Inflation outlook

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This chapter of the *Inflation Report* presents the Monetary Policy Committee's (Copom) assessment of the behavior of the Brazilian economy and of the international scenario since the release of the previous *Report* in June 2008, as well as the analysis of the inflation prospects up to the third quarter of 2010 and of the Gross Domestic Product (GDP) growth up to the end of 2008. One should highlight that since the March 2008 *Inflation Report*, Copom starts to systematically release inflation forecasts for a period of two years, starting from the first month after the *Report* release, a procedure similar to the one previously adopted in the case of *Reports* released in each December. Thus, *Reports* published in March, June and September, which used to consider inflation forecasts for the current year and the next, henceforth they will contain forecasts for a two-year span. Inflation projections are presented in two major scenarios. The first scenario, called the baseline scenario, assumes that the Selic rate will remain unchanged at 13.75% per year, over the forecasting horizon, the level decided by Copom in its last meeting, on September 9 and 10, and that the foreign exchange rate will remain at R$1,80 per US dollar. The second, named market scenario is based on the expected paths for Selic rate and for the foreign exchange rate drawn from the survey carried out by Central Bank's Gerin with private sector analysts. The projections released here utilize the set of information available up to cut-off date of September 12, 2008. It is important to stress that these scenarios are used as support for monetary policy decisions and should not be viewed as Copom forecasts of the future behavior of interest and exchange rates.

The projections for Inflation and GDP growth released in this *Report* are not point estimates. They consist of probability intervals which embody the degree of uncertainty present in the above mentioned cut-off date. Inflation forecasts depend not only on assumptions over interest and exchange rates, but also on a set of assumptions on the behavior of the external variables. The most likely set of assumptions considered by Copom is used to build up the scenarios to which the

Committee attaches the greatest weigh on making its interest rate decision. On setting out these assumptions, the Copom seeks to foster transparency to the monetary policy, thereby contributing to the effectiveness of policy decisions in controlling inflation, which is its primary objective.

6.1 Inflation determinants

The inflation measured by the IPCA growth reached 4.48% over the year up to August, against 2.8% in the same period of 2007. Since January, the twelve-month inflation rate stands higher than the center of the target, with an increasing gap since then. Actually, twelve-month inflation up to August stood at 6.17% (against 6.37% in July and 4.18% in August 2007). This upturn in inflation – initiated in the first half of 2007 – is largely due to the mismatch between the expansion pace of demand and supply, in a context of pressure – observed on a global scale – on the prices of agricultural commodities, namely beef, milk and dairy products, which started to increase with higher intensity last year, and which, notwithstanding the downturn registered in the latest weeks, still remain on historically high levels. These increases are due to structural factors which tend to persist such as the higher demand by big Asian countries – China and India – and the displacement of some crops, such as corn, for biofuel production.

Additionally, transitory factors, such as weather conditions, also put pressure on food prices, as well as tariff and nontariff barriers to the trade of specific products by several countries in the latest months. Mainly in the first quarter, a more intensive increase of oil prices – significantly decreased since the last *Inflation Report*, though still remains at levels higher than the average prices observed in previous years – and high readjustments on prices of some nonagricultural commodities, for example, iron ore – though the metal commodities also had shown decreases in their costs since the last *Inflation Report* – joined up with the above factors. Another important difference in the inflation upturn comes from the behavior of the regulated and monitored prices which, in 2007, for the first time since the inception of the Inflation Targeting System in 1999, increases lower than the market prices, a trend which persists in 2008, but it is not expected for next year. Actually, while, over the year up to August market prices grew by 5.4% and the regulated prices grew by 2.37%. On the other hand, sharp general prices increase and with the end of the tariff revision cycle in the electricity sector anticipate a higher pressure the administered prices in the next quarters. The behavior of nontradable prices indicates that the demand pressure continues to have a relevant impact on inflation dynamics. Therefore, among the set of market prices, nontradables prices increased 8.41% in twelve months up to August, and the increase in prices of nontradable goods, although smaller (6.82%), also stood higher than the upper limit of the inflation target.

According to IBGE-seasonally adjusted data, GDP at market prices grew by 6.1% in the second quarter of 2008 compared to the same quarter of the previous year and by 1.6%, against the first quarter. From the production viewpoint, the agricultural sector grew by 7.1%, compared to the same period of the previous year, while the industry and the services sector reached 5.7% and 5.5%, respectively. Regarding demand, Gross Fixed Capital Formation (GFCF) expanded 16.2%, against the same quarter of the previous year, followed by household and government spending, which grew by 6.7% and by 5.3% respectively. Just as it has been occurring since the first quarter of 2006, growth was exclusively due to domestic market. Actually, domestic demand contributed with 8.6 p.p. in the GDP expansion of 6.1% of in the second quarter, while the external sector contributed with - 2.5 p.p. Copom considers that, even with the prospects of weakening of global economy compared to the situation at the time of release of the last *Report*, the upturn in domestic demand activity should continue, with some moderation, in the next months, favored by several sustaining factors that still impact on economic activity, such as credit and employment expansion. Taking into account, additionally, the narrowing of the factor market observed in the latest quarters, the Copom assesses that the pace of demand expansion continues to dominate the risk balance for inflation.

At a moment when global growth cools off more rapidly than was expected some months ago, and that expectations of world economy expansion continues deteriorating, private spending has been contributing, in an important way, to sustain domestic demand. In fact, in the first quarter of 2008, household spending grew 6.7% in relation to the same period of the previous year. This robust performance can also be seen, and anticipated through retail data. The seasonally adjusted series of expanded retail sales registered increase of 1% in July 2008, as compared to the previous month, after increases of 1.3% in June, 1.1% in May, 1.5% in April and 1.3% in March. As a consequence, the average of the quarter ended in July registered growth of 3.8% as compared to the quarter ended in April. In comparison with the previous month, there was growth of 16.5%, compounding 14.6%

over the year and 14.2% in twelve months. Over the year, there were increases in all surveyed segments, with emphasis to "office equipment, informatics and communications", 29.2%; and "automotive, motorcycles, parts and spares", 22.9%; "other articles of personal and domestic use", 21.5%; "furniture and home appliances", 18.6%. The segment that registered the lowest growth in the period (5.8%) was that of "supermarkets, food, beverages and tabacco".

The growth in economic activity has been producing steady improvements in the labor market. In July, according to PME, the working population increased by 4% as compared to the same month of the previous year, and 3.6% in twelve months. The average nominal earnings of the working population rose by 10.5% in July, on the interannual comparison, the highest since December 2005, led by the increase in the public sector wages. On the other hand, the real average earnings fell by 3% compared to July 2007, causing a 7.2% increase in the real overall wages on the same basis of comparison and 5.9% in twelve months. The employment level in the manufacturing industry registered, in July, growth of 4.4% in relation to the same months of 2007 according to CNI data. In relation to CLT formal employment, data released by MTE indicates that respective growth intensified in 2008, with the creation of 1.8 million job positions up to August, a number higher than that registered in 2007, when it registered the highest annual balance of Caged's historical series. In percentage terms, formal employment expansion in 2008, up to August, was led by the civil construction (17.7%), followed by commerce (6.7%), manufacturing (6.2%) and services (5.9%). The favorable developments in the labor market strengthen the perception, expressed by Copom in previous *Reports*, that the wage bill will continue to be one of the sustaining pillars of aggregated demand. One should mention that the favorable performance of the labor market has contributed to maintain consumer confidence indices at high levels.

Credit availability to households, favored by macroeconomic stability and institutional advancements, despite the increase in the resource acquisition cost by financial institutions, has been another important boosting component of private spending. In twelve months up to July, the financial system credit (with earmarked resources) to households grew 30.7%, with emphasis on the expansion of leasing operations (141.7%). One should mention that this credit expansion has been followed both by the average term lengthening and by the relative stability of default. Concerning the prospective scenario, market analysts and banking sector representatives expect that the credit will continue expanding in 2008, especially in some segments like the real estate, although with some moderation on the margin, due to the lagged effects of monetary policy and, also, of some repercussions of tightening financial conditions on a global scale.

On the other hand, investment has been shown as the most dynamic component of domestic demand. After a increase of 10% in 2006 and 13.4% in 2007, the GFCF increased, in real terms, 15.7% in the first semester of 2008, as compared to the same period of the previous year. As GDP share, the GFCF increased from 17.5% in the second half of 2007 to 18.7% in the second quarter of 2008, the highest value since the beginning of the series, in 2000. The behavior of the investment reflects heated activity in an environment of economic stability, increased companies' earnings, reduction in import costs and improved financial conditions.

