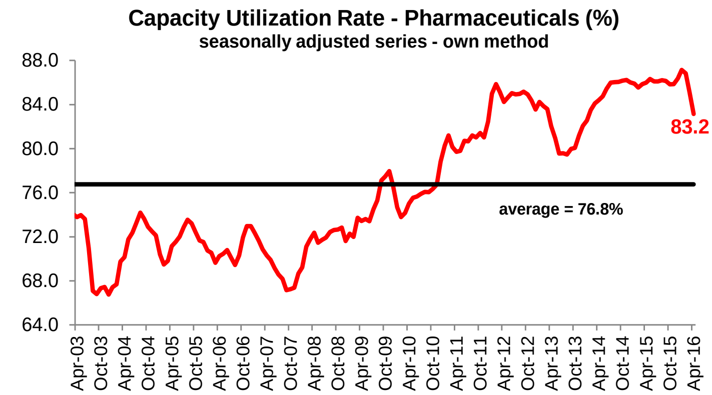

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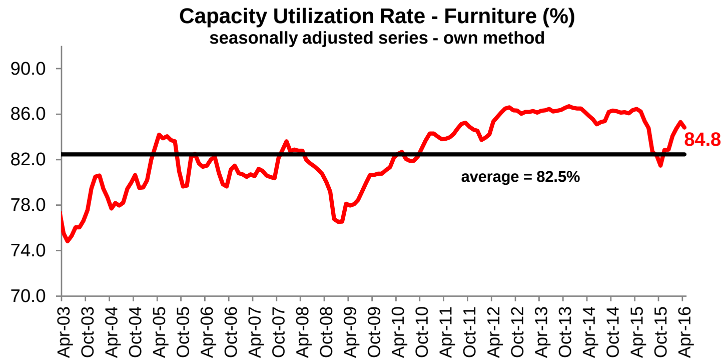
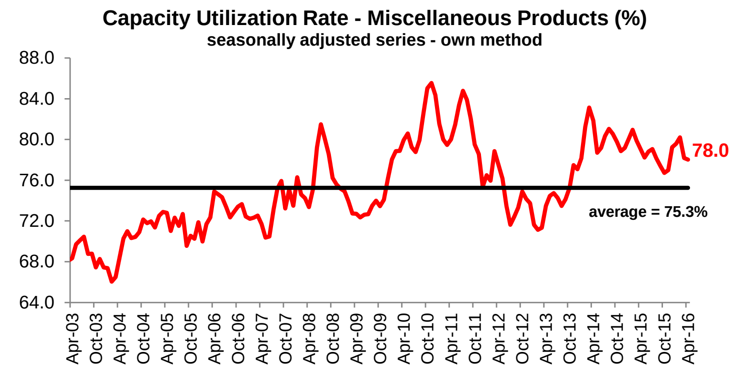
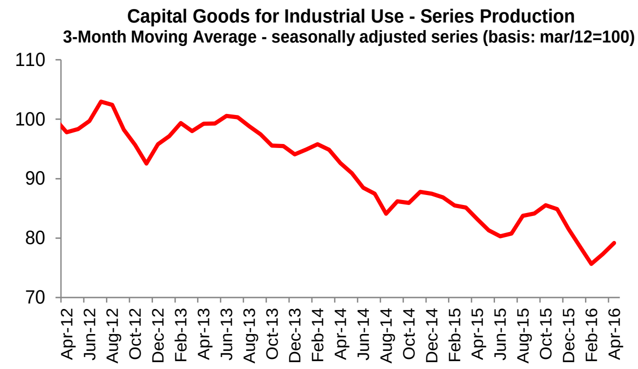


Source: National Confederation of Industry and Santander estimates

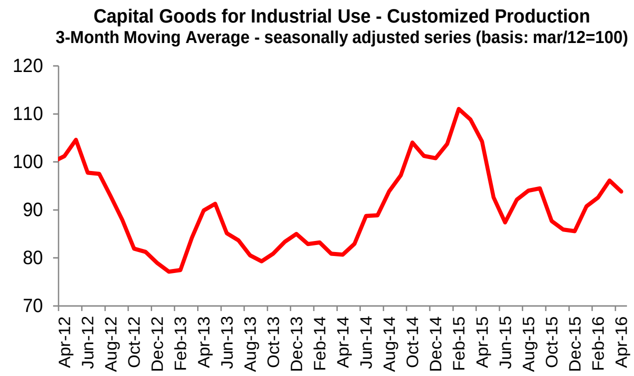


Source: National Confederation of Industry and Santander estimates

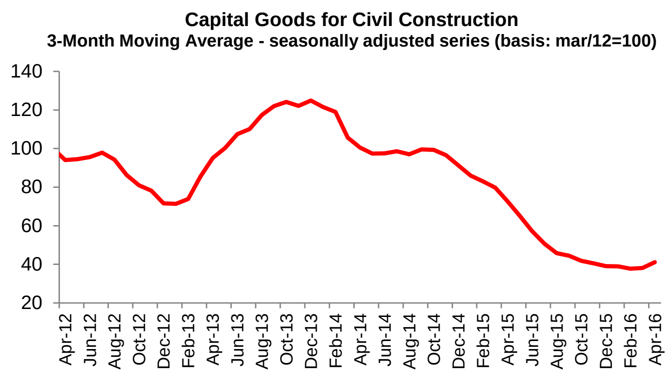
IV. Industrial Production – Groups of Capital Goods



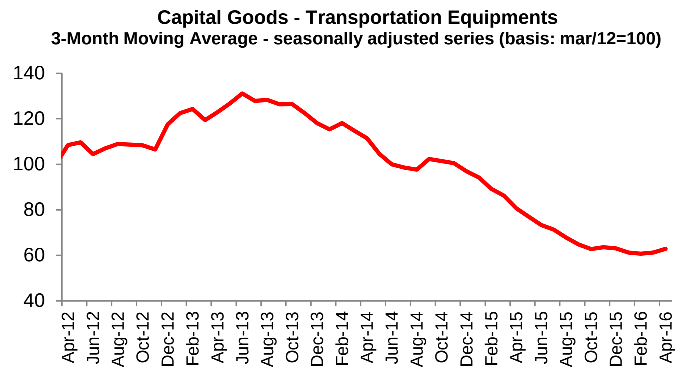
Source: Monthly Survey of Industry - IBGE



Source: Monthly Survey of Industry - IBGE



Source: Monthly Survey of Industry - IBGE



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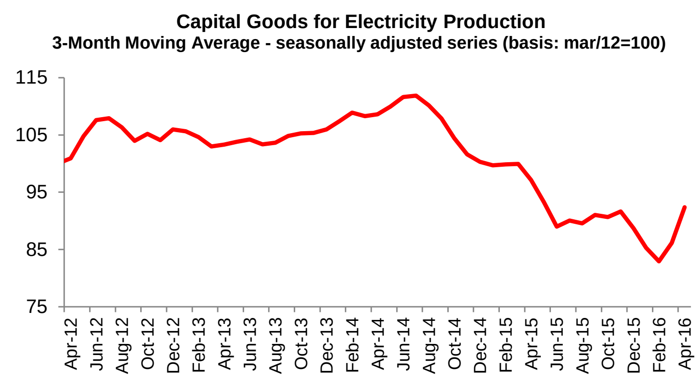

Source: Monthly Survey of Industry - IBGE

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