Mexico Watch

Economic Research Department

Fourth Quarter 2008

United States: awaiting Obama's economic program

Activity: economic weakness on display;
recovery in 2010

Inflation: short term pressure from public prices
and the exchange rate; later, convergence with the target

Monetary policy: room for a lowering of interest rates;
relaxation cycle to begin

Peso/dollar parity: change in level; less aversion
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Articles: insecurity, a problem to be analyzed also
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Editorial

The world is facing a complex environment. To resolve the financial and banking crisis in the United States a deleveraging process is required that will lead to a restriction on credit and a recession in that country. In the past three months, the financial crisis has extended to countries and market segments that had not previously been affected. The authorities are taking measures to try to stabilize the financial markets and soften the impact on real activity. The substantial injections of liquidity and significant reductions in interest rates have been coupled with an expansion of deposit guarantees, public capital has been injected in banks, public guarantees have been approved, and funds have been created for the temporary acquisition of many types of financial assets. However, despite the efforts, risk aversion is close to its historic levels and the intensity and duration of the international economic crisis is tremendous. In this environment, the transition in the U.S. presidential administration is occurring, and the new economic team will have to face the situation with a renewed and coherent program of measures that will provide credibility so that it can restore confidence, a necessary condition to limit the aversion and allow for the reduction of the high-risk premiums in the financial markets. The fiscal boost will help.

For Mexico this represents a complicated panorama. Until the third quarter of this year, the great strength in internal demand derived from economic and financial stability, the diversification of exports, and the performance of some specific sectors was allowing the country to face this complicated global environment with relative strength. However, given the internationalization of the financial crisis, the Mexican economy is feeling the effects of the seriousness of the global crisis and will accelerate its adjustment process. This has intensified since the end of the third quarter and will continue at least during the first half of 2009 through a lower growth rate in production and employment. The initial effects are in manufacturing and in those areas with a greater degree of exposure to the international context, although internal demand is also showing clear signs of moderation.

In this sense, in our base scenario, GDP in the U.S. is expected to fall 0.8% in 2009, but growth could be better if there is a rapid end to the global crisis and the programs implemented (and the fiscal boost) are successful. But U.S. GDP could drop -1.5% if the financial problems worsen. GDP growth in Mexico in 2009 will be around 0%, although it could be positive if the international environment improves, if infrastructure spending is efficient, and if some better international financial conditions facilitate private investment to combine with public investment. Reductions in interest rates would help in this context. At the same time, we cannot rule out the possibility that in a more unfavorable environment for the United States, growth in Mexico would be negative in 2009.

Within a difficult environment in which the risks to economic activity intensify, as a counterpart, they decrease in terms of inflation. The depreciation of the peso is turning out to be a form of monetary relaxation, with a change in relative prices and a rise in the price of imported products. However, its generalized transfer to prices will

probably be more limited than in the past, given that the downturn in demand has taken on greater importance in determining inflation. Indeed, inflation will remain high at the end of this year and the beginning of 2009. However, this condition, together with less pressure on the prices of raw materials on the international markets should facilitate a gradual convergence toward the central bank's inflation target, with possibilities of it being met in 2010. This context could allow the Banco de México to complete the measures with a reduction in interest rates, and it would be appropriate to do so, given a panorama marked by the persistence of exchange rate volatility, a reflection of the high levels of risk aversion.

In this edition of Situation Mexico, we have included two articles that we feel can enrich and contribute arguments to provide clarity to the current situation. In the first article, on interest rates, a review is undertaken of the levels of equilibrium from a theoretical standpoint and it is applied with its respective particularities to the Mexican economy. The conclusion is clear, there is considerable maneuvering room for a decrease in interest rates, with the limiting factor being exchange rate volatility, as has been mentioned previously. In another article, an interesting, timely, and important issue, namely public safety, is analyzed, with a discussion on the incentives for crime and some elements to facilitate its solution from an economic viewpoint. We hope that these articles will contribute to reflecting on these important issues.

International Environment

The extreme volatility of the markets can be attributed to the persistence of liquidity tensions and the global financial and economic uncertainty

A few months ago, to speak of the international financial crisis was synonymous with relating the sequence of developments that occurred in the U.S. market. But since September 12, 2008—the date when Lehman Brothers crashed—an inflection point has occurred on a world level. The uncertainty and investors' strong aversion have spread to all regions of the globe, especially Europe, but also to the emerging markets.

Following the collapse of Lehman Brothers, the problems of the financial sector have intensified, and the U.S. government approved the Troubled Asset Relief Program (TARP) —also known as the Paulson Plan— with the aim of reducing the problem of the toxic assets in bank balance sheets and thus alleviating the problems of liquidity and solvency of many U.S. financial institutions, even though the program has involved, for the time being, the injection of public capital into the banks. Contrary to what occurred in the episodes involving Bear Stearns, AIG, or government agencies, the Lehman Brothers collapse involved considerable losses for bondholders, together with the perception that there were no large banks in the United States that could go bankrupt, a development that significantly intensified the tensions in the markets. This strong increase in interest rate spreads caused liquidity to reach unsustainable (and never before seen) expensive levels. For example, the spread between the libor rate minus that of the 3 month overnight index swap (OIS) —which approximates the availability of funds in the markets —of the United States is currently at 180 bp (366 bp maximum), while in the European Monetary Union (EMU) it is at 165 bp (194 bp maximum.). At the same time that the financial tensions were intensifying, the bank crisis not only in the United States but also in other European countries worsened and risk aversion became a global phenomenon.

The stock markets on a global level have posted historic drops. Thus far in 2008, the losses in the main stock markets of the developed countries are around 40%. The range of the declines in the emerging markets is greater, and extends from 17.0% in Chile to 76.0% in Russia. In addition, the aversion levels are extreme. This high risk aversion, together with the fall in monetary policy expectations, explains the average 60 basis-point decline in October on yields for the 2-year U.S. Treasury note and the 100 basis-point fall in the European Monetary Union, which has taken place since the Lehman Brothers crash. The search for a safe haven is underway.

Following the first unilateral attempts, the main developed countries are unifying criteria to face the global crisis

The central banks have injected enormous amounts of liquidity into the market with the aim of alleviating the financial tensions, but thus far the measures adopted have not had a healing effect that would permanently stabilize them. The Federal Reserve has increased the

**Liquidity Tension Indicator:
Spread between U.S. Treasury bills - 3 month Euribor**
Basis points
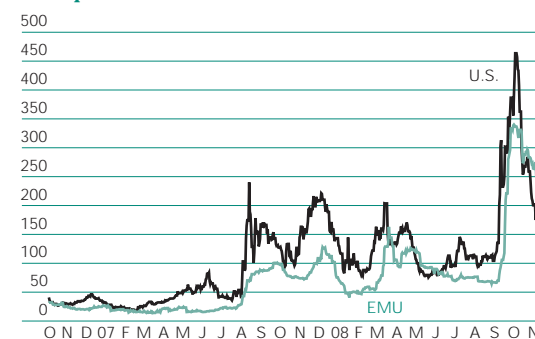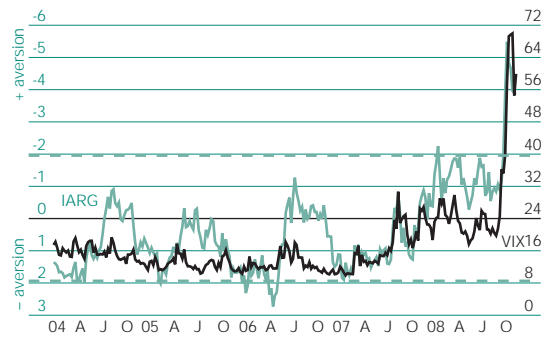

Source: BBVA Bancomer with Bloomberg data

**Interbank Liquidity Tension Indicator:
Spread between Libor - 3 month OIS**
Basis points

Source: BBVA Bancomer with Bloomberg data

Global Risk Aversion Index (BBVA-IARG)
64 assets: emerging (US$) and developed markets (local currency)

Source: BBVA Bancomer with Datastream data

Stock Markets
Accumulated % change in the year

		2008
United States	S&P500	-46%
Spain	IBEX35	-47%
United Kingdom	FTSE100	-38%
France	CAC40	-47%
Germany	DAX30	-48%
EMU	STOXX	-50%
Japan	NIKKEI 225	-50%
China	Shanghai SE 180	-64%
Hong Kong	HANG SENG	-56%
Brazil	BOVESPA	-48%
Mexico	MXSE IPC Gral.	-38%
Argentina	MERVAL 25	-59%
Chile	SASE Gral Index	-17%
Russia	IRTS	-76%

Source: BBVA Bancomer with Bloomberg data

risk in its balance sheet, drastically reducing its bond holdings and Treasury notes and focusing on providing greater credit facilities to the system (financial entities, semi-public mortgage companies, insurance companies, mutual funds, etc.) and more than US$500 billion in swap lines to facilitate dollars to other central banks. This has been, to a large extent, financed by Treasury bond issues deposited in its balance. Its latest measures, at the close of this report, are very aggressive, with US$600 billion earmarked to purchase debt and mortgage instruments of semi-public companies and US$200 billion to acquire securities backed by new loans to students, consumers, and businesses. The European Central Bank (ECB) has also held auctions that are extraordinary in terms of the amounts placed, currencies and terms. The latest initiative of the ECB has been to begin holding full allotment auctions, with the aim of alleviating the pressures on short-term financing needs. However, compared to the measures adopted by the U.S. government, they have proven to be less proactive.

The economic and monetary authorities of the different countries face a financial crisis that is expanding due to the effect of risk aversion and they are rapidly taking measures to deal with it. In an initial phase, the different governments undertook measures aimed at restoring confidence among the depositors of financial institutions and guaranteeing normality in the financial markets, with a limited effect. The main reason is that the markets were characterized by a complete lack of coordination among the governments and that the steps taken were perceived as specific responses as concrete problems arose in different institutions, agencies, and companies.

At the beginning of October, however, coordinated actions began to emerge. First of all, the central banks of the United States, the European Monetary Union, the United Kingdom, Switzerland, Sweden, and Canada simultaneously and via a common communiqué reduced their official interest rates by 50 bp. Shortly thereafter, the European governments reached a timely agreement to face the crisis in a coordinated and consensus-based manner, in which programs were announced based on guarantees and capital injections. Although the immediate impact has been limited, this coordination probably prevented an even more serious financial crisis.

These efforts culminated in the G-20 summit held in Washington, D.C. The first point that should be emphasized concerning the summit, and the agreements adopted, is that it reflects the firm intent of the international community to face the current economic and financial crisis in a coordinated fashion, combining multilateral measures and actions with policies that are national in scope but agreed upon and validated by all the participants in the summit. This is very important, since it allows for avoiding errors committed in the past when strictly national responses, at times purely protective, only served to increase the recessive aspects of the crises. Also important is the announced list of measures, which is ambitious and is based on an adjusted diagnosis of the causes of the crisis and its subsequent extension and intensification, with additional fiscal support measures to come.

## Growth, inflation, and low interest rates, an appreciated dollar

Considering that the tensions in the international financial markets will not subside in the short term, and given that the global financial context will possibly evolve in a situation in which there is less credit available for families and companies, our projection for the United States and the EMU reflects an intensification of the economic downturn. In terms of our scenario for U.S. economic growth, we expect that consumption, housing and non-housing investment will continue contracting, and therefore, will be contributing negatively to growth. Moreover, with regard to foreign trade, although imports will continue to fall, exports will grow at a slower rhythm due to the global weakness and the appreciation of the dollar. In conclusion, we expect U.S. GDP to contract 0.8% in 2009 but it could grow around 1% in 2010. For the EMU, we expect a contraction of GDP of around 0.9% and a recovery toward zero growth in 2010. Even though there are some factors that are partially positive, such as substantially lower official interest rates and the euro depreciating in relation to the dollar, the effectiveness of the packages of measures designed by the different governments will be key in preventing a greater contraction of economic activity. Nevertheless, if the fiscal support packages currently under discussion are successful, economic growth in the EMU and the United States will become positive as of 2009.

With regard to inflation, we anticipate that it will continue heading toward levels substantially below the current numbers. Our scenario for 2009 considers that headline inflation in the United States will be around 0.8% on average. In the EMU inflation will clearly be below 2% on average. Such expectations are justified by the recent significant drop in oil prices and in those of other raw materials, coupled with a scenario of lower global growth. The fact that inflation is being contained will allow for new declines in interest rates. Our scenario for official interest rates indicates that the Fed will cut its intervention rate to as low as 0.5% and the ECB will set it at 1.5% at the beginning of 2009. Thus, we expect a stable dollar, fluctuating at a level of around 1.25 to the euro until the end of 2008. For 2009, we project that the dollar-euro exchange rate will slide toward 1.15, although we would note that the risks are tending toward the side of a possible greater appreciation of the dollar.

For the EMU we expect yields on 10 year bonds to close 2008 at 3.80%. During the first quarter of 2009, yields should fall to 3.50%, declining as the year progress until reaching 3.10% in the fourth quarter of 2009. In our central scenario for official rates, we expect the yield on the 10-year U.S. sovereign bond to remain stable at 3.80% through the close of the fourth quarter of 2008. For 2009, we foresee a drop in yields, with these beginning 2009 at around 3.70% and ending the year at 3.40%.

In view of the challenges of the next few months, the evolution of the policies that the governments develop —focused on restoring financial stability and a better operation of the markets— will be a crucial element in order to recover confidence, break the vicious circle between liquidity and solvency, and thus reestablish the normal functioning of the markets.

Activity in Mexico:
Moderation in Domestic Demand

Gross Domestic Product
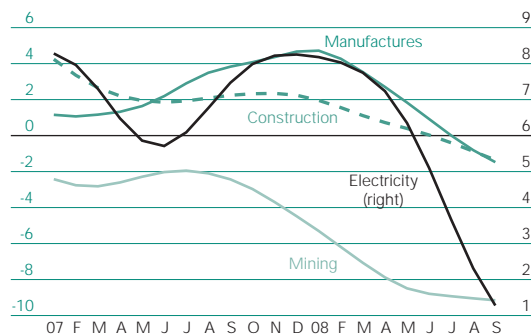**Index 1T03 = 100, trend series**
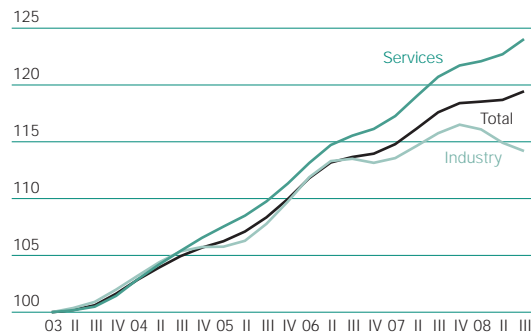
Source: BBVA Bancomer with INEGI data

Gross Domestic Product
Annual % change, trend series

Source: BBVA Bancomer with INEGI data

Industrial Production
Annual % change, trend series

Source: BBVA Bancomer with INEGI data

In Mexico, a gradual moderation in activity has been observed throughout 2008. In annual terms, GDP growth was 3.3%, 2.1% and 1.6% in the first three quarters of this year (seasonally-adjusted figures), which implies annual average growth of 2.3% in the first nine months of the year. However, in terms of quarterly rates, in order to have a more accurate reading, we find a contraction of 0.21% in the 1st quarter and growth of 0.21% and 0.63% in the second and third quarters, respectively, for an average of 0.21% in the three quarters vs. 1.04% in 2007. These figures confirm that the turning point in the Mexican economy was seen toward the end of last year, in line with the slowdown in domestic demand in the United States. The dynamics of the demand components was not particularly surprising. The initial moderation was due to exports, which then gradually affected private consumption. In its origin, the lower growth is derived from the foreign markets, although it has gradually been transmitted to Mexico's domestic market, leading to a generalization in practically all the components of aggregate demand.