In fact, there is evidence that credit expansion has been helping to sustain investment expansion. Credit with earmarked resources to corporate entities grew by 41% in twelve months up to July, and 19.1% this year. However, loans disbursements and financings through BNDES system resources increased 42.8% up to July 2008 in relation to the same period of the previous year. Besides, on the capital market, the volume of initial public offerings of shares (R$31.7 billion up to August) as well as debenture issuances (R$5.7 billion up to August, excluding the issuances carried out by leasing companies) contributed to financing investments in practically all sectors. On the one hand, the strengthening of the real also had importantly favored investment growth, since the cost of importing capital goods was reduced. On the other hand, the deepening of the PAC implementation process should expand public investments on infrastructure. In summary, even in the context of a greater than anticipated world economy deceleration, in the next year, and of higher volatility in the global markets since mid-2007, the combination of profitability and high confidence, coupled with favorable financing conditions, should contribute to the continuity a benign performance, despite the volatility which characterizes the investment series.

According to IBGE, government spending grew 5.3% in the second quarter of 2008, in relation to the same period of 2007, a development which was accompanied by strong increase of public revenues. In spite of not counting anymore on tax revenues from the Provisional Contribution on Financial Operations (CPMF), the Central Government's revenues increased 17.7% over the year up to July, compared to the same period of the previous year. On the other hand, the ICMS revenues, the main state tax, increased 18.9% up to June, against the same period of the previous year. In the face of budgetary conditioning, currently prevailing in the country´s public policy guidelines, it is expected that the growth in government spending remains robust in the next quarters.

Concerning the foreign sector, after registering a US$40 billion surplus in 2007, the trade balance registered US$16.9 billion in the first eight months of 2008, a value 38.4% lower than that observed in the same period of the previous year. The result of trade balance is due to exports of US$130.8 billion and imports of US$113.9 billion. Despite the relative loss of dynamism in exports, one should mention that the results of the beginning of the year were negatively affected by specific factors linked with the Federal Revenue officers' strike, the delay of the grains harvest and the lockout of rural producers in Argentine. In fact, despite the relevant reduction in the results of the trade balance compared to the previous year, this difference has been falling for five consecutive months. Part of this relative recovery also reflects significant price adjustments of important export products, such as iron ore.

Concerning exports, after an observed growth of 5.5% in 2007 (against 3.3% in the previous year), a cutback of 0.7% was verified in the first seven months of the year, the first cutback on this basis of comparison since 2003, partly reflecting the effects of foreign demand deceleration and reallocation to domestic market of part of production previously directed to the external market. On the one hand, after growing 22% in 2007 (against 16% in 2006), the imports registered growth of 23% in the first seven months of the year. It is important to highlight that the cutback in exports volume was partially offset by the increase in the exports prices, which, even after increasing 12.6% in 2006 and 10.6% in 2007, showed a significant rise of 27.2% in the first seven months of 2008. On the other hand, import prices, which grew 8.1% in 2007 (against 7% in 2006), also showed an expressive growth in the period (23.5%). In this way, despite evidence pointing to an important reduction in the trade balance in 2008, Copom does not foresee an abrupt reversal in the trade balance in the short term.

One should stress that the high volume of imports reflects, in a good extent, the significant growth of external purchases of capital goods, after growing 32.1% in 2007, the highest rate since 1998, it still accelerate on the margin. In fact, the growth observed in the first seven months of the year topped 38.9%. In part, reflecting these developments, the net exports contribution to the aggregated demand growth was negative by 2.5 p.p. in the second quarter of 2008, just as it occurred in the latest years (-1.4 p.p. in 2006 and 2007). The evolution of net exports is due to the effects of the acceleration of domestic demand activity vis-à-vis the situation of our trade partners. Copom assesses that net exports has become less effective as auxiliary instrument to maintain price stability. The recent behavior of prices of Brazilian assets, especially foreign exchange rate, corroborates this. Concerning current transfers, Copom works with the assumption of deficit in 2008. In fact, in the latest twelve months, the deficit reached UR$19.5 billion, 1.4% of GDP, while the net inflow of direct foreign investments totaled US$30.1 billion, corresponding to 2.2% of the GDP.

The external scenario showed relevant changes since the last *Inflation Report*. After more than one year since its outbreak, the subprime crisis, which not only affected the real state market, but also the North-American financial and credit market before having effects on the financial system of other countries – especially on the main European economies – continue far from a solution. Some signs indicate that there will be strong impacts on the global economy. The losses declared by the financial institutions up to the moment reach high numbers, and significant new losses are expected. After a period when the crisis apparently showed signs that it had reached an inflexion point, it is plausible to assume that the expectations for global economy deteriorated even further since the release of the last Inflation Report. Europe, whose real sector seems to be, at a first moment, showing some resilience to adverse developments of the financial system, appears to be suffering the cumulative effects of the exchange terms deterioration, of the deterioration in the financial conditions, of the higher risk aversion and of more pessimistic prospects for world growth in 2008 and 2009. Therefore, the European Central Bank, which had increased the interest rate in a context of lower tolerance to inflation, interrupted the contractive movement and started to observe the economic deceleration with greater attention.

In fact, although the subprime mortgage crisis had originated in the USA, are signs, up to the moment, that the European economy would be even more strongly affected than the American economy. One should note that the USA economy displayed a non negligible growth in the first half year, after having grown in 2007. Notwithstanding the effects of the expansionary fiscal package implemented at the beginning of the year seem to have vanished, expectations of recession in a near future gains momentum. Stronger indication seems to come from the labor market, which clearly reflect the lower economic activity level, with sharp increase of the unemployment rate, worsening even more consumer confidence, and importantly contributing to reduce spending. Besides, Japan, which did not seem to have been strongly affected by the financial crisis – especially due to the intensive trade with other countries of the region – experienced strong downturn in the second quarter.

One should mention that, in the case of the USA and, more importantly, of Europe and Japan, the worsening terms of trade caused by the increase in the commodity prices had contractionary effects on disposable income; on corporate earnings and on household and business confidence. Thus, the reduced prices of primary products must contribute toward easing the tendency for economic slowdown in these regions.

On the other hand, the crisis impacts on emerging economies are still limited. One should highlight, therefore, the raising of some signs, still incipient, of deceleration in China. It is not clear, however, if they stemmed from specific factors, associated, for example, to weather events or to the Olympics, or it really anticipated a tendency. Additionally, the recent decrease in commodity prices may contribute to mitigate the monetary policy dilemma faced by several central banks, especially in countries which import raw materials, where inflation and economic activity have been moving in opposite directions. In this sense, one should mention that raw materials, not negotiated on the stock market, such as iron ore, continue with their prices quite under pressure, suggesting that the recent fall in commodity prices may have been exaggerated by the movement of closing positions by financial investors and, therefore, overestimating the deceleration condition.

As consequence of the above scenario, the growth prospects of the world economy became worse since the last *Report* as well as the risk balance, which started to present a clearly negative bias to the activity. The dominant scenario seems to indicated a more consistent recovery only in 2009 or even in 2010. On the other hand, the commodity price decrease, especially of oil, seems to indicate that world inflation – which continues quite high – would have already reached its peak.

Regarding the aggregate supply, the three economic sectors showed quite robust performance in the second quarter of 2008. The level of activity in manufacturing grew by 5.7% (6.9% in 2007) as compared to the same period of 2007. The services also presented strong growth, expanding 5.5%, compared to the same period of the previous year (4.5% in 2007). The best performance was shown by agriculture, which grew 7.1%, recovering from the bad performance observed in the previous quarter (3%), and showing strong acceleration, as compared to the same period of 2007 (1.1%). One should highlight that the weak result in agriculture, in the first quarter, was due adverse specific factors, such as delays of harvests of some important crops. In this way, the performance in the second quarter only recovers the strong growth tendency initiated in the third quarter of the previous year. In fact, the expansion of this sector in the latest two quarters of 2007, on this basis of comparison, was quite significant (9.7% and 8.6%, respectively).

After expressive increase of 6% in 2007 – the highest rate in the latest three years and the second since 2001 – industrial production accelerated and presented expansion of 6.6% in the first seven months of 2008. In this period, manufacturing expanded 6.5%, while mining increased 6.8%. Consequently, after a growth rate lower than manufacturing in 2007 – not the usual dynamics over the years – the mineral extractive industry returned to grow more than the manufacturing industry. Data already released concerning the latest months, pointed the continuity of the industrial growth cycle, even with a pace conditioned by possible limitations to supply expansion and by effects of monetary policy actions.

