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The global financial crisis and the investment outlook in Brazil for 2009–2012[1]

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Even facing such dire outlook the expansion of investments should last

Between the beginning of 2006 and 3Q2008, the Brazilian economy had high growth rates connected to a continuous effort to increase investment. Along this period, the gross fixed capital formation (GFCF) grew systematically above the GDP, constituting Brazil's highest investment cycle in the last thirty years.

The increase in investment may be split into two phases. The first began in mineral resources companies and producers of basic inputs, spurred on by the combination of a strong increment in the worldwide demand for commodities and Brazil's competitive advantages in these sectors. In contrast with other recent events, in which investments were mainly allocated to brownfield streamlining, current projects are linked to greenfield implementation. In steel and pulp and paper sectors, there was an additional relocation of production units from developed countries to Brazil.

1 Study based on investment mapping and segment analyses performed by the Economic Survey and Follow-up Area (Área de Pesquisa e Acompanhamento Econômico - APE) in conjunction with the BNDES' operational departments.

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The second phase was comprised of investments in infrastructure, in housing and in durable consumer goods. In these cases, the two main triggering factors are the following: i) public policies – Growth Acceleration Program (*Programa de Aceleração do Crescimento* - PAC), changes in the regulatory framework of the electricity sector and enhancement of the institutional environment of the housing sector; and ii) growth of the domestic consumer market – increases in wages and credit.

The overall investment cycle reinforced the strength of the process. Besides facilitating the systemic competitiveness of the economy, investments in infrastructure managed to leverage private sector investments in other segments – spill over effect. In its turn, the increase verified in the durable consumer goods and housing sectors generated multiplying effects in the economy as it increased income and employment levels. As a result, investments in the economy were no longer triggered by a favorable international scenario. The dynamism of the domestic market also became relevant. The effects have been significant. In fact, most of the GDP growth in 2008 is explained by the performance of investments.

Much of the growth in 2008 was due to the expansion of gross formation of fixed capital

However, the current international financial crisis, which began in August 2007 and has dramatically worsened since September 2008,[2] may jeopardize the continuance of the ongoing investment cycle owing to its magnitude. The drop in commodity prices impacted sectors that were formerly leading industrial investment growth – oil and iron ore extraction, steel working and pulp and paper. On the other hand, the credit shortage has had a significant effect on the automobile sector and, on a lower scale, on the housing sector.

In view of this scenario, this issue of *Brazilian Economic Insights* serves two purposes. The first is to carry on with the annual surveys performed by the BNDES since 2006, on the perspectives of investments in the Brazilian economy, for the 2009–2012 period. Surveys performed in 2006 and 2007 revealed a change in the threshold and composition of investments in industry, infrastructure and housing. Previous data from the IBGE validate this scenario.

The second purpose is to identify the initial impacts of the crisis on the Brazilian investment horizon for the 2009–2012 period. Just as in previous years, the data survey was completed last August, a few weeks before the sharp decline of the international scenario in September of the same year. This change in the economic scenario, besides delaying the publishing of the data, led to another survey – completed in December.

2 See Borça Jr. (2008) – "Worsening of crisis leads the worldwide economy towards a recession". BNDES, Brazilian Economic Insights, Nº. 59.

Table 1: Investment Growth Rate (% p.a.) in Aug. 08

	Investments (R$ billion)		
	2004-2007	2009-2012	Growth Rate (% p.a.)
INDUSTRY	**281.5**	**551.7**	**14.4**
INFRASTRUCTURE	**185.3**	**338.5**	**12.8**
HOUSING	**357.0**	**570.4**	**9.8**
TOTAL	**823.9**	**1,460.6**	**12.1**

Source: BNDES, MDIC, PAC and Presidency of the Republic

Composition of mapped investments

Investment mapping encompassed 16 sectors, of which nine are industrial sectors, and six, infrastructure sectors, in addition to the housing sector. The choice of sectors was grounded not only on their relevance to the formation of the economy's investment rate, but also to the Bank's updated knowledge on such sectors.