The industrial sector is the most affected in the current situation, while services provide support for growth

Although the slowdown in economic activity in the year is generalized, its magnitude differs by sector: while industry posted a decrease in level—with negative quarterly rates in the last three periods—services have maintained their strength, with annual growth of 2.7% in 3Q08, higher than the average for the economy. Industry is more sensitive to the context of a drop in foreign demand, to pressures derived from financial instability and to more intense competition, both external and internal. Services, mainly based in the domestic market, have lower income elasticity and, therefore, a slower response to changes in the external environment, conditions which, together with their high share of GDP, provide certain stability to activity as a whole. Agriculture had good results in the period; however, due to its low share in the total and to volatility, these are not determining factors for general trends.

Within the components of industrial activity, electricity is particularly significant due to its favorable evolution, and mining, due to its contraction, while the rest show a generalized slowdown. The electric industry, with 7.8% growth in the first quarter, stood at 2.1% in the third. Mining, with a cumulative contraction of 12% in two years, is reflecting the difficulties in the oil industry, in particular the decrease in oil extraction and the negative effect of the strikes in the mining sector.[1]

Construction has lost dynamism as of 2006; its growth has been very low in recent quarters and was negative in the last one observed (-1.1%). The expected boost from the infrastructure program has been relatively modest in the early months of this year in view of the delay in exercising expenditures. It would be desirable to see an acceleration of these investment programs, which will moderate the impact of an external slowdown.

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1   It should be recalled that GDP is measured in real terms; therefore, prices of oil, of copper or of any other good, are not determining factors of the real value of production. Of course, they are really important from the standpoint of foreign currency that enters the country, in public revenues or in prices, among other impacts.

Because of its important relative size, the trend in manufacturing is determined mainly by the automobile and auto parts sector; fluctuations in this branch have notable effects on the behavior of overall manufactures. GDP growth in this sector was high, an annual 19% in the 1st half of the year, although it grew only 1.86% in the third quarter, (vs. 3.5% and -0.2% of total manufacturing, respectively). The production of transportation equipment, now considered a durable use good, is highly sensitive to changes in national earnings, to financing availability and conditions, to foreign competition, and to the strategy of global manufacturers in the definition of production plans among plants in different countries. This is why it is difficult to be optimistic in this heading going forward, especially when considering the situation of some U.S. automobile assembly companies.

What is relevant is that manufactures, without considering the automobile industry—transportation equipment—, shows a small contraction in the annual rate as of May of this year. The performance by sector is quite heterogeneous. For example, through the third quarter, the following are notable among the extreme values: paper (an annual +3.5%), oil by-products (+3.0%), foods (+1.7%), furniture (-6.4%), electronics (-7.3%) and apparel (-9.5%). Within a context where production of transportation equipment slows down and the marginal contribution of other manufacturing is low, the outlook for manufactured products as a whole is not too favorable in the short term.

Employment reflects the profile of the slowdown in productive activity

In formal private employment, the creation of new jobs reported its maximum dynamism in July 2006, with an annual increase of 700,000 new jobs and a percentage change of 5.3%; as of that moment a gradual but sustained slowdown was observed throughout 27 months, and for October of this year, annual change was 0.8% with a creation of 116,000 jobs. The lower dynamism in employment growth is almost generalized, although with marked differences among the productive sectors. Mining and electricity improved compared to the previous year; services to companies (+4.9%) and trade (+3.4%) grow strong, but at a lower rate than in the past; construction and manufacturing lose 27,000 and 185,000 jobs respectively. Employment will moderate even more in the coming quarters.

Foreign trade exchange has moderated in recent months

Mexico's foreign trade has performed well in the year: +13% accumulated through October, both for exports and for imports (sales in US dollars), but if we eliminate from these figures, oil, due to its high price, average sales in the period will increase by 9.6% and purchases by 11.0%, undoubtedly a good result within a context of weakness in demand. Demand outside the U.S., together with the peso depreciation, boosted U.S. exports, and, by this, our exports associated with their products. Also, the production strategy of some assembly companies of the automobile industry provided a renewed boost to production in Mexico for other destinations. However, the recent global context and the outlook point to moderation in the coming months.

Manufacturing Production
Annual % change, 3-month moving average
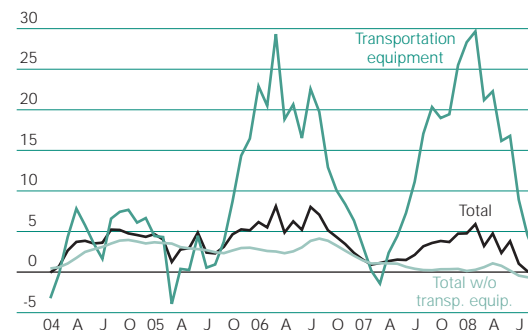
Source: BBVA Bancomer with INEGI data

**IMSS-Affiliated Workers
by Large Activity Division**
Annual increase, end of period, thousands

	Oct. 2007	Oct. 2008
Total	**543.2**	**115.7**
Primary sector	-1.9	-1.1
Industry	85.8	-194.7
Extracting industries	8.1	11.7
Manufacturing industries	15.7	-185.0
Construction	58.6	-27.3
Electricity & drinking water supply	3.4	6.0
Services	459.3	311.4
Trade	112.5	95.0
Transportation & communications	24.2	14.7
For companies, indiv. and homes	273.4	158.6
Social & community services	49.3	43.1

Source: BVA Bancomer with IMSS data

Foreign Trade
Annual % change, 3-month moving average
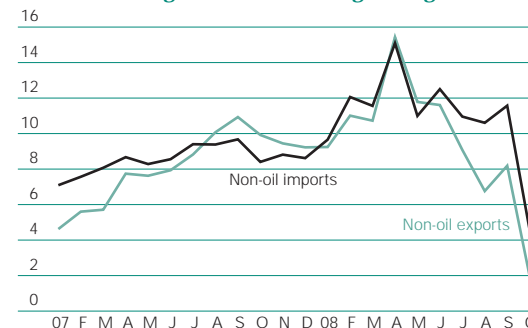
Source: BBVA Bancomer with INEGI data

Investment
Annual % change, trend series
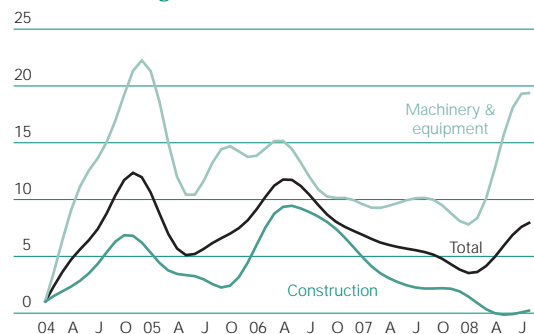
Source: BBVA Bancomer with INEGI data

GDP: Supply and Demand
Annual % change, seasonally-adjusted series

	3Q07	4Q07	1Q08	2Q08
GDP	**3.4**	**4.2**	**3.3**	**2.1**
Total demand	4.6	5.2	5.1	3.4
Domestic	4.1	4.2	3.8	3.5
Consumption	3.8	4.0	3.7	2.7
Private	4.1	4.3	4.2	3.0
Public	1.8	2.6	0.7	0.9
Investment	5.2	4.9	4.1	6.3
Foreign	8.7	7.7	7.1	5.2
Imports	8.1	8.4	9.9	8.2

Source: BBVA Bancomer with INEGI data

Real Public Spending
January-September 2008, annual % change

Source: BBVA Bancomer with Finance Ministry (SHCP) data

The rise in total imports is relatively homogenous: consumer goods with 16%, intermediates 12%, and capital 18%, which reflects strength in domestic 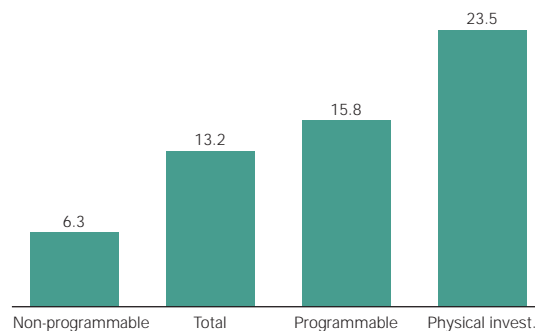demand, notwithstanding the recent evolution of employment. Of note, in particular, is the import of capital because it occurs within a context of weakness in economic activity, a symptom of a certain dynamism in investment, but also of the strength of imports and of the importance of trade relations.

Investment with a counter-cyclical trend
In the last two years, the trend of total investment has been toward lower growth. However, in the second quarter of this year this performance reverted[2]. In general terms, the historic trend in construction and machinery and equipment is similar, although with certain differences; for example, greater dynamism and volatility in machinery and equipment. Therefore, the recent results seem to be a response to specific situations in activity, more than a general trend in investment, which should show a moderation in the coming quarters, consistent with the rest of the economy.

With real cumulative growth of 13.2% through September, public spending is acting like an instrument of counter-cyclical policy in its three large components: non-programmable expenses (+6.3%), programmable (15.8%) and investment (23.5%), the latter is, without a doubt, the most important due to its impact on growth, and because it has received the greatest boost, even though the construction industry has not yet stopped reflecting this expense. Both construction and civil engineering works are registering low dynamism; the former due to the unfavorable environment. For the latter, a possible explanation could be associated with certain bottlenecks that clearly indicate the need to eliminate processes and transactions to exercise spending and open bids on projects. A greater impact from public projects is probable in the second half of the year and in the early months of 2009, both due to the expense cycle and the application of already allocated resources.

The price of oil is necessarily reflected on public finances, but, despite the drop in October and what is expected for the end of the year, the annual average price will be higher than that budgeted and, from this standpoint, the 2008 results are favorable. For 2009, stabilization funds and hedge contracts will be important in reducing possible volatility in this market. Nevertheless, they will not be able to prevent a decrease in the revenues from said item, which could, to a certain extent, limit the counter cyclical responses of fiscal policy.

Domestic demand showed certain strength in the second quarter of the year (the latest available information at the close of this issue) with growth of 3.5%, but with a trend toward a slowdown and with a relative contrasting performance between consumption and investment: as regards consumption, particularly private, moderation is evident and is associated with the less favorable evolution in employment and real wages, while investment posted the best result in the year. However, in the external sector, with greater dyna-

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2   Volatility in this data series obliges one to take said result cautiously, and it will be necessary to observe the coming months in order to confirm them, in particular when the trends of its two components do not coincide, as in the June-August period: construction (+0.1%) and machinery and equipment (+20.2%).

mism in imports over exports, there is also evidence of a slowdown. To summarize, most of the components of aggregate demand are showing moderation.

Outlook: symptoms of a better performance toward the 2nd half of 2009 and in 2010

In our base scenario, the outlook for GDP growth at the close of 2008 and for the next two years are 1.8%, 0.0% and 1.5%, respectively. Although in 2009, it could be positive if, within an improved environment, expense in infrastructure is efficient, and better international financial conditions make it easy for private investment to be added to the public. These figures reflect slow growth at the close of 2008 and stagnation at the beginning of 2009. The weakness in foreign and domestic demand and the complicated state of the global context are an unequivocal sign of lower activity for a more prolonged time than was initially considered.

During 2009, the evolution of domestic activity will be determined in the first place by the dynamism of foreign demand, —in particular, by the performance of our main trading partner, the U.S—the availability of foreign resources, the performance of prices on commodities— very particularly, oil— and the progress in structural reforms. In our base scenario, the stagnation of the economy at the beginning of 2009 could be reverted in quarterly rates at the end of the year.

Thus, the evolution foreseen for the Mexican economy in 2009 considers touching bottom in the first quarter, to revert the trend of loss of dynamism in the second, and to consolidate the recovery in 2010. Within a context of low growth, consumption will be more dynamic than investment, and trading abroad will have a negative net contribution. Among the relevant domestic factors for reaching the goals of 2009, of note is the greater scope in the national infrastructure program and an opening or flexibility toward private participation that will channel greater resource flows to priority activities, which will allow reducing the impact of the external crisis. The fiscal support programs in the U.S. could push the forecasts for Mexico upward.

The main risks of this scenario are downward and are associated with the evolution of the U.S. economy and with external financing restrictions. Despite the complicated environment, the Mexican economy today has better bases with which to face this context, both from the cyclical standpoint—greater strength in domestic demand and a capacity to apply countercyclical fiscal policies: see graph " Impact of the Global Financial Crisis on Mexico" .—and structural—diversification of exports, lower size of the foreign debt with long-term financing at fixed interest rates, reduced deficit in current account covered by long-term resources, and a financial system, well capitalized and with strict loan standards—, which will tend to limit the effect of an adverse scenario.