While from the supply viewpoint, GDP grew 6.1% in the second quarter, compared to the same period of the previous year, from the demand viewpoint – excluding inventory adjustments – expansion topped 5.6%. In this regard, considering only the manufacturing, FGV's Economic Outlook Survey August data shows that, since October 2007, the inventory indicator remained for the sixth consecutive month higher than 100 – a level higher than the number of companies that considers the inventories as not sufficient surpasses the ones which considers that their inventories are excessive – but returned to fluctuate around 100 since February, which suggests that the inventories have been maintained close to the levels planned by the surveyed companies. On the other hand, according to the CNI, at the end of June, the final inventories remained at a level higher than the one registered in the corresponding period of the previous year. Besides, the difference between planned and effective inventories, which had been posed lower than 50 in the last quarter of 2007 – a level which indicates effective demand higher than anticipated – returned to stand higher than 50 since that time, which from this viewpoint may suggest some moderation, on the margin, of the mismatch between supply and demand.

On the other hand, the Nuci reached 83.7% in July, showing increase against the rate of 83.1% registered in June, according to the CNI seasonal adjusted data released by the Central Bank. The CNI seasonally adjusted data, which had decreased in May, returned to increase in June and July, reaching in this last month the record level of 83.5%. Considering the series without seasonal adjustment, in July, the Nuci stood 1.47 p.p. higher the level registered in the same month of 2007. As a result, the average rate of the first seven months of the year was 1 p.p. higher than the one observed in the corresponding period of 2007. Additionally, the monthly non seasonal adjusted Nuci calculated by the FGV, reached 86.5% in August, 0.8 p.p. higher than the level observed in the same month of 2007.

Generally, the high level of capacity use mirrors economic activity deceleration and it is manifested in several sectors, notwithstanding the substantial growth of investment volume. The FGV´s Economic Outlook Survey on the manufacturing industry shows that, between April and July, there was growth of 1 p.p., in the number of companies considering that there will be limitation in their production increase. Nevertheless, when the figures of July and January are compared, it is verified an increase of 2 p.p. (38% against 36%, respectively). As concerns the expansion capacity, the absorption of capital goods, which had been showing high growth rates (5.1% in 2005, 13.9% in 2006 and 19.6% in 2007), remains robust in 2008, and registers expansion of 19.6% up to July, compared to the same period of the previous year. This performance reflects not only the strong growth of capital goods imports (39% in volume up to July), but also in the production of these goods (19.9%). One should highlight the growth of 10.5% in the construction inputs, the highest growth on this basis of comparison since April 1995. On the other hand, taking into account the recent behavior of the capacity utilization rates, the timely maturation of investment projects is a crucial factor to avoid the deepening of the important mismatch verified between the growth in supply and aggregated demand in the latest quarters, which has exacerbated the inflation.

The National Cost of Construction Index – Domestic Availability (INCC – DI) shows an increase in production costs associated to this sector. The INCC growth over the year up to August reached 9.24% against 4.09% registered in the previous year. On one hand, growth in the latest twelve months topped 11.4% in August, a value 6.4 p.p. higher than the one verified in the same period of 2007. This development has been raising concerns regarding possible supply restrictions in this segment which, given its production structure, would hardly be relieved by imports. Besides, the construction industry seems to face cost pressures given the apparent scarcity of specialized labor. The worries about the price evolution in the construction industry are reinforced by the prospects of aggregated demand expansion in an environment where financial conditions remain favorable.

Upon overcoming the “courage” effect, typical of the initial phases of expansion cycles, the economically active population (PEA) growth has been decelerating. In twelve months up to July expansion reached 2%, against 2.8%, compared to the same period of the previous year. This dynamics coupled with the accelerated pace of economic activity and to the consequent expansion of labor demand, contributed to faster downfalls in unemployment rates. Actually, unemployment rate stood at 8.1% in July against 9.5% and 10.7%, respectively in the same months of 2007 and 2006. Consequently, the average rate of unemployment in the year up to July (8.2%) stood 1.6 p.p. lower than the one verified in the same period of the previous year. On analyzing the average rate in twelve months, it is verified that July registered the eighteenth consecutive cutback on this basis of comparison. With the strong upturn in labor demand, the PEA tendencies were maintained, and unemployment rates may decline over next months, which might lead to pressure for stronger wages increases possibly higher than the growth in labor productivity.

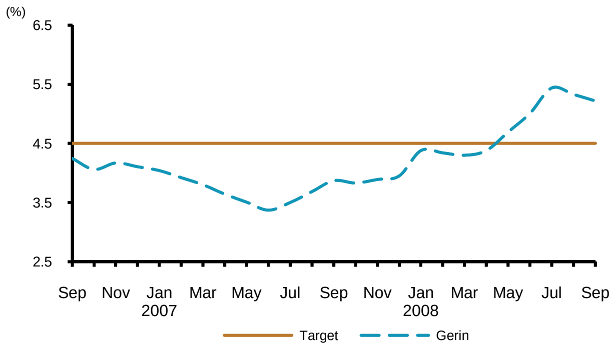
The oil price, a systematic source of uncertainty of the international scenario, has fallen since the latest *Inflation Report* release, but it continues quite volatile, suggesting caution in the interpretation of its recent dynamics. This behavior has not only reflected the lower demand by developed countries, in a context of economic deceleration, but, especially, worries of stronger global deceleration in the next quarters. One should highlight that the impact of international prices of oil on domestic inflation is not exclusively transferred through fuel prices, but also, for example, through the production chain of the petrochemical sector and through consumer and entrepreneurs’ expectations. The price volatility of other imported commodities continues equally high, although, likewise oil, prices had been falling with some intensity since the last *Report*, due to the greater uncertainties concerning the prospects of world demand growth, as well as the greater turbulence in the global financial markets.

After more than doubling in 2007 (7.89%, against 3.79% in 2006), broad inflation – measured by IGP-DI – continued to increase in 2008. Up to August, IGP-DI rose by 7.93% against 3.23% in the same period of the previous year and, in twelve months, 12.8%, a percentage 7.61 p.p. higher than that for the same period of 2007. The strong acceleration of the index was essentially due to the behavior of IPA-DI which expanded 15.7% in the latest twelve months, against 5.49% in 2006. On the other hand, on the same basis of comparison, the IPC-Br and the INCC increased, respectively, 5.93% and 11.4%, against 4.47% and 5.04% observed in the same period of the previous year. Still about the Wholesale Price Index (IPA), one should note that the industrial price acceleration, the process initiated in the second half of 2007 and was intensified in the latest quarters. In fact, the industrial price inflation in twelve months up to August (13.37%) remained 10.72 p.p. higher than the value registered in the same period of the previous year, and the agriculture prices (22.51%), 7.64 p.p. Nevertheless, one should mention that the agriculture prices growth reached, in twelve months up to August, a level markedly higher than that registered by industrial prices. As highlighted in previous *Reports*, Copom assesses that the effects of wholesale prices on consumer inflation will depend on current and prospective conditions associated to demand and price-setters expectations regarding the path of future inflation.

The benign scenario for consumer prices which materialized in 2006, started to revert by mid-2007 and showed higher deterioration since the beginning of the current year. These developments were considered in thee risk balance posed by the Committee in previous *Reports*, which anticipated that twelve-month inflation could accelerate this year. Similarly to what occurred in 2007, this year the market prices grew markedly more than the regulated and monitored prices, with latter reducing the IPCA acceleration. While market prices grew 5.4% in the first eight months of the year (7.64% in twelve months), regulated prices only increased 2.37% (2.84% in twelve months). In the set of market prices, the price of nontradable goods increased 5.53% up to August (8.41% in twelve months), while the price of tradable goods grew 5.27% (6.82% in twelve months).

The three measures of core inflation calculated by the Central Bank registered, up to August, values higher than the ones verified in the same period of the previous year. Besides, the twelve-month inflation remained higher than the center of the target in all the cases. Actually, over the year up to August, the core that excludes monitored prices and food at home prices registers inflations of 4.18% (2.45% in the period in 2007), the smoothed trimmed mean core stands at 3.26% (2.47% in the same period of 2007) and the non-smoothed trimmed mean core shows inflation of 3.52% (2.24% in the same period of 2007). In twelve months the values are 5.87%, 4.85% and 4.92%, respectively.

Figure 6.1 – Inflation target path and market expectations for twelve-month ahead inflation



As mentioned in the last *Inflation Report*, inflation expectations for 2008 has continued rising, in some moments even higher than the center of the target (6.5%), actually standing at 6.26%, against 5.8% in July. For 2009, expectations have also deteriorated, increasing from 4.63% in June, to 4.99%, influencing the prospective scenario posed by Copom. For 2010, expectations have stood at 4.5%. In the Copom assessment, these developments, as well as the inflation acceleration in 2007 and 2008, indicate that the inflation convergence to the target in 2009, even facing activity deceleration scenario on a global scale, requires the timely actions by the monetary authorities through adjusting the basic interest rate.