The following sectors were considered in industry: i) oil & gas and mining – natural-resource intensive; ii) steel working; pulp and paper; chemical/petrochemical – basic inputs area; and iii) automotive; electric and electronic (including software); and industrial health complex (including pharmaceuticals, hospital medical equipment, blood by-products, vaccines and diagnostic reagents) – connected to the evolution of the domestic market; and, lastly, the sugarcane sector.

For the infrastructure area, investments in the following sectors were analyzed: i) electric power; ii) telecommunications; iii) road, railroad and ports – connected to the logistics area; and iv) sanitation. The housing sector completes the survey. Investments in this sector were ascertained by a different method: econometric estimation.

According to APE/BNDES estimates, the sectors surveyed were found to represent 54% of the total gross formation of fixed capital (FBKF) in 2007. Mapping covers two thirds (66%) of the investments in industry. Owing to data restrictions, the survey does not cover industry sectors with a large number of micro and small-sized enterprises, particularly the labor-intensive ones. In addition, it encompasses almost all infrastructure projects – around 95%. Investments in collective urban transport and airports were not addressed by the survey.

2009–2012 investment perspective: scenario before September 2008

In August 2008, perspectives were that the mapped sectors would invest around R$ 1.5 trillion between 2009 and 2012. This amount, as shown in Table 1, represented an average growth of 12.1% p.a. versus the 2004–2007 period. Compared to surveys carried out by the BNDES in previous years, a scenario of slight acceleration in investments in the economy was noted. The 2006 survey indicated an advance of 10.1% p.a. in the 2007–2010

Table 2: Mapped Investments in Brazil (2009/2012)

Sectors	Investments 2009-12 (R$ billion) Position in Aug. 08	Position in Dec. 08 Set
1- Industry and Infrastructure	**890.2**	**769.3**
Investments Sustained	**624.5**	**620.4**
Oil & Gas	269.7	269.7
Electric Power	141.1	141.1
Telecommunications	77.8	77.8
Sanitation	49.4	49.4
Roads	27.8	26.7
Electric and Electronic **	27.0	24.0
Petrochemical	23.7	23.7
Health Industry ***	8.0	8.0
Investments Reduced due to the International Crisis	**194.7**	**104.9**
Mining	72.3	48.0
Steel Working	60.5	24.5
Automotive	35.3	23.5
Pulp and Paper	26.7	9.0
Investments Reduced due to Other Factors	**71.0**	**43.9**
Sugarcane	28.5	19.7
Railroads	28.9	17.0
Ports	13.6	7.2
2- Construction	**570.4**	**535.7**
Investments Reduced due to the International Crisis	**570.4**	**535.7**
Housing	570.4	535.7
TOTAL	**1,460.6**	**1,305.0**

** Includes software
*** Includes pharmaceuticals, hospital medical equipment, blood by-products and vaccines, and diagnostic reagents
Source: BNDES

period versus 2002–2005,[3] whereas mapping for 2007 found a percentage increase to 11.8% during the 2008–2011 period against 2003–2006.[4]

Industry was prominent, with a perspective of 14.4% p.a increase in investments. In the 2006 survey, the rate was 12.9% p.a.,[5] whereas the 2007 survey posted a percentage of 12.4% p.a.[6] This momentum pointed towards a third investment phase, characterized by an even higher investment amount in oil & gas, steel working and automobile sectors projects. For the steel sector, production was expected to double between 2008 and 2014. For the automotive segment, the strong increase in demand for cars and in the use of the installed capacity brought about a greenfield scenario.

3 See Torres & Puga (2007) – "Investment Horizon 2007/2010: A Synthesis". BNDES, Investment Perspectives 2007/2010 (org. Torres & Puga).

4 See Torres, Puga & Nascimento (2007) – "Investments are expected to increase more than 10% per year in 2008/2011". BNDES, Brazilian Economic Insights, Nº. 43.

5 See Puga & Torres (2006) – "Why investment in industry will grow". BNDES, Brazilian Economic Insights, Nº. 19.

6 See Puga & Borça Jr. (2007) – "The rise in investment in industry in 2008/2011 should surpass 12% per year". BNDES, Brazilian Economic Insights, Nº. 40.