Macroeconomic Projections for Mexico
Annual % change, seasonally-adjusted series

	2006	2007	2008e	2009e	Share*
GDP	**4.9**	**3.2**	**1.8**	**0.0**	**0.0**
Total demand	6.8	4.1	2.8	-0.2	0.3
Domestic	5.8	4.2	2.8	0.8	0.8
Consumption	4.9	3.8	2.7	0.9	0.7
Private	5.6	4.2	2.8	0.7	0.5
Public	0.3	1.0	2.3	2.0	0.2
Investment	9.8	5.6	3.0	0.3	0.1
Foreign	11.0	6.1	4.0	-3.5	-1.1
Imports	13.0	7.0	5.9	-0.8	-0.3
Net foreign	na	na	na	na	-0.8

*	Estimated share 2009
na	does not apply
e	estimated
Source:	BBVA Bancomer with INEGI data

GDP: Outlook 2008-2010
Real annual % change
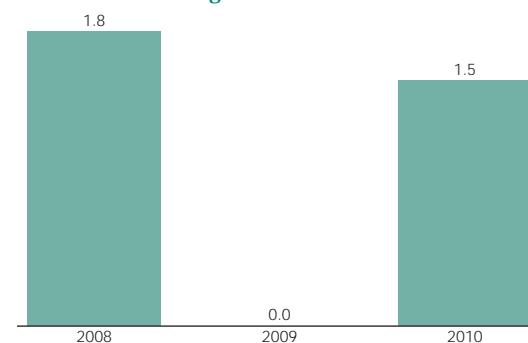
Source: BBVA Bancomer

Economic Projections for Mexico

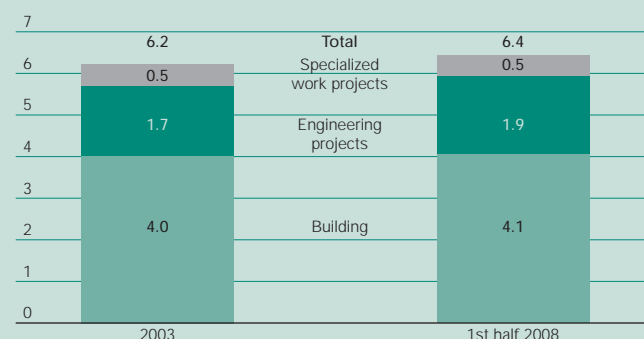|	Base	Risk
2008		
GDP (real annual % change)	1.8	1.6
Inflation (NCPI, end of year)	6.2	6.4
Core	5.5	5.8
Bank funding (eop)	8.25	8.25
10-year Bond (aver.)	9.24	9.50
2009		
GDP (real annual % change)	0.0	-1.7
Inflation (NCPI, annual aver.)	4.0	5.2
Core	3.7	4.7
Bank funding (eop)	5.50	7.00
10-year Bond (eop)	7.20	8.50

Source: BBVA Bancomer

Leading Indicators in Construction:
When will the Boost from Infrastructure Projects Begin?

The downturn of the economy, clearly underway since the first half of this year, will intensify in 2009 and its recovery should consolidate, to a large extent, due to internal demand. One of the key factors will be the construction industry; especially in light of the expectations of public work projects as an element that will soften the downturn. This article presents a series of leading indicators that can be useful in identifying the "moment" that the boost from construction activity will kick in.

The construction industry has shown a downtrend since 2006, when it reached its highest percentage share of GDP during the expansive cycle of the economy, which began four years previously, in 2002. Thus, the contribution of construction activity to the economy as a whole has declined from 6.6% in the first quarter of 2007 to 6.4% in the second quarter of 2008.[1] One of the tools that we have used in an effort to anticipate possible trend changes in construction activity is to compile leading indicators. Such leading indicators tend to identify and anticipate these "turning points", understood as the moments in which the economy or a specific industry moves from a stage of growth to one characterized by more moderate activity, and vice versa.

Construction Industry
% of GDP

|	2003		1st half 2008
Total	6.2		6.4
Specialized work projects	0.5		0.5
Engineering projects	1.7		1.9
Building	4.0		4.1

Source: BBVA Bancomer with INEGI data

Four leading indicators were compiled for the components of the construction industry that are reported monthly by the National Statistics Institute (INEGI). These components are the most important due to their having the greatest weight in this industry and include building (slightly above 60% of the industry total, and includes homes, offices, shopping malls, etc), civil engineering or major construction projects (approximately 30%), spe-

cialized construction-related work projects (around 8%), among others. A total of 74 variables related a priori to the construction industry are analyzed, classified based on production value, input purchase costs, employment and real wages, stock market indicators, notifications of strike intent, number of companies, sales of oil products, mining industry output, and mortgage loan indicators

The synthetic indicators of construction activity are compiled by classifying a large amount of information among coincident (C), leading (L) and lagging (R) indicators in regard to a specific series, in this case, each category in the construction industry. With this in mind, the turning points of the series are identified and each indicator is classified based on its relation to the turning points of the reference variable, in this case the construction industry as a whole. In all cases, trend series are used, which are approximated for each one of the components.[2]

Construction: Total and Leading Indicator
Annual % change and standardized index
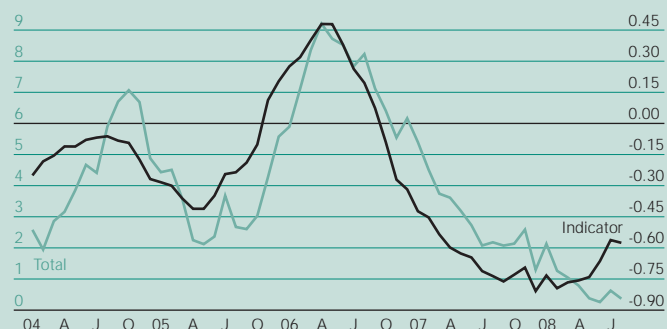
Source: BBVA Bancomer with INEGI data

Building Activity and Leading Indicator
Annual % change and standardized index
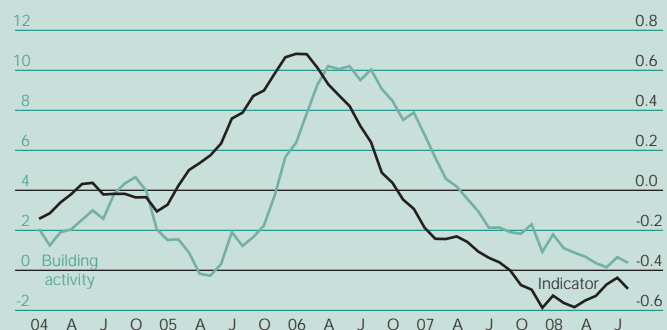
Source: BBVA Bancomer with INEGI data

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1   In seasonally adjusted series.

2   See box on Leading Activity Indicator in the publication "Mexico Watch", for the second quarter of 2008.

Engineering Projects and Leading Indicator
Annual % change and standardized index
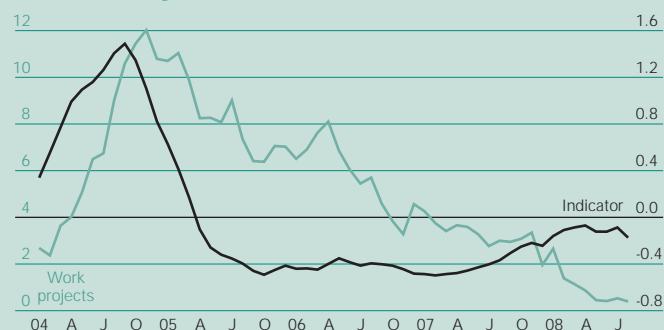
Source: BBVA Bancomer with INEGI data

Specialized Work Projects and Leading Indicator
Annual % change and standardized index

Source: BBVA Bancomer with INEGI data

As illustrated in the graphs, the compiled indicators have been successful in projecting the major "turning points" of the series. For the total and the three published components, the compiled indicators have anticipated the major inflections of the components on average three months in advance.[3]

The following elements, based on these indicators, should be highlighted: (1) the slight recovery in the construction industry that the first indicator anticipated (2) the continuation of more moderate growth in the building sector components; this component includes both housing as well as non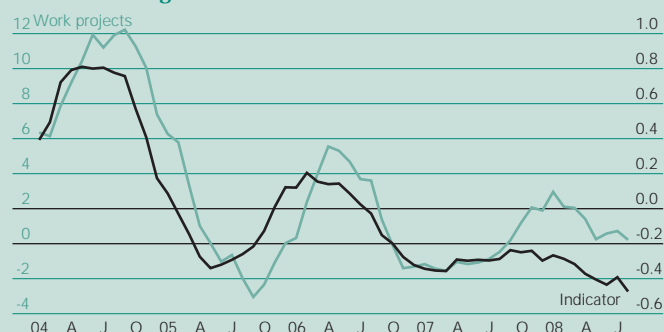-housing construction, such as buildings for commercial use and industrial plants. The trend to more moderate growth in construction can be related to the downturn in housing, spurred by oversupply and the transmission of the slowdown of the U.S. economy to specific residential segments (for example, housing for tourists and retirees)[4] (3) the increase in the engineering projects component. This boost is important since this line item includes construction projects for supply of water, oil, gas, electricity, and telecommunications, as well as road work. The relative good dynamics in this component can be a signal in the sense that the National Infrastructure Program launched this past May as part of the strategy of counter-cyclical fiscal policies, began to yield its first results, since thus far, the effect of the program on the construction industry has not been evident. As regards specialized construction work projects, a category that includes building foundations, assembling pre-fabricated structures, installations, and finishes, its dynamics combines both building as well as engineering projects.

Finally, it is important to mention that a more pronounced slowdown than that contemplated in the United States, which would imply a greater deceleration in internal demand, could represent a risk to the materialization and scope of the boost to the construction industry from public work projects.

Cecilia Posadas   c.posadas@bbva.bancomer.com

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3   As a negative factor, it should be mentioned that the breakdown published by INEGI in the components presented only exists starting from 2003 (in inter-annual variations since from 2004), and as a result, it is not possible to verify the indicators in past recessive cycles (2001). Data is only available from 2004, which is a significant disadvantage of the indicators and affects their interpretation as a signal.
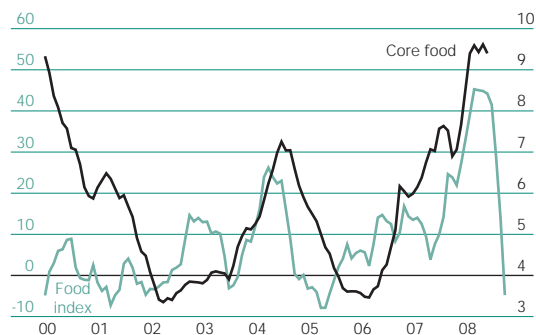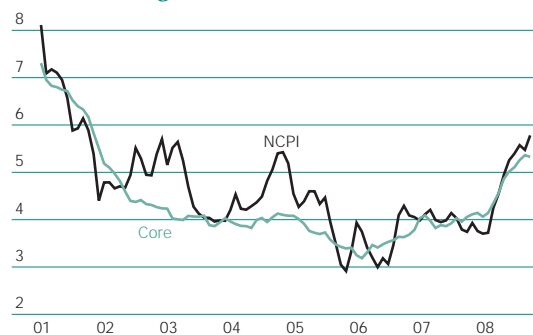
4   See the publication " *Real Estate Watch* ", Mexico) September 2008, in which these effects are analyzed in detail.

External and Internal Inflation of Foods
Annual %

Source: BBVA Bancomer with Banco de México and Bloomberg data

NCPI and Core Inflation
Annual % change

Source: BBVA Bancomer with Banco de México data

Expected Inflation 12 Months and Nominal Contractual Wages
Annual % change

Source: BBVA Bancomer with Banco de México data

Inflation in Mexico during 2008 has been affected by the onslaught of international price increases of raw materials, food products, energy products, and, recently, by a rise in prices of imported inputs due to the sharp depreciation of the peso against the dollar. This has led most price generics—particularly processed and regulated food—to undergo increases and headline inflation to post the greatest increases in a year in the last decade (from 3.72% in February to 6.2% in the first half of November 2008).

By the third quarter of this year, the environment of inflationary deterioration was not exclusive to the Mexican economy, but was shared at an international level, with inflation in the U.S. (among other countries) presenting an upward course similar to that of Mexico.

Even though in recent times (November 2008) international prices of raw materials have been reduced due to a cycle of lower global growth, the considerable depreciation of the peso against the dollar could imply, going forward, a period of renewed pressure on domestic costs and partially different inflationary dynamics between the U.S. and Mexico, although this could be offset by lower prices on imports (without an "exchange rate" effect) and the deterioration of activity. Despite this environment, long-term inflationary expectations[1] remained relatively anchored (3.2%), as did rises in contractual wages[2] in the country (4.6%). This is particularly important since it reduces the risk that the process of price formation is contaminated by supply shocks (i.e. currency exchange costs) and facilitates convergence with the inflation target.

The anchorage of said expectations reflects the greater credibility of the monetary authority regarding its commitment to achieve its inflation target (an annual 3%) in the projected time periods, and recognizes a period of lower international growth that could give rise to a dilution of past supply shocks. Under this mixed environment—pressure from costs and low growth—one might wonder what the effects are that will dominate going forward, what the probable course of inflation is during this and next year, and what the main risks are that we can foresee now.

Inflationary complexity during 2008

From 2006 through September 2008, the international raw material markets were characterized by high speculation with strong alternating price rises among food inputs (sugar, grains, beef products, etc.); metallic products (steel, copper, zinc, etc.); and energy products (oil and natural gas). During this period, the main increases were on products that are critical for inflation in Mexico: in March, the price of wheat rose an annual 138.6% (an average of 35% so far this year); oil up 102.2% in May (an average of 50%); and corn an annual 96.8% in July (an average of 47%).

In addition to their greater volatility, the seasonal rises of higher agricultural prices coupled with the price increases of inputs (i.e.

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1 This corresponds to the expected inflation for the next 10 years, source: Infosel survey.
2 This concerns contractual wage revisions of the private sector registered before the STPS.

grains, fodder and fertilizers) and climatic factors, in such a way that said inflation rose from an annual 3.4% by the end of 2007, to an annual 7.38% in October. It should be noted that 2007 was a particularly good year in terms of agricultural inflation, which began to partially revert this year and showed a greater deterioration toward November 2008.

These impulses were reflected in higher inflation for the consumer of processed foods (an annual 8.6% in October); of agricultural products (an annual 9.22%); and of government-regulated prices of energy products (an annual 8.08%). The three previous generic products contributed 0.79 percentage points of the increase in annual inflation from 3.7% to 5.78% by October of this year.

It is significant that the international supply shocks affected the more stable components of inflation in Mexico, which are showing greater persistence and are taking longer to return to their long-term equilibrium: core prices posted an annual change of 5.49% by the first half of November (vs. 4.17% at the end of 2007).

In addition to the price rises in processed foods (merchandises), the other elements of core inflation registered upward pressure: (i) merchandises other than food experienced increases in annual inflation as of the second quarter of this year, causing it to stand above 3% in August, for the first time since 2001; (ii) housing services with rising annual inflation (of 3.1% at the end of 2007 to 4.11% in October); and (iii) services other than housing that rose close to 1.4 pp to stand at 5.31% in October. There are multiple reasons for the increases in these prices. However, we can underscore past increases in construction material that have repercussions on housing services, expectations of price rises in domestic costs (i.e. taxes and energy products, see graph) over other services and merchandise, and a certain transfer of the higher food prices.