6.2 Main scenario: associated risks and monetary policy implementation

The Copom analyses forecasts based on the assumptions about the main behavior of macroeconomic variables. This set of assumptions, plus the risks associated to it, compound the main scenario based on which the Committee makes decisions. Generally, this prospective scenario, shown on the forecasts in the next section, contemplates a sharper downturn of the world economic expansion pace and the turbulences in the financial markets, on the foreign side, followed by a slight downturn of the expansion of the Brazilian economy, on the domestic side. The scenario is also characterized by some deterioration in the inflation dynamics. In this context, the main challenge that monetary policy faces is to prevent the inflation path observed since 2007 from detereorating and consolidating.

The main scenario for the world economy incorporates a sharper deceleration in mature economies than assessed in the last *Inflation Report*, in face of the global financial crisis deepening and in face of the downturn in activity in the Euro area, United Kingdom, and Japan. The risk of this developments of the crisis was mentioned in the last *Report*, that is, that the economic deceleration in the USA would end up affecting further the activity in other mature economies. Strictly speaking, the financial crisis worsening, which seems to have reached an acute moment in the latest weeks, reinforces this perspective. The USA economy started a deceleration period in the last quarter of 2007, and continues suffering the crisis impact in the real state sector. In turn, it affects the labor market, and the consumer confidence, which importantly contributes to reduce expenditure.

Even if the impact of monetary and fiscal incentives had limited the risk of significant contraction in the first half of this year, the dominant scenario continues to indicate that a more consistent recovery would probably happen only from 2009 on. A systematic risk perception still persists. The actual impact and the allocation of losses due to the North-American real state crisis among financial institution of mature economies are still not completely known, and the regular liquidity conditions of important segments of the financial market in these economies have not yet being restored. Also, the international financial system reorganization process continues, and the conditions of credit supply remain restrictive, which tends to realign the dynamics of demand deceleration.

Additionally, note that not only in the USA, but especially in the Euro Area, United Kingdom and Japan, the demand seems to have been significantly affected by the terms of trade deterioration caused by the commodity price increase. Hence, as this increase in the commodities prices return to previous levels, there will be an income increase in these regions, which will contribute to sustain spending expansion.

In principle, one should expect that an intense deceleration of the world economy and a cutback in the commodities prices would contribute to mitigate inflationary pressures. However, particularly in recent weeks, the deepening of the financial crisis has been accompanied by the depreciation of several national currencies against the North-American dollar, which tends to generate inflationary pressures out of the United States. In the Brazilian case, the commodity price decrease tends to reduce the supply of foreign exchange on the domestic market, both due to effects on the trade and on financial flows. Besides the pressure coming from the exchange market, the high inflation verified in the latest quarters in several economies may create secondary effects, for example, through wages negotiation, which would also contribute to increase inflation.

Copom reaffirms its assessment that, regarding domestic inflation, a scenario of a deeper and generalized world deceleration is an ambiguous risk factor in the relevant horizon. By reducing net exports, it would contribute to restrain aggregate demand. Besides, the consequent slow down of some important commodity prices, would contribute directly to decrease domestic inflation. On the other hand, there are two mechanisms through which the actual scenario could act unfavorably to inflation prospects. Firstly, in the case of a deceleration of mature economies, wariness to risk increases generating a reduction on the demand for Brazilian assets and, as a consequence, on the respective prices. This effect has been evinced in the latest weeks. The resilience of the financial sources coming from abroad in face of the global reduction for riskier assets will be important to mitigate the difficult impacts derived from the global economy on Brazilian economic activity, whose dynamics has been essentially sustained by domestic demand. The second mechanism, with short run effects, would be linked to the possible cutback in net exports and its impact on the sustainability of some Brazilian asset prices, as well as on imports, with potential repercussions on the inflationary upturn. In this context, even if the Brazilian economy remains more resistant to perception change from the international financial markets, it is possible that the external sector's capacity to contribute in mitigating inflationary risks is limited.

The final result depends, among other factors, on the relative importance of the financial component associated to economic activity deceleration. In other words, in the case of an international scenario mainly composed of lower economic growth and of contained financial turbulence, it is plausible to assume that the deflationary effects on emerging economies could be stronger. On the other hand, in the case of combination of lower economic growth and deepening financial crisis, with increasing wariness to risk, the effects on domestic asset prices could exacerbate leading to the preponderance of inflationary effects.

The recent effects of the international crisis show the strong importance of the financial component. For the Brazilian economy, the worsening of international financial conditions and the reduced balance of trade tend to exert pressure on domestic asset prices, lowering the external sector's contribution to contain inflationary pressures. The reduced balance of trade effect was already absorbed, but it may deepen in the context of the robust growth in domestic absorption, of greater world economy acceleration and of possible cutbacks in commodity prices. In any case, the decrease in Brazilian asset prices could impair the expantion of imports at a strong pace, a process which has been contributing to counterbalance domestic inflationary pressures. Consequently, the recurrent risk pointed out by Copom in the latest quarters, i.e., the risk of a higher growth of domestic demand than supply could be magnified by the possible cutback in asset prices. One should mention, however, that the restrictions of external financial sources may lead to the domestic activity, contraction especially if superposed by a credit expansion deceleration tendency in the country. Albeit, the Brazilian historic experience shows that the inflationary effects tend to predominate, this transmission channel may, in the current international circumstances, be particularly important.

Since the release of the last *Report*, Copom assesses that the inflationary risk due to the behavior of international petroleum prices were reduced in face of the increasing prospects of world deceleration and the deceleration of oil quotations. However, the uncertainties surrounding assessments about future petroleum behavior remain markedly high. The prospective scenario for oil prices depends on the demand growth, especially in emerging economies, on the supply response to incentives derived from relative changes in prices already occurred, and on the geopolitical questions. One should also highlight that in face of a greater world deceleration, the recent behavior the prices of other commodities could also act to enable a more benign inflation scenario. However, as mentioned above, the analysis of possible deflationary effects due to the recent trend of raw material prices may not be decoupled from the analysis of the impact on Brazilian asset prices.

The Brazilian economy expansion process – relatively unexposed to external trade, and, therefore, not very synchronized to the mature economies – has been led by the strong domestic expansion. Notwithstanding, in the latest years, the external sector had played an important role in helping to keep the inflation rate consistent with its targets. This occurred especially due to tradable goods prices and to investment expansion, despite the environment of heated demand. However, the consistent increase of global inflation, since the end of the last year, led to the acceleration of the increase in imported prices and reduced the external sector's contribution to inflation control. Up to last July, the Brazilian import prices, according to Funcex data, accumulated a growth of 21.4% in the year and 28.7% in twelve months. Thus, a possible passthrough from this substantial increase in imports prices should pressure the domestic consumer prices.

In this context, Copom maintains the assessment that the main inflation risk stems from domestic factors. The central scenario indicates some accommodation of the economic growth in the year, as compared to 5.4% growth in 2007. This will become clear as the lagged effects of the monetary policy take effect. However, it is expected that the domestic demand continues to grow at a strong pace, however at declining rates. In fact, domestic demand´s robustness has put pressure on the supply capacity in practically all sectors of economy, especially in the case of those not exposed to external competition. This assessment improves when looking at the data related to domestic activity that shows a strong growth in domestic absorption in the second quarter, the high level of utilization capacity and the sustained growth of retail trade sales. One should highlight that the overall wages and the credit behavior, besides fiscal impulses for 2008 and 2009, even if pontentially lower than expected, constitute an additional stimulus factor to domestic demand, which is already growing strongly. In this context, in line with the assessment made by Copom in previous documents, the dynamics of future consumer inflation remains uncertain. This view is supported by the incompatible levels of expectations and the inflation target, by the fact that the economy operates virtually at full employment of the factors, and by the existing pressures from industrial prices on the wholesale trade.

These domestic risks will possibly be worsen by external risks, if the effect of decrease in asset prices predominates vis-à-vis the potential deflationary impacts of the deceleration of central economies.

The risk due to the mismatch between the expansion pace of domestic demand and that of supply should be added to the risks coming from the path of the wholesale price. Even though the recent data on farming products prices tend to improve the inflation scenario, their prospects must be analyzed in the light of the tendencies of expanded global demand for foodstuffs and in the light of the relative scarcity of resources for their production, especially in mature economies. Given the magnitude and persistence of industrial price increases on the wholesale trade, the risk that these will be transmitted to consumer prices is still significant. In fact, industrial prices impacts faster the consumer prices and shows greater persistence. One should stress that these prices have been accelerating since the second half of 2007, following both the above mentioned inflationary pressures and the Brazilian activity heating. The role played by economic activity in the dynamics of these prices becomes evident if one considers that the significant growth in wholesale prices was observed within the recent context of exchange rate appreciation.