2009–2012 investment perspective: scenario after September 2008

The impact of the international financial crisis magnified uncertainties regarding the future of the world's economy, which would normally result in a scenario of project postponement, as well as a review of company investment plans. To better grasp the importance of this effect, the new survey, carried out in December 2008, engaged in separating, among the mapped investments, the set projects from those likely to be affected by such uncertainties.

Table 2 compares the mappings performed before the worsening of the financial crisis (August 2008) and those made after such scenario (December 2008). The outcomes show a minor difference between August and December 2008 outlooks, revealing, at that time, a low number of investments effectively called off on account of the crisis. In the December scenario – comprising the set projects –, it may be observed that the investment perspectives drop to R$ 1.3 trillion between 2009 and 2012. Therefore, this is a mild reduction of 11% compared to the previous amount of R$ 1.5 trillion. This finding may seem surprising in view of the gravity of the worldwide crisis and requires more detailed explanations.

Investment mapping shows that few investments have been canceled due to the crisis

As far as the sectors are considered, there are three different groups of reaction to the crisis. The first is comprised of sectors in which investments tend to remain set, in spite of the worsening of the international crisis. In this case, the following sectors may be pointed out: oil & gas, electric and electronic, health industry, electric power, telecommunications, sanitation and roads.[7] This group represents 43% of the mapping of August 2008 and embraces 23% of the gross formation of fixed capital in 2007.

In regard to the oil & gas chain, Petrobras' recently announced strategic plan was adjusted with higher figures, as the amounts of August 2008 did not consider the investments in the pre-salt layer.

For electric power generation, the company investment programs present high stability due to the fact they are provided in power supply contracts already executed by the government. Fulfilling contracted power supply undertakings and obtaining licenses – for installation, operation and environmental – both generate significant sunk costs of investments already put into practice.

For the telecommunications sector, investments are also well set, due to both the strong competition among companies to churn out new products/services, and to the need for technological updating –

7 The fact that investments in the electric and electronic sector underwent a 10% cut in the review was deemed as having low representativeness in view of the severe international crisis.

which will demand significant investments in the third generation (3G) of mobile telephony, in digital TV and in the use of Wimax (a wireless system that offers remote broadband access). Finally, the government's commitment to PAC will sustain high investments in sanitation and roads.

The heavy weight of these sectors in the set of gross formation of fixed capital significantly helps explain the relative strength of mapped investments.

The second group is comprised of both industry and infrastructure sectors which are more likely to be affected by the crisis – mining, steel working, pulp and paper, automotive – and the housing sector. This group represents 52% of the mapping of August 2008 and accounts for 28% of the gross formation of fixed capital in 2007.

In the worst case scenario, the automotive sector is expected to invest R$ 23,5 bn between 2009 and 2012

With regards to the mining industry, the drop in Chinese construction during the months that followed the intensification of the international crisis points to a scenario of lower prices and demand for metallic minerals. Nonetheless, it may be noted that several projects are associated with competitive bidding processes. In these cases, obtaining licenses created a high sunk cost, which encouraged the endurance of investments.

In spite of the review, the amount of R$ 48 billion in investments estimated for the 2009–2012 period for the mining industry is similar to the R$ 47 billion invested by the sector between 2004 and 2007. Some companies need to invest due to mine depletion. In the case of Vale, for instance, the investment estimate is consistent with its organic growth plan, disclosed by the company in its investment budget for 2009.

The steel and pulp and paper sectors, which presented investment growth well above the industry's average, had to review their projects due to a strong reversal in steel and pulp prices. For the pulp and paper sector, only one third (33%) of investments mapped in August 2008 may be considered set. This review, however, is owing more to the lack of confirmation and project postponement than to actual cancellations.

The investment review was also significant for automobile vehicles. However, the pessimistic scenario concerning investment perspectives for the 2009–2012 period, of R$ 23.5 billion, is still well above the R$ 15 billion invested by the sector between 2004 and 2007. In fact, during the first nine months of 2008, the sector was operating above their ordinary usage levels of installed capacity, with up to three shifts on a 24x7 basis. Due to this, companies were planning significant increases in investment. In September 2008, this investment cycle was ongoing. However, the greenfield building perspective ceased to be valid in the medium term.