Government-regulated prices maintain a complex trend; the international rise in oil prices seen through September 2008, translated into increases in subsidies to domestic consumption of energy products in Mexico, with these prices regulated under a rule of gradual increases. This led the fiscal authorities to impose more accelerated price rises, which have led to higher annual inflation rates and an unexpected rise in prices for activities with regulated prices such as transportation. Although international oil prices have been reduced in the fourth quarter of this year, the cost in pesos of imported energy products (i.e. gasoline) has not adjusted at the same rate downward due to the recent depreciation of the peso versus the dollar.

Projected close for 2008: government-regulated prices on the rise; diminishing risk in agricultural products and foods:

For the close of 2008, the inflationary climate observed will prevail in the early months of the year, although with a change in the emphasis on the risk balance between the components of inflation. The significant elements in our inflationary risk balance for the fourth quarter of this year are:
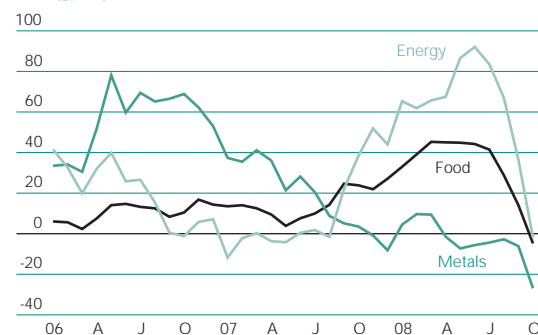
Inflation Expectations
Annual % change

Source: BBVA Bancomer with Banco de México data

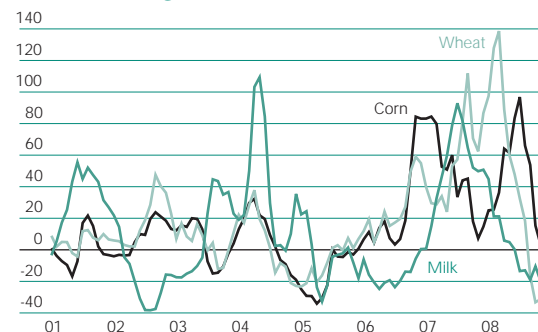**International Prices of Raw Materials for Mexico**
Annual %

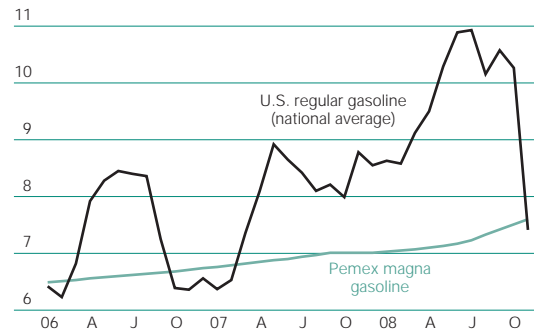Source: BBVA Bancomer with FMI Primary Commodity Prices data

**International Price of Food Inputs**
Annual % change

Source: BBVA Bancomer with Bloomberg data

## Regular Gasoline in Mexico and the U.S.
Pesos per liter, average

U.S. regular gasoline (national average)

Pemex magna gasoline

Source: BBVA Bancomer with Bloomberg data

GDP Growth by Region and Inflation in Raw Materials
Annual % change

Inflation (right)

Asia in development

Emerging economies

World

Developed economies
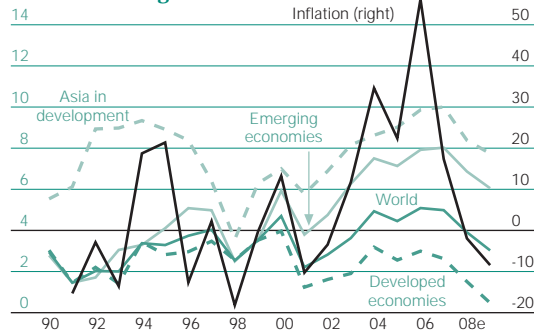
e estimated 2008 and 2009
Source: BBVA Bancomer with IMF data

BBVA Bancomer Inflation Estimates
Annual %

Risk

Base
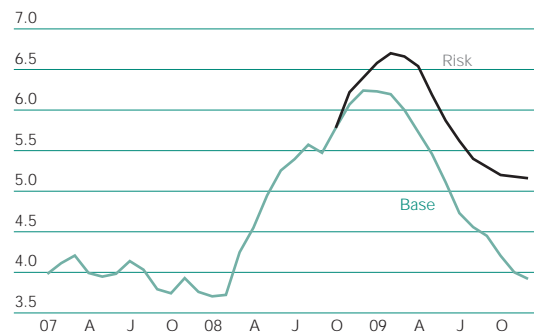
Source: BBVA Bancomer with Banco de México data

A gradual diminishing of inflation of food products; after two years of consecutive shocks on international inputs; grain prices have begun to decrease (in particular, wheat), and there is lower pressure on the international markets of milk, livestock, and citric products, among others. Although inflation of processed foods could continue to be high, the trend is toward a gradual decrease in the coming months. Even though the recent depreciation of the peso versus the dollar has been significant (+19.8% on average in October), its effects on food costs will not materialize in the short term in a context of sharp drops in dollar prices of international food inputs (-15.1% in October) and of lower domestic growth.

Housing inflation is stabilizing: after having risen thus far in 2008; the prices of housing services could stabilize in the absence of renewed shocks in raw materials for construction and in a phase of low economic activity.

Inflation in "other services" and "other merchandises" with a slight rise could continue in merchandises other than food and other services and reflect a certain contamination from the current environment.

Although it is still too soon to talk about higher inflation of these goods due to the recent depreciation of the peso, it is probable that a greater resistance toward a downtrend in these prices will be observed in the coming months, despite the low economic growth cycle.

Inflation in regulated and adjusted prices is increasing: the higher upward rate in gasoline prices, despite having been frozen a year ago by a public decree, will translate into a greater effect of these prices on annual inflation. This, in addition to having a direct bearing on inflation, increases the risk of transfer, to other prices—such as transportation— when these rises in energy products are perceived as durable (should there be a lower rate of rises going forward).

Inflation in agricultural prices increases volatility and greater rises: the dynamics of these prices is dominated by exogenous factors (i.e. climate), which will cause greater volatility to these markets. With data through November, the rises observed could lead to an even higher annual inflation than the upper limit estimated by the central bank (6%).

In our previous risk balance, those going upward will be the dominant ones at the end of the year, so that headline inflation in our base scenario could close the year at around 6.2%, with core inflation at 5.5%.

Outlook for 2009: between lower growth and higher exchange rate costs

The 2009 economic environment will be dominated by two opposing factors: first, the slowdown in international economic activity, which will contribute to lowering global inflationary pressure and will reinforce the drop in the prices of commodities; and second, the risks of a persistent peso depreciation that will translate into cost increases and the transfer to consumer inflation. For core inflation, another element that will define the price profile will be the persistence of

supply shocks seen in 2008 and their effect on core prices. That is, the greater persistence of core inflation (in relation to the NCPI) and the potentially higher prices of imported goods could translate into relatively high core inflation in the early months of 2009: We cannot rule out higher annual inflation levels than the NCPI in the first two months of next year. Thus, the rises in these prices registered in 2008 could be diluted until the first or second quarter of 2009, also to the extent in which the international prices could subside in an environment of excess global production capacity.

For non-core inflation, the dynamics will be influenced not only by the international prices of energy products—which could continue downward in view of low growth in the U.S.—but also by the decision of the authorities relative to the magnitude of the subsidy/tax that it is willing to assume on gasoline, gas for home use and electricity (high consumption). Although the Finance Ministry has announced an accelerated rate in the increases of gasoline prices for 2008, there is the possibility that low world economic growth will lead to a drop in the prices of refined oil, and thus, such sharp increases would not be needed in 2009. Should this be the case, the share of government-regulated prices to annual inflation could be reduced by the end of next year.

We estimate that in this environment, the NCPI and core inflation could rise an annual 4.0% and 3.8%, respectively, by the end of 2009 in our base scenario. In this way, the convergence with the Banco de México inflation target could be reached toward the end of 2010 or the beginning of 2011. Nevertheless, in an environment of high international uncertainty there is the possibility of a risk scenario that would imply more inflation in the case of a greater and persistent peso depreciation and better domestic growth than currently expected, which would pressure domestic demand beyond what is projected.

To summarize, as regards inflation, we have adopted a pessimistic vision for the short term, due to the high prices in energy products, rises in volatile prices (agricultural), and persistence in core inflation. We underscore that, by the end of 2008 and the beginning of 2009, there is the risk that inflation will deviate from the course announced by the central bank should greater rises in the volatile prices and renewed supply shocks (for example, a marked price adjustment in imported goods) materialize.

For the medium and long term, we are optimistic regarding the reduction of inflation as of the second half of 2009, because of the lower pressure in demand that is associated with low economic growth and the inflationary commitment shown by the monetary authority.

Inflation Projections
Annual %, end of period

	Base	Risk
NCPI		
2007	3.8	
2008	**6.2**	**6.4**
2009	**4.0**	**5.5**
2010	**3.4**	**4.8**
Core		
2007	4.1	
2008	**5.5**	**5.8**
2009	**3.8**	**5.0**
2010	**3.3**	**4.3**

Source: BBVA Bancomer

Government-managed Prices Viewed from the Dichotomy of Subsidies and Inflationary Pressures

Throughout 2008 the Mexican economy was exposed to successive increases in international prices of raw materials, which has had repercussions on food, energy, and construction costs. In terms of agricultural products, the response of the executive branch has been to contain the inflationary pressures in inputs by lowering tariffs, providing support to producers, and preventing the increase in prices from being transmitted to final consumers through absorption in the intermediation margins.

For energy resources, the price policies have been more complicated. The rigidities in the policies on prices regulated by the government (gasoline, electricity, and household gas) imply —on the one hand— higher government subsidies for consumers of such items in response to rises in international energy costs and, therefore, earmarking more scarce fiscal resources for such effects. On the other hand, there is the need to speed up the upward adjustment in these prices to limit such subsidies by bringing prices closer to their international reference prices, which has had an impact on inflation for the end of this year.

Even though in terms of economic efficiency it is advisable to move away from providing indiscriminate subsidies to consumption so that final prices reflect the relative shortage of such items, the way in which these subsidies are eliminated and the dynamics of international energy prices takes on relevance in terms of inflation and—especially—with regard to expectations. In this regard, it is worthwhile asking what the relation —direct and indirect— is between these government-regulated prices and inflation in order to appraise the risk of further price increases at the close of 2008 and during 2009.

The importance of government-regulated prices for inflation in Mexico

The determination of energy prices by Finance Ministry authorities primarily responds to fiscal policy criteria (taxes-subsidies-deficits) that are not necessarily compatible with the inflation targets of monetary policy. This disparity in goals is clear in episodes of energy supply shocks. International increases in oil prices boost the costs of production and imports of gasoline, household gas, and electricity, all of which translates into hikes in subsidies. Thus, international increases in oil prices during the early quarters of 2008 implied a fiscal subsidy to gasoline sales of approximately 1.2% of GDP. Even though the higher subsidy undercuts inflationary pressures, it also undermines the government's capacity to earmark greater public spending for projects that could contribute to economic growth (for example, infrastructure). To reduce the scale of the subsidies, in the third quarter the Finance

Ministry (SHCP) decided to implement greater increases in energy prices by boosting the programmed increases in gasoline prices from two centavos each month to 10 centavos in September. In terms of electricity rates for households with high consumption levels, the formula for determining prices considers the increase in fuel costs for electricity production, which will translate into upward pressures during the rest of 2008.

Considering that government-regulated prices represent 7.8% of the NCPI, increases for such items accounted for 23% of annual inflation in September 2008 (5.47%). For the remainder of the year, the annual growth in regulated prices will experience a greater rebound due to: (1) the freezing of price increases in the last quarter of 2007; (2) past rises in international prices of energy inputs (oil, natural gas, and gasoline); and (3) the formulas for determining regulated prices that result in a greater persistence of higher international prices. We estimate that the annual growth of such prices could be 10.64%, which would contribute 0.8 pp to annual inflation at the close of the year (estimated at 5.7%).

Potential dynamic of energy prices in 2009

For 2009, the budget proposal assumes that the rises in government-regulated prices would be aligned with projected inflation (annual 3.8%). In the case of gasoline, the fiscal authorities indicate that there will be weekly increases of up to four centavos per liter. With such hikes, the price of gasoline (Magna) would increase from 7.38 pesos per liter (September) to levels between 8.5 and 9 pesos per liter at the close of 2009. If this is the case, the average annual growth in gasoline prices would be between 13% and 20%, and its contribution to headline inflation would be between 0.3 and 0.58 pp. Nevertheless, it is important to emphasize that to the extent that gasoline prices continue to drop in response to the international downturn, the pressures on domestic gasoline prices will lessen and this will tend to translate into lower annual inflation for 2009.

For electricity, domestic rates fluctuate according to the season of the year and are set according to generation costs based on a basket of energy prices (coal, natural gas, fuel, etc), and central decisions. Although, electricity for household use comes with a subsidy, homes with high consumption levels pay differentiated rates, which better reflect international prices. Based on the formula for determining electricity rates for high consumption households and the international rise in fuel costs in the past few months, we can anticipate upward pressures on electricity prices for the close of 2008 and the beginning of 2009. However, the potential downturn in world

oil prices and how authorities conduct themselves in determining subsidies will contribute to less pronounced increases in annual inflation as of the second quarter of next year. Thus, the contribution of electricity rates to headline inflation after being high at the close of 2007 (estimated at 0.2 pp), could be close to 0 pp at the end of the year. With regard to household gas prices, in 2009 they will be influenced by international rates, which will be less pressured in the second half of the year.

In conclusion, the greater pressures on inflation due to government-regulated prices will come from gasoline and the amount of the price increases will depend on decisions by the fiscal authorities and the degree to which international oil prices decline. In our central oil scenario —Brent at 58 dpb at the close of 2009, which would imply a price of 42 dpb for the Mexican mix— we estimate that the growth in regulated prices could reach at least an annual 4.1% at the close of 2009 and its contribution to headline inflation could be between 0.15 and 0.4 pp.

Brent Price
Dollars per barrel

Source: BBVA Bancomer with Bloomberg data

Potential transmission of energy costs to other prices in the economy

Beyond considerations on the direct contribution of energy costs to inflation, it is important to evaluate their impact on other prices, either because such energy items represent an important input in economic activity, or because of the spill-over effect on inflationary and salary expectations. Based on the historical relationship between government-regulated and other prices in the economy, it should be noted that increases in energy costs that are perceived as being permanent —and in an environment of economic growth close to the potential— tend to have a transitory impact on processed foods and prices negotiated between the government and the private sector (urban and intra-city or intra-state transportation). For example, a permanent increase in energy prices tends to have its greatest effect on boosting such prices up to seven months after such increases occur and

subsequently they subside. The maximum effect generated by a 1 pp increase in government-regulated prices on processed foods is of up to 0.6 pp. This would imply —in a cycle of economic expansion— that the recent round of increases in gasoline prices (which began in July) could generate pressures until January-February 2009. Nevertheless, the low economic growth rate registered recently will abate this historical transmission.