There is evidence that, in Brazil, the passthrough of wholesale prices to consumer prices is high and relatively fast. The Committee understands that the impact of wholesale price growth on consumer prices will essentially depend on demand and supply prospective conditions and, critically, on the price setter's perspectives on future inflation path. The heated demand for goods and services and for production factors, as well as the possibility of constrained sectoral supply may increase the pressure to passthrough increases from the wholesale prices to consumer prices. Actually, the behavior of consumer price index this year already partially shows the impact the realization of these risks, as mentioned in the latest *Reports*, causing monetary policy response.

Upon decomposing the IPCA in free and administered prices, one should note that, in the short run, the negative risks outlined in relation to an upturn in free prices contrast with a benign condition for the evolution of administered prices, despite the recent growth in the general price index. In fact, simirlarly to what was observed in 2007, in 2008 administered prices have been contributing to mitigate the pressures on the full index. The highest montly inflation rate of administered prices in comparison to free prices, was observed in July and August, as a result of the annual adjustment concentration of some tariffs in this period. Nevertheless, the highest growth in the administered prices, in comparison to the occurred in 2007, already partially mirrors the substantial increase in the general price index. Actually, in the long run, specifically for 2009, the situation is less favorable because the main scenario includes increases for the administered prices that are higher than the inflation target.

In fact, if one considers the evolution since last year and the prospects for next year, administered prices tend not be helpful to contain inflation. In particular, experts are concerned about the magnitude of the impact of the general price index growth in this set of administered prices in 2009. In the case of a less benign external scenario, new increases in the general price index may occur. However, even if this impact really exists, linked to contracts rulling the adjustment of administered prices, one should note that the direct contribution of the general price index to the indexation of administered prices is limited. In any case, it would be plausible to expect that, at any moment, the growth in administered prices would converge to the average of free prices and, therefore, would stop contributing to mitigate pressures on full inflation.

Despite the inflationary acceleration observed in the end of 2007, the growth of the usual real average income, on the interannual comparison, has remained robust. Besides, the employment expansion, in part based on the macroeconomic stability, has been sustaining the increase in real overall wages in robust shape, and tends to continue so. In fact, the increasing deceleration of PEA, linked to continuity of labor demand expansion, will result in unemployment reduction, which could cause wage gain acceleration, with potential impact both on domestic demand and on the costing of several sectors. In these circumstances, the wage behavior vis-à-vis the labor productive growth must be carefully monitored. On the other hand, the most consistent growth of inflation in the latest quarters became an important contention factor to labor real income gains and may cause pressure on nominal earnings,

which would tend to increase the persistence of the inflationary process. One should mention that some bargaining occurred in the last half of last year could corroborate this assessment. Besides, the implementation, by the companies, of wages decoupled from productivity growth would continue intensifying the pace of acceleration of the inflationary process, increasing the risk of the prospective scenario.

Credit expansion has been another important factor to sustain the aggregated demand. In principle, the interest rate increase in credit operations verified since the beginning of the year, partly an effect of the growing cost of funding by the financial institutions, should work to cool off credit growth in the next quarters. Besides, disbursement growth of especially dynamic credit modes, such as payroll-deducted loans, could come across natural limits. However, the significant growth of income and employment and the prospects of continuity of this process, in an environment where banks seek to preserve their market shares, work as an important propeller of credit expansion. Besides, it may not be disregarded that the introduction of institutional changes aimed at encouraging credit market competition may keep the strong pace of credit granting. Even if up to the moment the expansionist forces have been prevailing in determining credit dynamics, it is plausible that, henceforth, taking into account the above mentioned effects and cumulative effects of monetary policy decisions, probably reinforced by credit contraction effects on mature economies, a deceleration in the pace of credit expansion may occur.

The possibility that changes in the inflation dynamics that, in a preliminary assessment, seem to be transitory, influences the agents' expectations about the inflation trajectory in the medium and long run constitute a risk faced by monetary policy authorities, and deserves continued monitoring.

Taking into account the inflation behavior in the recent past, Copom strongly considers the probability that inflationary pressures might bring risks to the domestic inflation trajectory. The Committee understands that this risk tends to appear, at some moments such as the current one, when the domestic demand is heated and exposed to expansionary impulses, and the factor market is clearly under pressure.

Evidence also teaches that inflation acceleration episodes are not uniformly distributed to different components of the price indices. To some extent, the behavior of the cores and of the IPCA diffusion indices, of services and industrial wholesale prices in the latest months corroborates the forecast that inflationary pressures, initially localized, would be disseminating. The monetary policy, however, remains especially vigilant to prevent the prospective scenario from deteriorating. Especially, it must be alert to dissemination of seconday effects, given that the significant variation of relative prices embodied in high indices of inflation tend to generate reactions to real income recomposition by agents, which, in turn feeds the inflationary process. The international experience, as well as our country's inflation process, recommends that the monetary authority resort to adjustments of basic interest rates to face potential secondary effects.

Thereby, the Copom's assessment is that the inflation prospects continue to be worrisome and are surrounded by reasonable uncertainty given the robustness of domestic demand – as attested by the national accounts related to the first half-year of 2008 – and the prospects of high inflation. There are relevant risks that the favorable results, in inflation terms, observed in recent years will not be sustained. In fact, inflation expectations for 2008, despite having recently been reduced, remain close to what was observed in the last *Inflation Report*, and expectations for 2009 remain higher than three months ago. This is an important indication that factors underlying the recent acceleration of inflation may be more persistent than expected, in line with concerns mentioned in the latest *Reports*. One should still stress that the expectations for 2008 and 2009 are higher than the center of the inflation target and, even if an additional deterioration occurs, this increase represents a risk for the prospective scenario, calling for a monetary policy response.

In summary, the Committee assesses that, since the release of the last *Inflation Report*, the risk balance for the expected inflation trajectory did not improve, mainly concerning the domestic determinants of inflation dynamics. On the external side, developments in the latest quarters suggest that the contribution of imports for the maintenance of a favorable inflation scenario became less effective, although the global deceleration may have deflation effects. On the domestic side, the demand acceleration pace continues to be an important risk source to the prospective scenario given that restrictions to the supply expansion may be emerging, despite the robust behavior of investment. In another perspective, there is an increasing understanding that additional expansion in the aggregate supply growth rate, which would be conditioned to the increases in the rates of economic investments, is a slow process. In this context, Copom assesses that the consistent reduction in the mismatch between the expansion in supply and demand of goods and services continues as the central element in the assessment of different possibilities in the conduct of the monetary policy.

Inflation rates consistent with the target's trajectory and to the resulting consolidation of the scenario of long run macroeconomic stability will contribute to the continuity in the process of progressive reduction in the macroeconomic risk perception, which has occurred in the latest years. In order to obtain solid results, however, inflation prospective indicators, especially the aggregated demand and supply trajectory, need to increase harmonically, enabling the return of inflation to the target trajectory for 2009. Copom assesses that the persistence of careful and timely posture from the monetary policy had been fundamental to increase the probability that inflation continues to follow the infaltion target trajectory.

Copom considers fundamental to highlight, one more time, that there are important lags between the monetary policy implementation and its effects on the activity level and on inflation. Consequently, the assessment of alternative decisions of monetary policy must be necessarily concentrated, in the prospective scenario analysis for inflation, especially in forecasts presented to the Committee, and in the risks associated to this scenario, instead of privileging the current data on inflation.

In any case, in the next quarters, the overall wages expansion and credit growth will continue drive the aggregated demand. Besides, one should add the effects of the government transfer to domestic demand expansion. Moreover, in the set of information considered by the committee, there is evidence that the domestic demand is still heated and the fact that current decisions of monetary policy will have solid impacts in the end of 2008 and 2009.

In light of these considerations, Copom decided to increase the Selic rate by 0.75 p.p. in its meetings of July and September, increasing it to 13.75%.

Therefore, and in face of the signs of upturn and given the behavior of inflation expectations, Copom assesses that there remains a relevant risk to the consolidation of a benign inflationary scenario, in which the IPCA would return to the target level in 2009. In fact, the deteriorating prospective scenario is still manifested in inflation forecasts considered by the Committee. Copom also assesses that the important and persistent mismatch between the paces of demand expansion and aggregate supply continues to impose risks to the inflation trajectory. In these circumstances, as long as the risk balance to the inflation upturn requires, the monetary policy must continue acting by adjusting the basic interest rate. On the one hand, to reduce such mismatch and, on the other, to prevent pressures, originally reflected only in the price indices, from leading to persistent deterioration of expectations and of the prospective inflation scenario.