When it comes to housing, although there is a significant amount of projects already contracted and in the initial stages of work, which partly lessens the crisis impact, the estimate is for a deceleration of investments earmarked for the sector, to be more evidently noted in the second semester of 2009. The strong retraction in laminated steel sales along 4Q2008 is a sign of a less favorable scenario for 2009.

Finally, the third group is comprised of sectors with high amounts of investments considered unset, motivated by factors other than the international crisis. The following sectors are part of this group: sugarcane, railroads and ports. This group represents 8% of the mapping of August 2008 and amasses 2% of the gross formation of fixed capital in 2007.

For the sugarcane sector, companies came from a scenario of very ambitious growth programs. Before September 2008, the amount of investments in the sector was already unsustainable. In their turn, the railroad and port sectors have an expressive set of pending matters in order to begin work.

Expansion of investments is expected to be 9.6% per year comparing the period of 2004/2007 to 2009/2012

Perspectives for investment increase

Mapping carried out in August 2008 pointed towards a perspective of a 12% average annual rate of real growth in investments between the 2004–2007 and 2009–2012 periods. The worsening of the international financial crisis in the following month led to a cut in the percentage figures. When considering only the set projects, this rate drops to 9.6% p.a. (Table 3).

The analysis of the sectors affected by the international crisis shows that industry will undergo a major review in its investment perspectives. Nevertheless, due mainly to the stability of investments in the oil & gas sector, industry will continue to present a significant investment growth rate – of 9.6% p.a. The stable character of the infrastructure projects implies a real annual advance of 11.5%. For the

Table 3: 2009/2012 Investment Growth - Set Projects

Sectors	Investments (R$ billion)		
	2004-2007	2009-2012	Average Growth Rate per annum (%)
INDUSTRY	281.5	450.1	9.8
INFRASTRUCTURE	185.3	319.1	11.5
HOUSING	357.0	535.7	8.5
TOTAL	**823.9**	**1,305.0**	**9.6**

Source: the BNDES

housing sector, the investment growth rate reduction will be mild, reaching 8.5% p.a.

Conclusion

In August 2008, the mapping of investment perspectives in Brazil for the 2009–2012 period pointed to a substantial increase in the level of investments in the Brazilian economy. The worsening of the international financial crisis in the following month led to the need and conducting of a new survey – completed in December 2008 –, which included only the projects considered set.

The new survey showed that the international financial crisis might have more significant impacts on industry investments, followed by investments in the housing sector. In its turn, infrastructure investments are expected to be much less impacted. Overall, the survey concluded that, even with the crisis, there is an expectation of a 9.6% p.a. average growth in investment compared to the 2004–2007 and 2009–2012 periods.

The power segments stand out for the number of projects that will be maintained, even with the worsening of the crisis. For the oil & gas sector, investments in oil exploration are associated with a long-term investment cycle that tends to be upheld by the pre-salt frontier reserves. For the electric power sector, investment programs are provided in power supply contracts already executed by the government. For the telecommunications sector, the ongoing development of new technologies implies significant company investments, at the risk of massive losses of market share.

The sectors most impacted by the international crisis fall into two types. The first group comprises the commodity producers, whose investments were earmarked to supply a strong increase in world demand for basic products – mining, steel working and pulp and paper. The second group comprises the producers that do not depend on domestic credit conditions – the automotive and housing sectors.

During 4Q2008, the companies of the abovementioned sectors postponed more investment decisions than actually calling them off. The existence of important projects already underway means that investments will still keep high thresholds compared to the 2004–2007 period.

In a nutshell, the international crisis is already impacting investments in Brazil. The impact until 4Q2008 was, in a global point of view, of low significance. This is owing to the existence of a strong investment cycle in sectors that plays a major role in economy's gross fixed capital formation. This group mainly comprises the telecommunications sector and, in the "energy block", the oil & gas and electric power sectors. The second group comprises important projects already in progress in sectors yet affected by the international crisis, but that may be partially kept due to "sunk costs" already incurred – mining and steel sectors.