The boost to other prices generated by the increase in energy prices is uneven. For example, (i) the effect of increases in electricity and gas rates is greater on manufactured goods in general and on some services such as tourism and leisure activities; while (ii) the transmission of gasoline prices is greater on non-housing services (such as courier and other services for companies, leisure activities, etc.). This evidence is consistent with the relative importance of these inputs within the cost structure for such activities. Independently of this, the dynamic for prices included in core inflation (with the exception of processed foods) is similar; permanent increases in energy prices result in a gradual transmission to other prices over the course of a year, during which time the latter completely assimilate the increases in energy costs.

Contribution of Energy Prices* to NPCI Annual Growth Estimated by Months
Percentage points
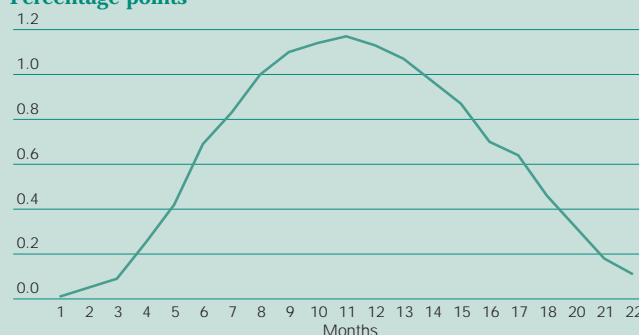
*   Direct effects plus indirect effects on prices
Source: BBVA Bancomer

To summarize, for 2009, the dynamics of the transmission of higher government-regulated prices on the other prices in the economy will be tempered by low international economic growth, which will keep the increase in energy prices down, and thus, the pressures on prices regulated by the fiscal authorities. Therefore, we feel that the potential spill-over effect to prices in the economy from increases in gasoline, household gas, and electricity rates will be limited and the greatest increases could occur at the close of this year and the first quarter of 2009.

Octavio Gutiérrez   o.gutierrez3@bbva.bancomer.com

BBVA Bancomer

Stock Markets
Index January 2007 = 100

Source: BBVA Bancomer with Bloomberg data

Risk Aversion Index*

* Analysis of the main components of the standardized returns of the following variables: (VIX implicit volatility of peso options, implicit volatility of the securities market, curve slope, Mexico MSCI 10-year swap spread)
Source: BBVA Bancomer
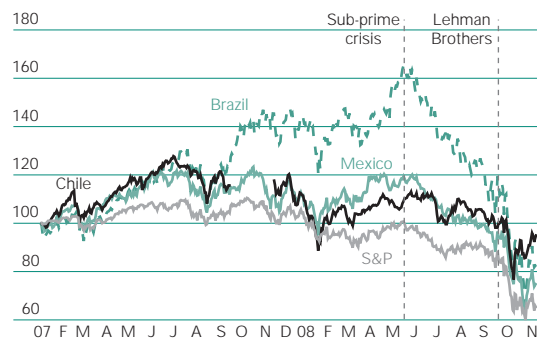
Revaluation of asset risk

In recent months we have witnessed financial volatility in all its expression. It has reached extreme levels, as has risk aversion. The main detonator of this new wave, which has practically been a financial stampede, was the bankruptcy announcement of Lehman Brothers, which increased the uncertainty regarding other financial institutions in the U.S. and in the world, and evidenced the degree of exposure of the global financial system in general.

The exponential increase in risk aversion is a natural reaction to the uncertainty and materialization of negative news on the markets. Nevertheless, the financial and economic panorama in recent weeks was already beginning to forecast the difficult context still to be translated in the markets. Quickly, asset prices began to reflect a cyclical weakness of the economy at an international level and, consequently, families and firms in the U.S. and some European countries began to consider the increased risk. In this sense, a generalized and lasting economic slowdown began to be contextualized, and contrary to what had been projected some months previously within an environment of financial deterioration, the perception that not only the U.S. economy was going to grow slower gained strength. Both the financial and economic decoupling thesis vanished.

The intensification of the economic slowdown, together with the mistrust of participants in the money market has unleashed a generalized problem of liquidity in the main global markets. The problem that these economies are facing is that this combination of economic contraction and the difficulties in reviving credit flows (including the financing of the inter-bank market) in a context in which the financial sector is unleveraged, are leading to a severe adjustment of the financial system that is negatively affecting the strength of their economies The risks that were feared have materialized, and we are now in a scenario of a credit crunch in the developed countries. Thus, what, at a given time, was apparently only a problem of liquidity has become a problem of solvency. Governments and central banks have injected extraordinary resources in order to first reactivate trust, without which the normalization of the markets and of the economy cannot take place, and also, to provide the fresh resources that will help relieve the urgent financing needs. Going forward, only these fresh resources will restore the sources of financing in an orderly fashion toward the economy. Nevertheless, these are measures that require time to take effect.

The international curves of government debt of these countries have been flattened not only in view of the outlook of lower economic growth but also in light of the perception that the central banks will lower their reference rates even more, or that they will at least keep them low for a longer time. Furthermore, the greater aversion to global risk was evident in higher risk premiums for emerging countries and has been transferred to greater increases in country risk, currency depreciations and the departure of foreign investment.

In the Mexican markets, the sharp rise in risk aversion has pressured not only the exchange rate and the Mexican Stock Exchange but also the price of both government and corporate debt. The slope of the government yield curve, which had resisted the higher global risk until this past summer, has shown very severe volatility, which reflects the aggressive preference for liquidity (in short-term instruments) and the lower entry rate of international financial flows. In general, an important and generalized departure of flows from emerging countries can be seen, in particular from the capital market, which responds to a change in the restructuring of global investors' portfolios, and to the growing need for liquidity in dollars. This has affected the sovereign spreads. In the inset "The Impact of the Global Financial Crisis on Mexico" of this section, the transfer mechanism of the global crisis to the main financial variables in Mexico is dealt with in detail, and the measures implemented to counteract the consequences.

The current situation and its possible effects in the coming quarters on the economy, lead us to assume that the excessive levels of an appetite for risk observed in the past will not be seen again, and most certainly not in the near future, despite that Mexico is relatively well prepared in face of these turbulences: with reduced foreign debt, a high accumulation of reserves (and the possibility of access to dollars through agreements with the Federal Reserve, as well as through credit lines with the IMF), as well as fiscal accounts in good form and a well-capitalized banking sector. The aversion to risk will remain high and, therefore, the risk premiums of a generalized class of financial assets will play a more relevant role in determining their price. The empirical financial evidence shows us that financial risk premiums are counter-cyclical, which is why, in an environment of global economic and financial weakness, it is to be expected that they remain high for a prolonged period of time. Let us recall that the unleveraging process in advanced economies will most probably have broad and prolonged consequences in the real sector.

Thus, a less encouraging panorama will surely be present for credit spreads, and those of emerging markets, among them Mexico, will not be the exception. Even though the spreads could show some corrections, they will tend to remain at higher levels— well over those of their average until prior to this summer—. Also, the cost of foreign private financing will be affected and the (extreme) aversion to risk most probably will severely limit access to foreign financing in the short term for Mexican corporations (particularly after learning of the financial problems of some of them and, as a result, of the reduction in the outlook and/or rating of their credit risk, which will be occurring in the coming months).

It is in this context and together with the evolution of the balance of risks, in which Banco de México (Banxico) will define its monetary strategy, in which the financial markets in Mexico will be debating. It is undoubtedly a complicated scenario where the fact that the Mexican economy is in a cycle phase that is pointing to a marked slowdown in the growth rate should be taken into account.

MxBOC Index and Moody's BAA Corporate Spread

* 3-Month Mexico Corporate Spread
Source: BBVA Bancomer with Bloomberg data

Balance of Capital Investment and Bonds Index in Mexico

Source: BBVA Bancomer with EPFR data
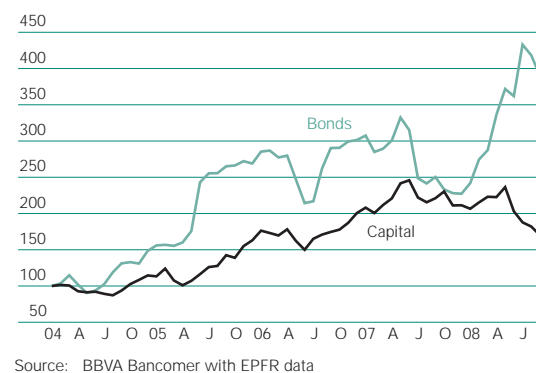
Government Bond Holdings by Foreigners
Billions of pesos

Source: BBVA Bancomer with Banco de México data

Monetary Policy Decision: the next movement by the central bank will be downward and it will not be preventive, but will mark the start of a cycle of monetary relaxation.

In the latest decisions on monetary policy, Banco de México has been progressively emphasizing the situation of international economic weakness. In general, the central bank has underscored that the recent global financial crisis has worsened, in addition to pointing out that, as a result, the probability that the accentuation of lower international economic growth has increased perceptibly. In fact, it has explicitly indicated in its press releases that the economic slowdown has intensified.

Consequently, the risk balance has been changing in recent months, especially with regard to the confirmation of the economic slowdown, which will continue going forward (and could grow), and has led the downward risks in economic growth to have gained relative weight over those of inflation, which, nevertheless, continue to be predominant in the short term. The central bank has emphasized that the most recent data on domestic economic activity are showing deterioration (for the first time in the year, the monetary authority explicitly recognizes this in its press release on monetary policy in October), particularly with regard to private consumption and employment. These two components, which are vital in determining the strength of domestic demand, are added to the list of economic sectors that have already showed weakness for some quarters now, especially industrial production.

In our base scenario, the GDP growth expectation for 2008 is 1.8% and 0.0% for 2009. We should emphasize that the stagnation of the economy is now evident and that the Banco de México staff is estimating growth of between 0.5% and 1.5% for 2009, which we believe will be reviewed downward. As for domestic financial risks, Banco de México has mentioned that the banking system has not been significantly affected in this period of international turbulence, but it does not ignore the tensions in the domestic markets.

The outlook for inflation in 2009 has improved in view of a sharp drop in the prices of raw materials and expectations of lower world economic growth. However, inflationary risks continue to prevail, since inflation is and will continue to be at very high levels in the coming months—it will end the year at over 6% and will remain on average in the high range of the central bank estimates at least during 1Q09— which leads to a perception of higher inflation expectations in face of any additional possible shocks on prices. Moreover, the recent brusque movements in the exchange rate will add more pressure to some components, which, in principle, will be offset by the lower pressure on other more sensitive products to the cycle of the economy, although uncertainty is high.

Banco de México has reiterated its inflation expectation, published recently in the latest report on inflation, which will continue to be high in the coming months, to later start to slowly converge toward the 3.0% target in 2010. Moreover, our risk balance index is already showing an inflexion in view of the fact that lower economic growth and the intensification of the downward risks are materializing. Also, and to confirm that the nominal increases in interest rates will not

continue —which, it should be underscored, have only had the intention of accommodating monetary policy to avoid deterioration in inflationary expectations— the index of demand pressures continues to suggest that these have moderated significantly.

The intention of the preventive movements carried out by the central bank up to now has been to keep medium- and long-term inflationary expectations stable, thereby avoiding a possible inflationary spiral. This strategy has achieved its objective of maintaining medium- and long-term expectations anchored and, due to this, second-round effects have been avoided. Also, there is no perception of pressure on wages, and it is unlikely that this could occur in the coming months in an environment of a notable slowdown in the rate of economic activity and consequently, weakness in the labor market.

Even though the Banco de México is not comfortable with the current and expected inflation levels or with the slow convergence with its target (which is expected at the end of 2010), it will not try to force it to be achieved more quickly, particularly considering the intensification of risk, downward economic growth, and increasing evidence of a brusque economic slowdown. We believe that Banco de México is debating between reducing interest rates to try to begin to mitigate the deterioration expected in the real economy, or maintaining the pause while exchange rate volatility remains so high and inflation continues to rise.

The space for the easing of monetary policy is already open and we believe that this first move downward will be of 50 bp, and will occur in January 2009. Should exchange rate volatility allow, the central bank could ease up until taking the funding rate to 5.5% by the end of 2009. However, should the current risk aversion levels be maintained, the space for the easing of monetary policy could be reduced, and the funding rate would end 2009 at around 7.0%. In this difficult environment, the uncertainty is extremely high.

The exchange rate in an environment of high volatility, extreme aversion to risk, lower international interest rates, and a sharp economic slowdown

The rise in the aversion to global risk in recent months has had an important effect in Mexico's financial variables. In general the effects on the markets are in line with global events, although, as mentioned in the inset "The Impact of the Global Financial Crisis on Mexico", there have been episodes with a certain differentiation.

This period of high volatility on the markets interrupted—and we believe permanently—the cyclical strength of the peso. As a result of the lower tolerance to risk, the peso has lost over 20% of its value. It should be pointed out that the currencies among the average of emerging countries have depreciated in a similar magnitude. Consistent with this trend, the sovereign spreads have risen to levels not seen in many years. The entry of capital flows in the debt market was unusual during the June-August period, when more than US$5 billion came in. In contrast, in recent weeks, foreign bond holdings have dropped, while the net positions in the Chicago futures market are already in favor of the dollar.

Demand Pressure and Bank Funding Index

*   2-quarter moving average
**   4-quarter moving average
Source: BBVA Bancomer
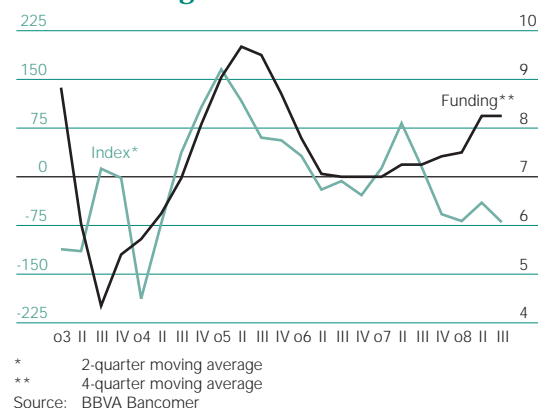
Interest Rate Monetary Policy Spread between Mexico and the U.S., and Exchange Rate

Source: BBVA Bancomer with Reuters data
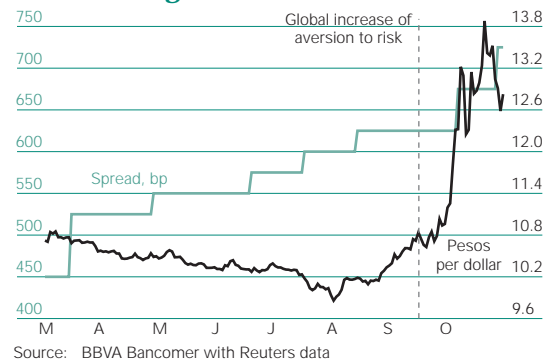
Non-Commercial Net Positions in Peso-Dollar Futures

Positions*

Pesos per dollar

07 F M A M J J A S O N D 08 F M A M J J A S O N

* Billions of dollars, short-long pesos
Source: BBVA Bancomer with Bloomberg data

In its time, the combination of a higher departure of flows from the capital and debt markets, the greater global aversion that led to the start of asset restructuring that did not favor the emerging economies, the need for liquidity in dollars and the problems that some important corporations had to face in the foreign-currency derivatives market, pressured the peso to levels of around 14 pesos per dollar. In view of this situation, Banco de México has injected US$14 billion between pre-announced and discretionary auctions. Currently, the Mexico peso, despite the null appetite for risk, has shown a slight rebound. The question at this moment is whether there is still space for the peso to correct the strong overshooting, or exaggerated shock, seen in these recent weeks.