6.3 Inflation forecasts

According to traditionally adopted procedures, and taking into account the available information up to September 12, 2008 (cutoff date), the baseline scenario assumes the exchange rate remains unchanged over the forecast horizon at R$1.80/US$, and the target for the Selic rate stays at 13.75% p.a. – the level set by the September Copom meeting – against R$1.65/US$ and 12.25% considered in the *Inflation Report* of June. In the baseline scenario, the projection for the change, in 2008, of the set of regulated and monitored prices was maintained at 4.00%. As considered in the last *Report*, this projection is based on the hypotheses of stable prices for gasoline and bottled gas; increase of 1.10% for electricity rates; and of 3.50% in the fixed telephone rates. Regarding items for which more information is available, price changes were estimated individually. For the others, the projections are based on models of endogenous determination of regulated prices, which consider seasonal components, exchange rate variations, market price inflation and General Price Index (IGP) inflation, among others. According to those models, the projection of the regulated and administered prices for 2009 is 4.80%, against 4.50% in the last *Report*, and for 2010 remained at 4.50%, the same percentage mentioned in the June *Report*.

The market scenario, on the other hand, incorporates data from the expectations survey carried out by Gerin with a representative group of institutions up to the cutoff date. In this scenario, average exchange rate expectations decreased in the comparison to the values released in the June *Inflation Report.* For the last quarter of 2008, these expectations moved from R$1.68/US$ to R$1.65/US$ and, for the last quarter of 2009, from R$1.77/US$ to R$1.75/US$. For the third quarter of 2010, average survey expectations project an exchange rate of R$1.79/US$. The average expectations about the Selic rate increased when compared to the values mentioned in the last *Report*. For the last quarter of 2008, it moved from 13.66% to 14.13%, whereas, for the last quarter of 2009, it went from 12.94% to 14.07%. For the third quarter of 2010, the projection for the average Selic rate is 12.58%. In the market scenario, the trajectory of the Selic rate is consistent with a pre-DI swap of twelve months spread, with respect to the current target for the Selic rate, of 199 b.p., 112 b.p., and -36 b.p., in the last quarter of 2008 and 2009, and in the third quarter of 2010, respectively. Additionally, the market scenario assumes changes of 4.0% for the group of regulated prices in 2008, of 4.9% in 2009, and 4.6% in 2010.

With regard to fiscal policy, the projections presented in this *Report* are based on the working hypothesis of a primary surplus of 3.8% of GDP in 2008 and 2009, augmented by 0.5 p.p.

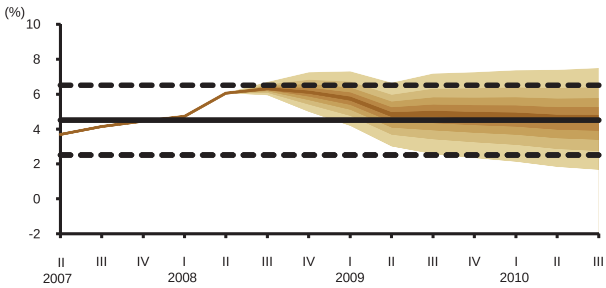
Based on the above assumptions and using the information set up to the cutoff date of September 12, 2008, projections were constructed for the IPCA inflation accumulated over four quarters, consistent with the baseline and market scenarios interest and exchange rate paths.

The central projection associated with the baseline scenario indicates inflation of 6.1% in 2008, an increase of 0.1 p.p. in comparison to the projection presented in the June *Report*, therefore, above the central value of 4.5% for the target determined by the National Monetary Council (CMN). According to the values shown on Table 6.1, the twelve month accumulated inflation decreases from 6.3% in the third quarter of 2008 to 6.1% in the last one. For 2009, the projection of the inflation accumulated in twelve months decreases from 5.7% in the first quarter to 4.8% at the end of the year. In this scenario, the projection reaches 4.6% in the third quarter of 2010. One should highlight that the decrease of the projection for twelve-month accumulated inflation in 2009, in the baseline scenario, essentially reflects the effects of the increase in the Selic rate determined in the current quarter and the fact that the inflation expectations for 2009 and 2010 remain on levels lower than the expectations for 2008. In this way, as illustrated on Figure 6.2, in the projection horizon, the accumulated inflation tends to approach the inflation target's central value established by the CMN, however, without fully convergence.

Data on Table 6.1 indicates a decrease of 0.2 p.p. in the inflation accumulated in twelve months, in the last quarter

Figure 6.2 – Forecasted IPCA-inflation with interest rate constant at 13.75% p.a. (Benchmark scenario)

Inflation fan chart



Note: Accumulated inflation in 12 months (% p.a.).

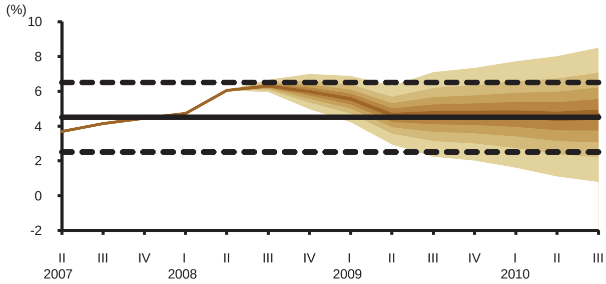
Table 6.1 – IPCA-inflation with interest rate constant at 13.75% p.a.
(Benchmark scenario)

Year	Q	Confidence interval 50%	30%	10%				Central projection
2008	3	6.2	6.2	6.3	6.3	6.4	6.5	6.3
2008	4	5.7	5.9	6.0	6.2	6.4	6.6	6.1
2009	1	5.1	5.4	5.6	5.9	6.1	6.4	5.7
2009	2	4.1	4.4	4.7	5.0	5.2	5.6	4.8
2009	3	3.9	4.3	4.7	5.0	5.4	5.8	4.9
2009	4	3.8	4.2	4.6	5.0	5.4	5.8	4.8
2010	1	3.7	4.1	4.5	4.9	5.4	5.8	4.7
2010	2	3.5	4.0	4.4	4.8	5.3	5.7	4.6
2010	3	3.4	3.9	4.4	4.8	5.3	5.8	4.6

Note: accumulated inflation in 12 months (% p.a.).

Figure 6.3 – Forecasted IPCA-inflation with market expected interest and exchange rates

Inflation fan chart



Note: Accumulated inflation in 12 months (% p.a.).

Table 6.2 – IPCA-inflation with market expected interest and exchange rates [1]

Year Q	Confidence interval 50%	30%	10%		30%	50%	Central projection
2008 3	6.2	6.2	6.3	6.3	6.4	6.5	6.3
2008 4	5.6	5.8	5.9	6.1	6.2	6.4	6.0
2009 1	5.0	5.2	5.5	5.7	5.9	6.1	5.6
2009 2	3.9	4.2	4.5	4.8	5.0	5.3	4.6
2009 3	3.7	4.1	4.5	4.9	5.2	5.7	4.7
2009 4	3.6	4.1	4.5	4.9	5.3	5.8	4.7
2010 1	3.4	4.0	4.4	4.9	5.4	5.9	4.7
2010 2	3.1	3.8	4.3	4.8	5.4	6.0	4.6
2010 3	3.1	3.7	4.4	4.9	5.6	6.2	4.6

Note: accumulated inflation in 12 months (% p.a.).

1/ According to Gerin.

Table 6.3 – June 2008 *Inflation Report* forecasts

Period	Benchmark scenario	Market scenario
2008 II	5.9	5.9
2008 III	6.3	6.3
2008 IV	6.0	6.0
2009 I	5.7	5.7
2009 II	4.8	4.9
2009 III	4.7	4.8
2009 IV	4.7	4.7
2010 I	4.7	4.8
2010 II	4.8	4.9

of 2008, in comparison to the third one. Besides, projections suggest a lower inflation rate for the fourth quarter of 2008 in respect to the inflation occurred in the same period of 2007. The inflation projections suffered a level shift (decrease of 0.9 p.p.) between the first and second quarters of 2009, reflex of a lower projection for market prices, when compared to the inflation observed in the corresponding period of 2008, enough to offset the effects of a projection for regulated prices changes higher than the one registered in the second quarter of 2008. According to the confidence interval illustrated on Table 6.1, in the baseline scenario, the estimated probability that inflation for 2008 will breach the upper tolerance level of the target (6.5%) is close to 25%.