This period of high volatility on the markets interrupted—and we consider permanently—the cyclical strength of the peso. Even though the interest rate spread is high (825 bp), the risk levels have eliminated the possibilities of the carry-trade. In this sense, we think that the appetite for risk will not return at moderate levels in the short term. Our arguments are: the developed economies are facing an episode of economic recession; their financial institutions continue to present problems in their balances that have led to a contraction in credit; other emerging economies, including the Mexican, are being strongly affected in view of the lower contribution to growth of their foreign accounts, caused in part by the drop in the price of commodities; the domestic demand of these economies is beginning to moderate in face of the contraction in investment, consumption and credit, as a result of the uncertainty and cautiousness that is controlling the economic environment at this time. Under these circumstances, it would seem that the rise of foreign flows to emerging economies will stop in the coming quarters. To summarize, a scenario of reversion of the appetite for risk at levels prior to the crisis does not seem to be taking shape, and, therefore, the adjustment of some emerging currencies, among them the Mexican peso, will find it difficult to revert a large part of the depreciation observed since mid-September.
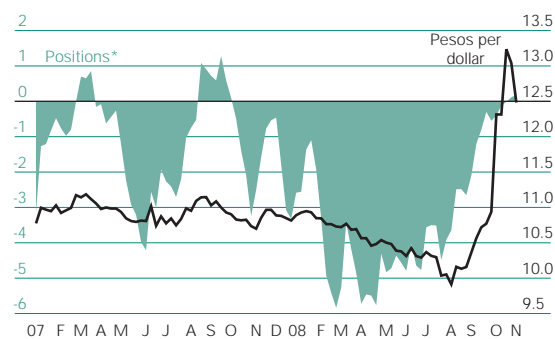
The most probable scenario is the continuation of the preference for assets free of risk (fly to quality), which will continue to cause a reduction in the exposure to financial assets of emerging markets. Due to this, we foresee that the weakness of the peso will remain, particularly in the first half of 2009: the exchange rate could fluctuate during the year between 12.8 and 13.5 ppd, with high volatility. Once the negative effects of the financial crisis begin to dissipate gradually and an improvement in the economic expectations is perceived, the aversion to risk will diminish and capital flows could return to the emerging markets. For 2010, a less negative context could translate into a moderate recovery of the peso: the exchange rate could fluctuate during the year between 12.4 and 13.2 ppd, with a tendency to appreciate, although the uncertainty is high.

It should be noted that, in the short term, the risks continue to be biased upward while volatility remains high. Our projections on the exchange rate for the close of this year and its evolution during 2009 consider a greater sensitivity of the peso-dollar parity to economic news. In this sense, if aversion to risk does not decrease, our projection is toward a weaker peso.

Government yield slope within a context of a strong preference for liquidity and a deepening of the economic slowdown

During practically a whole year since the start of the financial crisis in the sub prime mortgage market in the U.S., the curve had responded more to domestic events and expectations of monetary policy. However, as of the middle of September, the curve broke with this isolation from risk. During the year, we have argued that a structural change had emerged between the greater global higher aversion and the slope of the curve, which historically was very sensitive to an environment less benign (in general, there were changes in the correlations of other financial variables). Nevertheless, the intensification of the risks and, in particular, the intense adjustment of the volatility and nervousness, caused the topics related with the preference for liquidity and the capital outflows to finally pressure the long part of the curve and thus, the slope will rise considerably from it.

The slope of the yield curve was almost practically flat after the last restrictive movement by the central bank and, despite the fact that the inflation levels were still high, a new movement upward of the reference interest rate began to be discarded. In a first phase, the slope rose toward its theoretical risk premium level (which we have estimated could be between 40 and 50 bp). In this range, the market position is neutral regarding monetary policy expectations. In a second phase, when the nervousness on the credit market is more pronounced and the lack of positions contracts liquidity on the secondary market, interest rates were pressured and the curve slope stood over the 300 bp. Steps announced to counteract this distortion (see inset "The Impact of the Global Financial Crisis on Mexico") contributed in an important manner to the partial normalization of the market. Initially, the slope stabilized at a high level, which reflected the strong preference for liquidity and the high risk-aversion. Recently, expectations of monetary policy easing have translated into a sharp downward trend in the yield curve level.

In brief, from the beginning of the financial crisis, the curve had responded more to domestic events and expectations of monetary policy. However, as of mid-September, the curve broke the isolation from risk, and the aggressive preference for liquidity brought about a significant increase in the slope. Nevertheless, in recent weeks, the sensitive deterioration of the economic outlook has translated into a flattening of the curve—which is even already inverted through the 10-year term (-15 bp)— in face of the expectation of the imminent start of a monetary relaxation cycle.

We foresee that the curve will continue to get ahead of the movements of the short-term interest rates: Nevertheless, the deterioration in the economic outlook will continue to cause high aversion to risk, which will lead to a strong tendency to diminish the curve level, although with volatility in the 1H09. To summarize, in this period, the expectation of monetary policy over aversion to risk will be in control. Toward the second half of the year, already with an important run of the monetary relaxation cycle, the aversion to risk could gain relative importance in the curve slope. Thus, we foresee that the latter will tend to increase toward the end of the year. We expect that the

Aversion to Risk Index and Government Curve Slope

Source: BBVA Bancomer
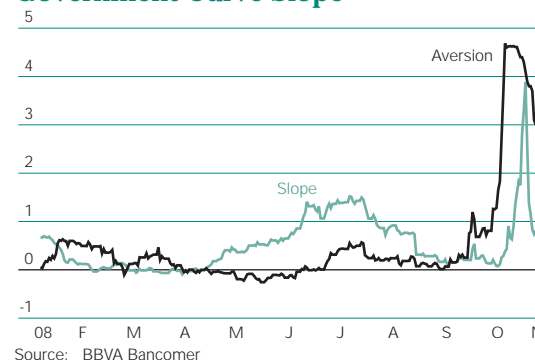
Financial Projections: Base Scenario

	Bank funding (eop)	M10 (average)	Exchange rate*
2008			
III	8.25	8.74	10.32
IV	8.25	8.97	13.03
2009			
I	7.25	7.43	13.42
II	6.25	6.60	13.43
III	5.50	6.33	13.27
IV	5.50	6.73	13.23

eop   end of period
*   Pesos per dollar, average of the period
Source: BBVA Bancomer

Financial Projections: Alternate Scenario

	Bank funding (eop)	M10 (average)	Exchange rate*
2008			
III	8.25	8.74	10.32
IV	8.25	9.50	13.30
2009			
I	7.75	8.38	13.60
II	7.00	8.10	13.60
III	7.00	8.30	13.80
IV	7.00	8.40	14.50

eop   end of period
*   Pesos per dollar, average of the period
Note: The monetary easing is lower than the central scenario given the prolonging of risk aversion, which impedes a greater reduction of the interest rate spread.
Source: BBVA Bancomer

Calendar of Monetary Policy Decisions and Inflation Reports
2009

	Monetary Policy (A)	Inflation Reports (B)
January	16	28
February	20	
March	20	
April	17	29
May	15	
June	19	
July	17	29
August	21	
September	18	
October	16	28
November	27	

A   Announcements of Monetary Policy Decisions
B   Publication of Inflation Reports. Includes the Monetary Program for 2009
Source: BBVA Bancomer with Banco de México data

average M10 yield will stand at 7.1% during the 1H09 (slope at about zero), and 6.5% in the 2H09 (slope at around 90 bp).

Conclusions

The financial market in Mexico has responded in a similar manner as did the average of the emerging markets. In general, should the environment of volatility and of global aversion to risk lessen, we would expect the financial variables in Mexico to evolve toward our estimates However, as a consequence of the marked international uncertainty on the financial markets, the sensitivity of these to economic news is much higher than in the recent past. Also, currently, they converge both in the context of a greater global economic slowdown, as in fear regarding the state of the financial sector in the developed countries, and in their implications going forward in the eventual recovery of economic activity. In brief, we expect 2009 to be a year where abrupt changes such as those seen at the end of 2008 will not be repeated, although the context of high financial volatility will continue.

The impact on Mexico of the Global Financial Crisis and Measures to Limit the Effects of Extreme Risk Aversion

The global financial crisis has had a strong impact on the financial markets in Mexico, to the extent of imposing a climate of stress in the foreign exchange and money markets. The impact has taken place in a three-stage process.

1. Extreme global risk aversion

The intensification of the global financial crisis following the collapse of Lehman Brothers on September 15 led to an extreme increase in risk aversion indices, a sharp decline in levels of international interbank liquidity (which were already in a context of stress), and set off a wave of nervousness over the possible effects that these developments will have in the emerging markets (relatively unaffected by the crisis until this moment). In addition, the perception on the future performance of U.S. economic activity changed substantially as of that time, in which the materialization of a credit-crunch is now an accepted fact, and with this, a deep and long-lasting recession is anticipated. The participants in the financial markets face such a high degree of uncertainty, and with consequences that are so unpredictable and potentially so great, that they suddenly decided that the only sure option was to do absolutely nothing. Liquidity disappeared and the credit markets froze. As of that moment, confidence in the markets was completely lost, and subsequently, confidence in the performance of the economy.

In this first stage, both the foreign exchange markets as well as the degree of risk perception abruptly and suddenly moved away from their recent levels of strength. From September 15 to October 6, the peso depreciated 10% in relation to the dollar, in a trend similar to that of the rest of the foreign currencies. Until this time, the climate of stress had not affected either the money or credit markets.

2. Local elements

Once the exchange rate exceeded 12 pesos to the dollar (a historic high until that moment), suddenly corporations' demand for dollars grew abruptly in response to the high margin calls due to their losses in derivative positions in foreign currency. From October 6-17, the peso lost an additional 9.0% of its value against the dollar. With the growing losses and serious financial difficulties of a significant number of corporations (in which the bankruptcy of *Comercial Mexicana*, a leading supermarket chain, was the main development), the credit markets in dollars and pesos were seriously affected and, in fact, their operation was put on hold. In this stage, in contrast with the evolution of other foreign currencies and other stock markets —that halted and even partially reversed their

declines— the peso continued losing value, while the losses in the IPC (the Mexican stock market price index) deepened, and the country risk mushroomed. It was not until this second stage when the authorities began to adopt measures. There were four initial measures:

First, the Banco de México (Banxico) through dollar auctions that were both pre-announced (400 million dollars per day at a minimum exchange rate of 2% depreciation in relation to the previous day's fix), and discretionary (all the auctions now total US$13.40 billion) sought to cushion the exchange-rate pressures, by offering dollars in a market with a growing excess in demand by companies in order to cover positions and credit risk. Secondly, on October 13, the central bank established a new liquidity policy. The idea is that banks that require liquidity can have access to a guaranteed loan and/or repurchase agreements (*reportos*) backed by public sector (federal government and others) and private sector bonds. The measure is a credit facility, with broad collateral and at a reasonable and not prohibitive interest rate as has been the case until now. Thirdly, in view of the "lack of liquidity" of mutual funds, an agreement was reached with the authorities to enable financial institutions to auction IPAB (the bank savings protection institute) bonds in the market to provide liquidity to private mutual funds, and to prevent them from being forced to sell commercial paper in a stressed market (in which it would find a very low price). Fourthly, negotiations are beginning with the financial sector to try to reverse the massive halt in operations in the commercial paper market (although an agreement was reached in the middle of the third stage).

3. Global and local stress

The third stage began on October 15, and is characterized by extreme risk aversion in the global markets (and a withdrawal by foreign institutional investors from the emerging markets — hedge funds liquidating positions globally?). This intensifies the depreciation of the currencies of emerging markets, among them the Mexican peso, in a context in which the institutional investors aggressively diminish their exposure to emerging market assets, both due to the need for liquidity in dollars as well as because of extreme risk aversion. The intensification of the shelter effect and fly to quality was not only reflected in the depreciation of the currencies in relation to the dollar, but also in an exponential risk trend in emerging markets measured by the EMBI+. It is difficult to determine how much of the capital flight is due to growing needs for liquidity and how much corresponds to the decision to reduce exposure to emerging market securities.

In this stage, the extreme risk aversion also invaded the Mexican bond market, where foreigners have diminished their positions and the Siefores retirement funds did not purchase them, among other reasons, due to the high averages of their VaR, which prevented them from buying, and even forced them to sell. A climate of stress emerged, in which the aggressive search for liquidity —in which funds seek to sell more liquid paper (government debt) in the face of the growing difficulty and inadvisability of selling private debt (which would find a very low price)— led to a significant drop in short-term yields and an exponential increase in long-term returns. Up to that time, the curve only responded to the liquidity premium, despite the expectation of an imminent start of a cycle of monetary relaxation. Growing demands persisted on the part of bond investors, both national as well as foreign. In this third stage, the credit markets almost ceased functioning completely and companies were unable to place commercial paper.

Up until this time, the situation was characterized by: a) extreme global risk aversion; b) less volatility in the exchange rate and a halt to the tendency of the peso to weaken (the central bank's guarantee to supply dollars seemed to help stop the depreciation of the peso; c) extreme difficulty faced by companies to obtain funding; and d) an important reaction to the aggressive search for liquidity in the curve slope, which had previously resisted the negative effects of the greater risk aversion. The measures implemented up until then turned out to be insufficient. On the one hand, the weakness of the peso continued (largely because capital flows continued to leave the emerging markets); on the other, the facilities to auction IPAB bonds in the market, with the idea that the private mutual funds would not be forced to sell commercial paper, were insufficient given the abrupt growth of demand for liquidity by bondholders, both national and foreign.

Toward mid October, in response to the growing distortion in the debt market, the government took strong measures that led to a gradual correction in this market. With the goal of ensuring the continued functioning of the private commercial paper market, the SHCP announced that the development banks (Nafinsa and Bancomext) will support the financing of the business sector in the credit markets with P$50 billion, granting guarantees that will cover up to 50% of the commercial paper offerings during 2008. At the same time, a program of guarantees was designed for the Sofoles for a maximum of P$20 billion, guaranteed by *Sociedad Hipotecaria Federal* (this

program has still not been implemented). Although initially the companies continued to face serious difficulties to obtain financing in the credit markets, gradually such financing was renewed in the debt market, although its cost (i.e., the corporate spreads) has posted major growth, as should be expected, to reflect the abrupt increase in the credit risk.

The last week of October was the first since the beginning of the global financial crisis that was marked by relative calm and favorable movements in the financial variables. In the global context, of particular importance was the decline of uncertainty in the international markets, and lower pessimism, since participants are beginning to hope, albeit with reservations, that the coordinated actions of the governments and central banks could, in time, reestablish an appropriate operation of the credit markets.

Exchange Rate
Pesos per dollar, 2008
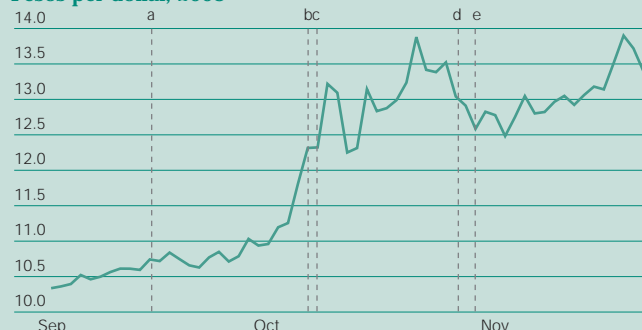
a		Sept. 15: Lehman Brothers bankruptcy
b		Oct. 7: Corporate demand for dollars abruptly increases in response to losses in derivative positions
c		Oct. 8: The Exchange Commission announces dollar auctions
d		Oct. 28: Banxico and the Federal Reserve announce swaps for up to US$30 billion
e		Oct. 30: The IMF creates a short-term liquidity facility, which for Mexico could represent, if necessary, around US$25 bn

Source: BBVA Bancomer with Banco de México data

In the same week, the trend toward a moderate appreciation of the peso was reinforced by two announcements that diminished uncertainty in terms of a possible shortage of dollars: a) the establishment of swap lines between the Federal Reserve and Banco de México for up to US$30 billion was announced; b) the IMF announced that credit lines would be available for countries with solid fundamentals that might face liquidity problems due to the losses in international capital markets. If Mexico required, it would have access to—in accordance with its quota in the IMF— up to US$23.7 billion. Thus, Mexico, without having to use its reserves, could have more than US$50 billion in backing with these two credit facilities.

In the domestic context, of particular importance was the

assertiveness of the measures of the central bank and the SHCP (the Finance Ministry). As a complement to the commercial paper guarantees announced the previous week, additional measures were adopted aimed at resolving liquidity problems and eliminating the distortions in the debt market. These measures combine a reduction in the supply of long-term securities denominated in pesos, and incentives for demand by allowing the Siefores to buy long-term debt. Clearly they are working. The curve slope returned to levels that even though they reflect a minimum appetite for risk and an aggressive preference for liquidity, moved away from the extreme levels that it had reached. As an additional measure, the SHCP announced a buyback program for bonds with maturities equal to or higher than 10 years. Taken as a whole, the assertiveness of the measures to a large extent explains this reversal of the distortion in the debt market. This, coupled with institutional investors' appetite, has favored long-term interest rates. An additional measure was the authorization for the Siefores to obtain loans from domestic financial entities —for the equivalent of up to 30% of the bi-monthly collection of quotas and fees —to meet liquidity needs.

M10
%, 2008

a   Oct. 27: The SHCP and Banxico announce measures to cushion the distortions in the debt market by aggressively reducing the supply of long-term bonds and at the same time increase demand.
b   Oct. 30: As a complementary measure to reduce pressures on long-term interest rates, the SHCP announces the buyback of 40 billion long-term bonds (with maturities of 10 years or more)
Source: BBVA Bancomer with Banco de México data

Thus, a terrible month for the Mexican financial markets came to an end with a return to operations in the debt and credit markets, reflected in less distortion in the yield curve and the reactivation of corporate debt offerings (supported by Nafin and/or Bancomext guarantees). Viewed as a whole, both the domestic measures as well as the marginal inflection in global pessimism and the extreme levels of risk aversion also reduced the pressures on the peso.

During November, further negative news emerged on U.S. economic indicators, whose levels —e.g., the high-

est unemployment rate in 14 years, the most pronounced contraction in the services sector in the history of the ISM index, that is, since 1997, etc— indicate an abrupt weakening of that country's economy. In addition, strong reductions in benchmark interest rates in Great Britain and Europe (-150 bp and -50 bp, respectively) contributed to intensifying pessimism in the financial markets.

In such a negative environment, the financial variables continue to show high volatility, at the same time that movements in the Mexican financial markets remain unfavorable. Such movements can continue to be attributed, to a large extent, to the global context. The recently announced (and aggressive) measures, mainly in the United States, calmed the waters at the end of November. Going forward, it will be difficult for the markets to stabilize as long as the extreme risk aversion continues. This will prevent a decisive corrective trend in the depreciation of foreign currencies in relation to the dollar. Specifically, in the case of Mexico, this difficult environment could delay the start of monetary relaxation by the central bank, by making the stabilization of the exchange rate more difficult. Although the yield curve no longer incorporates such important distortions, the slope seems to be stabilizing at a high level, which continues to reflect the reduced appetite for risk and the strong preference for liquidity. The placement of commercial paper continues to face a market with little appetite. Although with Nafin and Bancomext guarantees, companies have been able to obtain financing, such credit continues to be increasingly more expensive.

What can we expect in the short term?
The domestic measures have been assertive and their success is obvious, as clearly reflected in the debt and credit markets. Nevertheless, the Mexican financial markets continue to be mainly influenced by the global context. The outlook is not favorable due to the continued existence of an environment in which measures are still being sought to guarantee confidence amid distrust. Up to now, such measures have not been found and all of them seem to be insufficient. Uncertainty prevails as to whether the market will gradually return to more reasonable risk levels with the measures already taken globally, and those that will surely continue to be implemented,. It is necessary to be prepared to adopt more measures, both internationally as well as in Mexico

Javier Amador   javier.amador@bbva.bancomer.com
Ociel Hernández   o.hernandez@bbva.bancomer.com

BBVA Bancomer

Ociel Hernández   o.hernandez@bbva.bancomer.com
Javier Amador   javier.amador@bbva.bancomer.com

The Natural Rate in Mexico: an Important Parameter for Monetary Policy

Introduction

The purpose of this article is to analyze the evolution of the real interest rate in Mexico, and to estimate a theoretical natural real rate. The natural real rate is an economic concept that given its relevance in determining economic cycles, is also important in designing monetary policy, even more so in dealing with inflation targets, such as those formulated by the Banco de México. The permanent difference between the actual real interest rate and the natural rate, "the rate gap", reflects imbalances between aggregate supply and demand. When the actual real rate veers considerably from the natural rate for a prolonged period (i.e., when the rate gap is positive), the dynamism of aggregate demand, as well as that of internal financial savings, do not correspond with the use of these resources at their full potential, and therefore their effects should materialize in the growth rate of domestic prices. Therefore, the natural real rate can serve as a guiding indicator in the analysis of the balance of inflationary risks of a central bank, even though estimating it is complicated.

The article is divided into four sections. In the first (A), we briefly review the economic theory on the natural rate to justify the usefulness of its estimate for Mexico. It is useful in the understanding of how monetary policy is conducted and forecasts in relation to it. In the second section (B), we calculate the real interest rates for Mexico (ex-ante i.e., with future inflation and ex-post i.e, with past inflation), both in seasonally-adjusted and non-seasonally-adjusted terms. In this section we analyze the evolution of the real rates in Mexico for the 1997-2008 period and we draw some conclusions on the corresponding implications. In the third section (C), we estimate a range of the natural real rate in Mexico and we offer an interpretation on the management of monetary policy. In the fourth and final section (D), we conclude the article with some important considerations on monetary policy at the present time.

The ex-ante real interest rates calculated in this article are marked by high volatility, and they have evolved around an average level that is not very different for our entire sample. In contrast, for the case of ex-post real rates, they were at higher average levels during the first part of the period being analyzed, and they declined more precipitously in recent years. In addition, in point of fact, the ex-post real rate (with past inflation) is lower than the ex-ante real rate, which means that inflationary expectations have adjusted more slowly and to a lesser degree than actual inflation. That is, the credibility of the central bank has remained relatively stable despite the continuous supply shocks observed in recent quarters.

In addition, we have estimated, using different methodologies and definitions, a range in the natural real rate (or the equilibrium rate) in Mexico, which we place at between 2.77% and 3.65%. The volatility of this natural rate during the past 12 years is not too high, and therefore, in principle, we can assume that the use of this estimated rate (even with different methodologies) could have served as an additional practical tool in the implementation of a desirable monetary policy to reach the goals. Thus, we have different ways to approxi-

mate and interpret the implementation of monetary policy in Mexico in the past few years, using our estimates of natural real rate, the actual real interest rate, and their relation to macroeconomic variables such as inflation and economic growth. We feel that this measurement of the natural real rate does indeed appear to be a benchmark indicator. In addition, we can conclude that, based on our indicators, the central bank has sought to accommodate its monetary policy toward an equilibrium level close to these levels of the natural rate presented in the article.

A.- Review of Economic Theory on the Natural Rate

The natural interest rate has played an important role in macroeconomic theory since the work of Wicksell (1896). The concept of the natural rate has evolved over time. Wicksell defined the natural rate in three ways, which although he did not explicitly link them together, it can be inferred that he considered them to be consistent with each other: (1) the interest rate that equals savings with investment; (2) the marginal productivity of capital; and (3) the interest rate consistent with price stability. It is important to emphasize three properties that Wicksell attributed to the natural rate: (a) the notion that the natural rate is consistent with equilibrium; (b) that it is a characteristic of the economy in the long run; and (c) the assumption that in general, the natural rate will not be fixed at a given value, but rather will fluctuate according to the technological changes that affect the productivity of capital[1].

In more recent times, the natural interest rate has once again taken on a central role in theories of output and inflation, particularly in the neo-Keynesian dynamic models of general equilibrium. Others, such as Woodford (2005) have referred to this type of model as "neo-Wicksellian." It is important to emphasize three general properties that this type of model assigns to the natural rate: (1) it is an interest rate for one period; (2) it is a real equilibrium interest rate, in which equilibrium is defined period by period; and (3) it is subject to variation at both short- and long-term horizons. That is, "the natural rate is not defined as a long-term real interest rate; it is a short-term rate, defined period-by-period, and with a long-run central tendency that can also (slowly) shift over time"[2]. This is the fundamental difference between the neo-Keynesian natural rate and that of its predecessors: an equilibrium rate consistent with price stability period-by period. Wicksell, Friedman and others considered the natural rate as the real interest rate to which the economy converges in the long term. In this sense, the New Keynesian natural rate is a more complete description of the economy under price stability, as it dictates what level of the real interest rate is consistent with stable prices on an ongoing basis.

According to Wicksell, changes in inflation are caused by gaps in the real rate (i.e., different from zero). Prices rise when the supply of money increases, due to the growth in deposits generated by the

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1   Amato (2005) argues that these definitions (and properties) of the natural rate were adopted by the following generations of economists e.g., Friedman and Phelps (1968), who emphasized the characteristic in the long term of the natural unemployment rate.
2   "*The role of the natural rate of interest in monetary policy*", Jeffery D. Amato. BIS Working Papers, Not 171, March 2005, pp. 3.

Chart 1. Calculation of Real Rates

Ex-ante short-term real interest rates (with future inflation): non-seasonally-adjusted and seasonally-adjusted

The rates were calculated with the following formula:

$$R_t = [((1 + i_t / (364/\#days))/(1 + \textstyle\prod_t^e))^\wedge(364/\#days)] \qquad (1)$$

in which $\prod_t^e$ is the monthly inflation expected in month t for the following month. For the January to April 1997 period, the assumption is made that projected inflation is similar to the inflation observed i.e., $\prod_t^e = \prod_{t+1}$. For the case of the seasonally-adjusted real interest rate, it is estimated identically (with equation 1), only substituting projected inflation for the next month ($\prod_t^e$) with the expected seasonally-adjusted inflation ($\prod_t^{esa}$).

Ex-ante short-term real interest rates (with future inflation): non-seasonally-adjusted and seasonally-adjusted

These rates are calculated with the same formula utilized for the case of the ex-ante rates (those that consider future inflation), that is, with equation (1), with the exception that the inflation rate used is from the month prior to the placement of the instrument, i.e., $\prod_{t-1}$. Thus, for example, if the nominal rate that we are considering corresponds to the yield of the January 28-day Cete, to calculate the real rate we use inflation observed during December. Substituting this in the equation (1), we obtain:

$$R_t = [((1 + i_t / (364/\#days))/(1 + \textstyle\prod_{t-1}))^\wedge(364/\#days)] \qquad (2)$$

in which $\prod_{t-1}$ is the monthly inflation observed in month t-1. The seasonally-adjusted real interest rate is estimated in an identical manner (with equation 2), only substituting monthly inflation observed in month t-1 ($\prod_{t-1}$) with seasonally-adjusted inflation observed in month t-1 ($\prod_{t-1}^{sa}$).

Source: BBVA Bancomer

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banks to finance excess investment[3]. In contrast, money typically plays a passive role in the neo-Keynesian models. The monetary policy implications are that, based on the theory of accumulated processes, monetary aggregates should be a good indicator of imbalances generated by gaps in the real rates, while according to the neo-Keynesian models, although an incomplete nominal adjustment generates gaps in the real rates, changes in the monetary aggregates have little relation to gaps in the real rates.

The natural rate has important potential as an indicator for monetary policy. According to most natural rate theories, the central bank should move its reference rate one to one with changes in the natural rate and, on average, the nominal reference rate should equal the sum of the long-term natural rate (which can change in each period for the neo-Keynesians) and the central bank's (explicit or implicit) inflation target.

There has been much discussion regarding the difficulty of accurately estimating the natural rate. In addition, in the neo-Keynesian models changes in inflation are associated with the presence of (positive or negative) gaps in the real rates. This has led to suggestions that inflation itself might serve as a good proxy variable for the gap in the real rate. By the same token, other variables, such as the output gap, should also be good indicators of movements in the real rate gap. This has led to a large volume of material on interest rate rules, e.g., the Taylor Rules, which stipulate that the central bank will change its benchmark interest rate in response to deviations in inflation from its target, the output gap, and a long-term estimate of the natural rate of interest. In synthesis, while it has been argued that inflation might be a sufficiently good proxy of real interest rate gaps, the estimate of the natural rate and real interest rate gaps represent two additional indicators that could prove to be useful for understanding how monetary policy is conducted and projections in this regard.