In the market scenario, the inflation projection for 2008 (6.0%) is 0.1 p.p. lower than the one associated to the baseline scenario, and equal to the one registered in the last *Report*. According to the illustrated on Figure 6.3 and Table 6.2, the projections indicate that, in the considered horizon, the inflation accumulated in twelve months reaches its highest level in the third quarter of 2008 (6.3%), decreasing and ending the year at 6.0%, higher than the central value of the inflation target (4.5%). As compared to the inflation projection associated to the baseline scenario (6.1%), the lowest projection in the market scenario is basically due to the expectations of an appreciation of the Brazilian real up to the end of this year, in relation to the U.S. dollar. Still according to the market scenario, the inflation projection accumulated in twelve months decreases along 2009 and ends the year at 4.7%, higher, however, than the central value for the target established by the CMN. One should mention that the projection for the twelve months inflation reaches 4.6% in the third quarter of 2010. According to the confidence interval illustrated on Table 6.2, the estimated probability that inflation for 2008 will breach the upper tolerance level of the target is also close to 25%.

Comparing the trajectories shown in this *Report* with those released in the previous *Report*, whose projections are shown on Table 6.3, it is apparent that there was a slight increase of the projections along 2008, in the baseline scenario, whereas in the market scenario the projections remained stable. The slight increase of the projections in the baseline scenario was essentially due to the increase in inflation expectations for the current and for the next year, since the release of the June *Report* – a movement which would have been more intensive in the absence of a strong posture by the monetary authority. In comparison to the previous *Report*, the inflation projections for 2009 increased by 0.1 p.p., in the baseline scenario, due to the increase in inflation expectations for this year and due to the increase of regulated prices projections for 2009 (4.8%, against 4.5% in the last *Report*). In the market scenario, the projections for 2009, as well as for 2008, remain stable.

Figure 6.4 shows the path of twelve-month accumulated inflation, according to the baseline and market scenarios, up to the third quarter of 2010, as well as the target trajectory. The figures are actual twelve-month inflation until August 2008, and, from September on, projections according to the two scenarios. In both scenarios, projections decreased in the latest months of 2008, which is a movement that continues in the first semester of 2009. Since mid-2009, the projections showed to be relatively stable in both scenarios, but still higher than the central value of 4.5% for the target, up to the end of the considered horizon.

The average forecast generated by the Vector Autoregression models (VAR) for twelve-month accumulated inflation is shown on Figure 6.5. By August 2008, the values are inflation occurred in twelve months and, as of September, refer to the average forecast of the VAR models. As observed, the models indicate inflation maintenance in the actual levels up to the end of the first quarter of 2009, when a decrease tendency is forecasted. These forecasts are higher than those generated by the VAR models in the last *Report*, therefore, they continue above the target's central value (4.5%) up to the end of the forecast horizon.

Figure 6.6 illustrates the output growth fan chart built under baseline scenario assumptions. Considering that the model which generates GDP growth projections uses two variables that are not directly observable, potential output and the output gap, the forecast errors associated to these projections are considerably higher than the errors related to the inflation projections. According to this scenario, the GDP growth projected for 2008 moved to 5.0%, which is 0.2 p.p. higher than the projection presented in the June *Inflation Report*.

Figure 6.4 – Forecasts and target path for twelve-month cummulative inflation

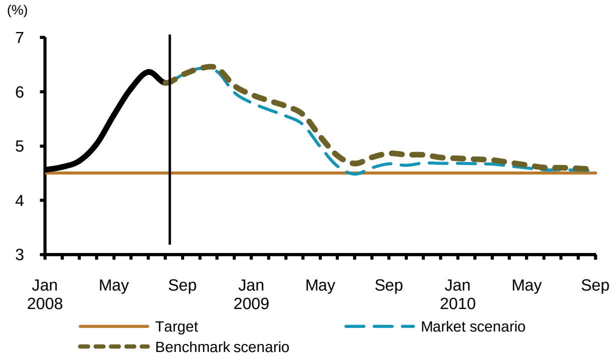
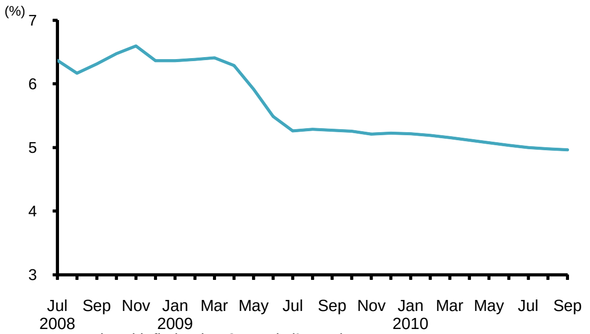


Figure 6.5 – Inflation Forecast: VAR Models

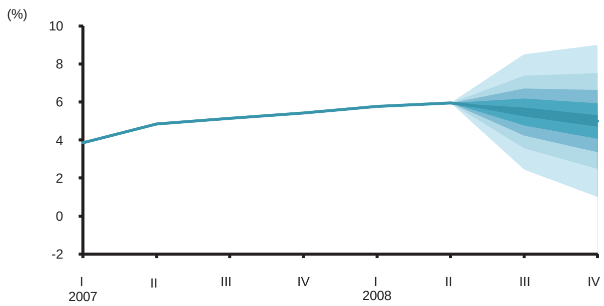


Note: accumulated inflation in 12 month (% p.a.).

Average forecast generated by the VAR models.

Figure 6.6 – GDP growth with interest rate constant at 13.75% p.a. Benchmark scenario

Output fan chart



Pass-through of Wholesale-price Shocks to Retail Prices

Among the challenges faced by policy-makers, there is the need to anticipate the facts, i.e. to evaluate prospectively the trajectory of consumer inflation in order to take policy decisions. In the face of this reality, central banks focus efforts to identify variables with the potential to provide them with information about the future behavior of consumer inflation. On its own nature, it is easy to understand why that wholesale market prices have emerged as leading indicators of the behavior of retail prices.

Given the importance of the link between wholesale and retail prices, this box is mostly based on Guillén e Araújo (2008), discusses the potential transfer of a shock on the wholesale prices reflected on the Wholesale Price Index – Domestic Supply (IPA-DI), to consumer prices indicated by the Broad National Consumer Price Index (IPCA). From a theoretical perspective, one should highlight that, at first, the pass-through would be integral, so that would be left only the period of time in which it materializes. Otherwise, from an econometric perspective, the wholesale and retail price indices series would cointegrate. However, considering the remarkable divergence existing among the basket of goods which make up the IPA and the IPCA, as well as between their geographic coverage, it is plausible to admit not only the question of transfer intensity, but also the term in which it is materialized, remain open.

The initially considered methodology consists in the estimation of a Vector AutoRegression (VAR), taking into account short-term constraints (Common Cycles Vectors), as defined in Vahid and Engle (1993 and 1997) and Issler and Vahid (2001), and long-term restrictions (Cointegration Vectors), as defined in Engleand Grager (1987) and estimated following Johansen (1988). The sample period goes

Table 1 – Pass-through of a shock

Months	IPCA	Non monitored	Tradables	Nontradables
Pass-through of a shock in the IPA-DI				
3	0.5	0.4	0.6	0.2
6	0.8	0.8	0.9	0.5
12	1.0	1.0	1.0	0.8
24	1.0	1.0	1.0	1.0
Pass-through of a shock in the IPA-Agriculture				
3	0.1	0.1	0.2	0.1
6	0.2	0.2	0.3	0.2
12	0.3	0.3	0.3	0.3
24	0.3	0.3	0.3	0.3
Pass-through of a shock in the IPA-Industrial				
3	0.8	0.6	0.9	0.2
6	1.4	1.1	1.4	0.5
12	1.7	1.6	1.6	0.8
24	1.7	1.6	1.6	1.1

Table 2 – Pass-through of a shock

Months	IPCA	Non monitored prices	Tradables	Nontradables
Pass-through of a shock in the IPA-DI				
3	1.0	0.9	1.5	0.3
6	1.0	1.0	1.3	0.5
12	1.0	1.0	1.2	0.7
24	1.0	1.1	1.2	0.8
Pass-through of a shock in the IPA-Agriculture				
3	0.3	0.3	0.4	0.2
6	0.3	0.3	0.4	0.2
12	0.3	0.3	0.4	0.2
24	0.3	0.3	0.3	0.2
Pass-through of a shock in the IPA-Industrial				
3	1.6	1.3	2.1	0.4
6	1.6	1.5	2.1	0.5
12	1.7	1.7	2.0	0.7
24	1.7	1.7	1.9	0.9

from January 1995 to February 2008. Afterwards, we calculate the generalized impulse-response function for each VAR as suggested in Pesaram and Shin (1998), applying a shock of one-standard-deviation in the innovation (the error term of the equation of wholesale price inflation) of wholesale price inflation equation.

On Table 1 construction, to each consumer price set, the pass-through of a shock in the IPA-DI after 24 months was equated to the unit, so that other values should be read as a fraction of this pass-through[1]. It is noted that: (1) regardless of the combination under consideration, most of the pass-through of a wholesale shock to retail is materialized within up to six months and is practically completed in twelve months; and (2) tradable goods are reached more intensively and quickly by a shock than non-tradable goods; and (3) a shock to the IPA-Industrial spreads more intensively and quickly than a shock to the IPA-Agriculture. However, on Table 2 construction, to each of the periods analyzed, the pass-through of a shock to the IPA-DI was equated to the unit, so that other values should be read as a fraction of this pass-through[2]. One should mention in this case, that despite conducting the analysis from a different perspective, the three above observations remain valid.

In order to assess the robustness of estimated parameters, as shown on Figure 1, the pass-through of a IPA-DI shock to the IPCA, after one, six, twelve and 24 months, was calculated, with the sample ending in December 2005 and, since then, the exercise is repeated adding each time a new element to this restricted sample set. Apparently, there is a declining smooth trend in the pass-through intensity from the IPA-DI to the IPCA. Furthermore, on Figure 2, where it also starts in December 2005, a rolling window of 120 months is considered, there is stability in the degree of pass-through, except for the one-month period.

1/ For example, after 24 months, the pass-through of a one-standard-deviation shock in the innovation of the inflation equation measured by the IPA-Industrial to the IPCA is 1.7 times the pass-through of a one-standard-deviation shock in the innovation of the inflation equation measured by the IPA-DI to the IPCA.

2/ For example, after 24 months, the pass-through of a one-standard-deviation shock in the innovation of the inflation equation measured by the IPA-DI to the tradables is 1.2 times the pass-through of the same shock to the IPCA.

Figure 1 – Temporal evolution of pass-through: IPA shock to the IPCA

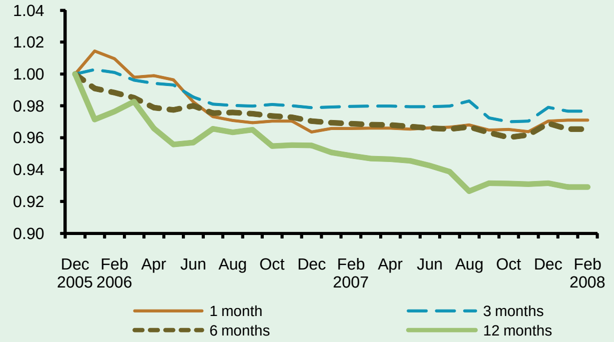
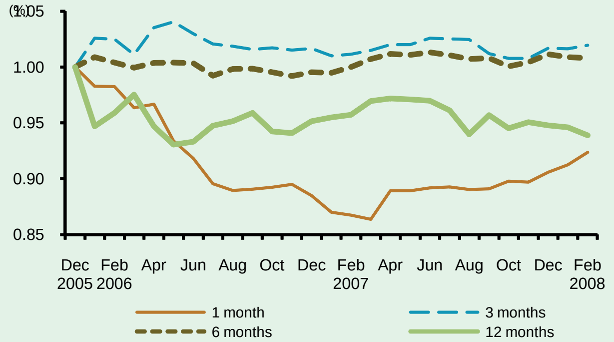


Figure 2 – Temporal evolution of pass-through: IPA shock to the IPCA – Moving window of 120 months



This box tries to analyze the impact that a wholesale-prices shock may determine on consumer prices. Generally, the econometric exercises suggest that the shock pass-through from wholesale prices to consumer prices occurs in relatively short time intervals, the tradable goods are more sensitive to shocks in wholesale prices than the non-tradable goods and that a shock in industrial prices has greater impact on consumer prices than on agricultural prices. Moreover, there is no evidence of material change in the degree of pass-through from the IPA-DI to the IPCA in recent years.

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Monetary Policy and Inflation Expectations

Both in the theoretical and empirical literatures, inflation expectations plays an important role in determining the dynamics of inflation. Several studies, such as, Ball (1995), Bombim et al. (1997), Erceg and Levin (2003), Roberts (2007) and Kiley (2007) conclude that the costs of disinflation depend heavily on how long-run inflation expectations react to movements in the monetary policy instruments. Other works suggest that the anchoring of inflation expectations make the inflation itself less sensitive to aggregated demand increases [Roberts (2006)], and to supply shocks, such as significant increases in energy price [Hooker (2002)].

The expectations channel works on price formation in several ways: (1) directly – incorporated to prices of products and services. This is the fastest and most intensive way; (2) through wages – used as a reference when wages readjustments are set; and (3) indirectly – with some delay, inflation expectations also affect prices because it changes the ex-ante real interest rate and, therefore, it influences corporate investment decision-making and individuals' savings.

In this context, it has been widely acknowledged by central banks that inflation expectations surely impact current and future inflations. Therefore, anchoring expectations is crucial to efficiently conduct monetary policy. Anchored expectations impair the propagation and amplification of shocks reducing the impact of inflation shocks on prices, and help to make prices developments predictable. This box investigates how inflation expectations are formed, how it impacts the inflation rate and how central banks react to deviations of inflation expectations from the targeted inflation.

Central bankers, as well as academic economists, gradually became more concerned about how inflation expectations are formed, especially how monetary policy impacts and/or is impacted by inflation expectations. In a recent lecture, the president of the Federal Reserve Bank (Fed) pointed out the important advances in research about the determination of inflation expectations and about its effects on the inflation rate. The speech also highlighted the increasing literature using disaggregated data to investigate the behavior of the price setters, and the importance of the literature on *learning*. Evans and Honkapohja (2002) and Woodford (2003) use the *learning approach* to model inflation expectations into general equilibrium models, thereby, weakening the hypothesis of rational expectations. Kiley (2007) uses a diverse approach to explore the interaction between monetary policy and inflation expectation. The paper main contribution poses that restrictive monetary policy reduces long-run inflation expectations.

Regarding the formation of inflation expectation, an interesting issue has been to assess, especially in the case of inflation-target regimes, the actual role played by the monetary policy transparency. The international experience supports the assumption that having an explicit target for inflation has substantial impact on the formation of long-run inflation expectations, as well as on the inflation dynamics.

For instance, for Australia, Canada, New Zealand, Sweden and England, Levin et al. (2004) found evidence that the respective central banks have succeeded in reducing the link between inflation expectations and past inflation. Besides, in those countries, the release of explicit targets for inflation would be associated to a lesser persistence of inflation core measures.

Changes in monetary policy supporting the anchoring of inflation expectations are interpreted as important determinants of inflation dynamics even for countries which did not explicitly adopt inflation targets. In the United States, some stylized facts indicate that inflation is becoming less persistent and less sensitive to shocks. Mishkin (2007) asserts that these recent changes in the American inflation dynamics result mainly from better anchoring of inflation expectations, which, in turn, would result from changes in the conduct of monetary policy. In Latin America, the search for better anchoring of inflation expectations is determinant in the deflation process, as well as in the maintenance of price stability. Based on post-2009 data on Brazil, Chile and Mexico, studies by Moccero (2006) suggest that monetary policy in these countries would readily respond to changes in inflation expectations, in as much as inflation expectations would react to changes in targeted inflation and in basic interest rates.

With specific regard to Brazil, some studies analyze inflation determinants, aspects of inflation expectations formation, and estimate the central bank's reaction to deviations in inflation expectations vis-à-vis the target. Minella, Goldfajn, Springer and Muinhos (2003) indicate that the degree of inflation persistence in Brazil decreased after the implementation of the inflation targeting system. The results support that the inflation targeting regime has contributed to anchoring expectations, and that the Central Bank of Brazil has strongly reacted to deviations of inflation expectations to the target trajectory. Similarly, Bevilaqua, Mesquita and Minella (2007) point to the evidence that, on average, the Central Bank of Brazil managed very well the coordination of inflation expectations. Still on Brazil, there is evidence of a two quarters lagged response of the growth rates of inflation expectations to a change in the basic interest rate. A recent BIS study (2008) on several emerging economies shows that the expectation channel has become more important since the adoption of inflation targeting systems in the 90's.

Analyses of the recent global inflationary outbreak show the reaction of several central banks to the surge in inflation expectations. Balston et al. (2008) conclude that in economies such as Peru, Mexico, Chile, Poland, Hungry, Israel, Egypt and India, the central banks resist to the adoption of a restrictive stance, whereas, in economies such as Brazil, Colombia, China and South Africa, central banks would have attached more importance to inflation expectations by reacting strongly and readily to inflationary pressures revealed by increases in inflation expectations.

None of the mentioned studies admit the assumption of perfect expectations anchoring. This would not be reasonable in face of imperfect credibility and all the shocks that the economies are recurrently subjected. However, it is obvious that the search for greater anchoring of inflation expectations is very important, and have pose a challenge for central banks, particularly, but not exclusively, for those that had adopted inflation targeting.

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