B.- Real Short-Term Interest Rates in Mexico from 1997-2008

To calculate real interest rates, we use the same methodology that Banco de México has employed in some studies[4]. In order to analyze the behavior and evolution of short-term real interest rates in Mexico from 1997-2008 —the post-crisis period marked by disinflation and nominal convergence with U.S. inflation— we calculated them both ex-ante and ex-post. In the case of real rates, price growth is defined in accordance with the assumption of rational expectations i.e., future inflation is used. At the same time, in the case of the ex-post real rates, these are calculated defining the growth in prices in accordance with the assumption of adaptive expectations i.e., past inflation is used. Even though the historical averages are similar in both cases, the divergence in real interest rates becomes more pronounced in periods of macroeconomic instability (e.g., in 1998 with the Russian crisis) or in times of greater inflationary pressures (e.g., 2008).

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3   Amato (2005) explains that according to Wicksell, if the loan and deposit rates set by banks were below the natural rate, then there would be excess demand for funds by firms to finance investment projects. Consequently, the creation of liquidity by banks to absorb excess demand in the market for loanable funds would ultimately create excess of savings balances in the holdings of households. In an effort to spend the excess cash, prices begin to be driven upwards. The process of general price inflation ceases when, and only when, the market rate is equal to the natural rate.

4   For example, "*Comportamiento Histórico de las Tasas de Interés Reales en México, 1951-2001*" (Historic Behavior of Real Interest Rates in Mexico, 1951-2001) November, 2001.
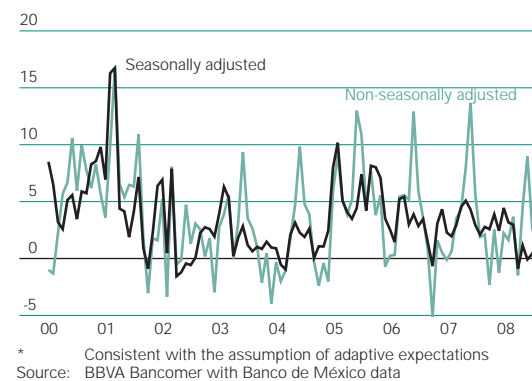
Short-term real interest rates[5]

Before summarizing the results of the calculation of short-term real rates, it is important to observe their behavior and evolution in their two modalities, non-seasonally-adjusted and seasonally-adjusted, both for the ex-post rates (with past inflation), as well as for the ex-ante rates (with future inflation). As can be seen in the graphs, the non-seasonally-adjusted modality is much more volatile in both cases. This can be explained by the pronounced seasonal nature of inflation, which results, for example, in a situation in which for months with very low or even negative inflation (e.g., regularly May of every year), the calculated real rates shoot up for the case of the ex-ante rates in the same month, i.e., May, while for the ex-post rates this occurs in the following month i.e, June, since as was mentioned, they are calculated with the actual inflation in the previous month ($\div_{t-1}$). Due to the high volatility that causes the increase in the non-seasonally-adjusted real rates, in order to analyze their evolution it is more useful to observe the behavior of the seasonally-adjusted real rates, which eliminate the seasonal effect of prices.

As shown in the graphs, it should be noted that even with high volatility, the ex-ante real rates have evolved around an average that is not very different for the whole period. In contrast, in the case of the ex-post real rates, it is quite clear that they are at higher average levels during the first part of the period analyzed, and that they strongly declined in recent years.

With the aim of drawing conclusions, it is more useful to break up the period in different smaller samples, and calculate averages. The summary of the calculations of the short-term real rates appears in chart 1. As was mentioned, different period averages were estimated within the total period. Initially we divided the sample into two periods: from 1997 to 2002, and from 2003 to 2008[6]. The first period is characterized for having average levels of real rates slightly below 5.0% for the case of the ex-post real rates and slightly above 4.5% for the ex-ante real rates. In both cases this is true for both the calculation of the non-seasonally-adjusted as well as the seasonally-adjusted rates. The second period is characterized by having lower average levels of real rates, at around 3% in both cases (ex-post and ex-ante) and for the two modalities (non-seasonally-adjusted and seasonally-adjusted). The lower levels of real rates can mainly be attributed to greater macroeconomic stability —due to the gradual convergence of inflation with the central bank's increasingly lower target levels[7]. Since the adoption of inflation targets, the price growth has been lower and more stable.

This becomes clearer if we graphically observe the evolution of the seasonally-adjusted rates, both ex-post as well as ex-ante. In both cases, two phenomena can be observed: higher (or lower) real rate levels and their higher (or lower) volatility in the first (or second) part of the period (in the case of these graphs for 2000 to 2008). This can be attributed to the lower inflation levels (which allow for lower levels

Ex-Post Short-term Real Interest Rates
Calculated with past inflation*, %, monthly average

* Consistent with the assumption of adaptive expectations
Source: BBVA Bancomer with Banco de México data

Ex-Ante Short-term Real Interest Rates
Calculated with future inflation*, %, monthly average

* Consistent with the assumption of rational expectations
Source: BBVA Bancomer with Banco de México data
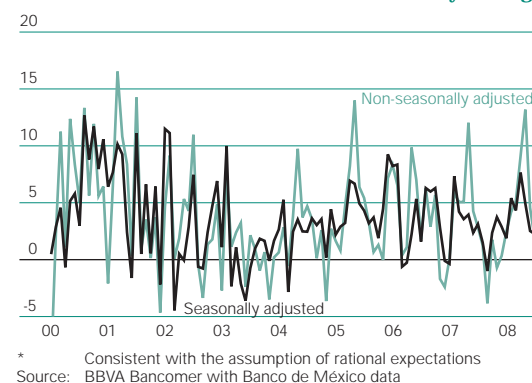
Average Level of Short-Term Interest Rates
28-day Cetes, %

	Nomi-nal	Ex-ante real[1]		Ex-post real[2]	
		Non-sa	sa.	Non-sa	sa
1997-2002	16.60	4.68	4.76	4.97	4.90
2003-2008*	7.36	3.09	2.95	3.17	2.98
1997-2000	20.30	4.96	5.08	5.62	5.45
2001-2004	7.86	2.87	2.90	2.72	2.79
2005-2008*	7.81	3.90	3.65	3.93	3.63
2006	7.19	3.82	3.84	3.07	3.00
2007	7.19	2.84	2.81	3.22	3.15
2008	7.60	4.77	3.37	2.93	1.56

sa	seasonally-adjusted
1	Calculated with future inflation (consistent with the assumption of rational expectations)
2	Calculated with past inflation (consistent with the assumption of adaptive expectations)
*	Through August

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5   As mentioned, the calculation was made with the 28-day Cetes nominal interest rates.
6   With data through August.
7   Banco de México inflation targets were gradually reduced, from 10.0% in 2000, to 6.5% in 2001, and to 4.5% in 2002, to 3.0% + / - 1 pp since 2003.

Ex-Post Short-Term Real Interest Rates
Calculated with past inflation*; %, monthly average;
seasonally-adjusted series, 12-month moving average

2000-2004 average: 3.99%
2004-2008 average: 3.14%

* Consistent with the assumption of adaptive expectations
Source: BBVA Bancomer with Banco de México data

Ex-Ante Short-Term Real Interest Rates
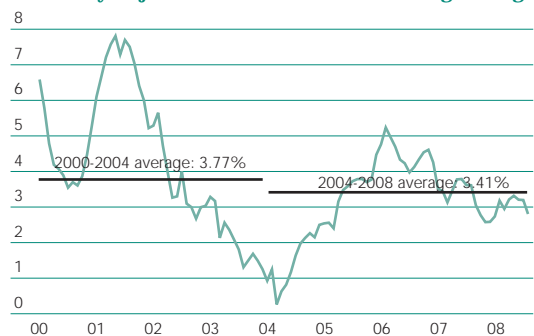Calculated with future inflation*; %, monthly average;
seasonally-adjusted series, 12-month moving average

2000-2004 average: 3.77%
2004-2008 average: 3.41%
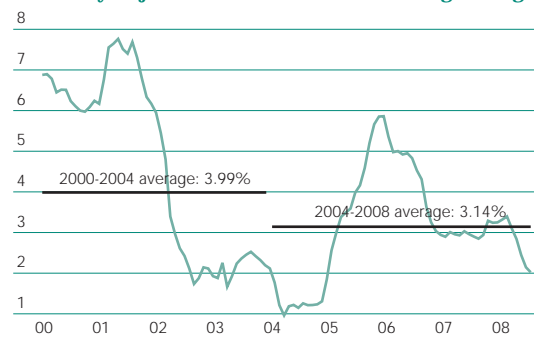
* Consistent with the assumption of rational expectations
Source: BBVA Bancomer with Banco de México data

Bank Funding and Deviation of Inflation from the Central Bank Target
%, monthly average and percentage points

Nominal
Deviation of inflation with regard to the goal
+1pp
-1pp
Convergence with inflation target
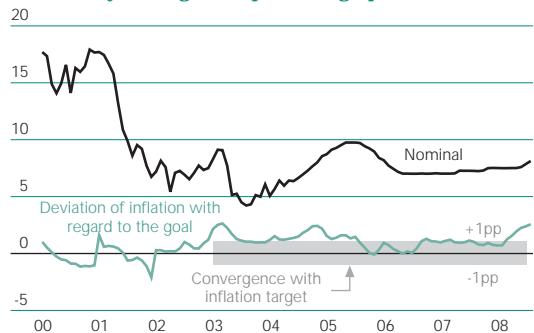
Note: Banco de México inflation targets: 10.% in 2000, 6.5% in 2001, 4.5% in 2002, 3.0% +/- 1pp since 2003
Source: BBVA Bancomer with Banco de México data

of nominal and real rates), as well as to the greater credibility of the central bank, which results in less of a need to adjust the monetary policy approach in view of inflationary shocks and in response to the cyclical state of the economy. In addition, the less abrupt movements of the real rate in recent years also suggest that the Banco de México has adopted a clearer monetary policy for the economic agents (in accordance with a smoothing of monetary policy), and once lower and more stable inflation levels have been reached, the central bank has responded to the shocks by accommodating monetary policy i.e., maintaining the real rate relatively stable around a long-term theoretical equilibrium level.

In 2008, as can be seen both in the graphs as well as in the summary inset, the ex-post seasonally-adjusted real rates are very different from their ex-ante counterparts. On the one hand, the evolution of the ex-post rates indicates a clearer downtrend and, on the other, as a result, their average level year to date is significantly lower than that of the ex-ante rates (1.56% compared to 3.37%). The fact that the ex-post real rate (based on past inflation) is lower than the ex-ante rate (with future inflation) implicitly suggests that inflationary expectations have been adjusted more slowly and to a lesser degree than actual inflation. This implies that the strong inflationary upturn posted during 2008 will tend to taper off (i.e., it is not expected that the supply shocks that have caused it will have important and permanent second round effects on inflation), and therefore the credibility of the central bank has not been affected. It could even be argued that its credibility has been strengthened by the three consecutive 25 bp increases during July-August in the nominal rate, the purpose of which was to avoid a contamination of inflationary expectations by accommodating monetary policy to the higher inflation levels.

The summary of results also suggests that the equilibrium level of the short-term real rate in Mexico is between 3.0% and 3.5%, depending on the state of the economy in the economic cycle. Therefore, the equilibrium level of the nominal rates has been between 7.0% and 7.5%, depending on inflation levels, which have fluctuated at close to 3.5%-4.0% in recent years. Therefore, for the time being, as long as inflationary levels close to 3.0% are not persistently achieved, the nominal equilibrium rates (considering real rates between 3.0% and 3.5%) will continue fluctuating in the future at levels between 6.5% and 7.5% if inflation is within the target range, although with exceptions such as in 2008, when the growth in prices deviated more than 1.5 percentage points (pp) from the upper limit of the range of variability of the central bank target of 3.0% + / - 1 pp. It is thus clear, as can be seen, that when the economy faces periods of strong downturns, the Banco de México allows for real rates of close to zero.

Finally, it should be emphasized that given that the central bank recently has tried to maintain the real rate around an equilibrium level (of between 3.0% and 3.5%), it has accommodated monetary policy and has tended to increase (or diminish) the benchmark interest rate only when inflation has strongly veered from (or converged with) the inflationary target of 3.0% + / - the range of variability of 1 pp (see graph).

C.- Estimates and Results of the Natural Real Rate in Mexico

As we noted previously, the uncertainty is high with regard to the estimated level of the natural real rate of an economy, especially under the premise that it changes over time based on the shocks that alter the relationship between capital and other factors of production (productivity), and because there are imperfections in the markets that are difficult to consider. That is, this rate is not observable. Nevertheless, the natural real rate is a variable pillar of the neo-Keynesian or neo-Wicksellian models, which are the theoretical foundation of monetary policy design under a schema of inflation targets[8]. From this flows the concept that the estimates of the natural real rate should provide an essential reference point for judging the phase in which imbalances derived from demand are found and, as a result, for determining the monetary strategy to be followed (in addition to monitoring prices, inflationary expectations, wages, output gap, etc.)[9].

The aim in this section is, first of all, to estimate a relatively reliable range of the natural real rate in Mexico and, secondly, to detect the practical importance of this estimate. That is, whether it offers a palpable interpretation on the handling of monetary policy, and whether this rate is a viable indicator of the imbalances generated throughout an economic cycle.

To estimate the natural rate, it should be recalled that it represents a long-term relation with variability over time. For this reason, we use a methodology that allows us not only to detect the trend of the real rate, but also its structural changes (trend changes) not observed. We use three definitions (equations) of the dynamism of the real interest rate, as well as the Hodrick-Prescott trend of the ex-ante and ex-post real rate. The three equations to be estimated and the methodology are illustrated in chart 2.

Results and interpretation

The chart contains the estimates of the natural real rate based on different specifications. In this case, the average is shown for 2007-2008. It should be recalled that we are obtaining concrete estimates quarter by quarter, and therefore the average allows us to detect a more stable trend. The range obtained for the natural real rate is between 2.77% and 3.65%, with an average of 3.32%. These numbers are consistent with different estimates of the growth of potential GDP in Mexico, which we project to be between 2.5% and 3.8%[10].

To the extent that the actual real rate approaches this range estimated in a context of inflationary targets, this would imply that the central bank could be accommodating its monetary policy. In other words,

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8   See chapter 1 of Woodford (2005)
9   In Amato (2005) it is argued that despite the intrinsic uncertainty in estimating the natural real rate, modern theories of economic cycles make use of this concept and it is key in the design of a desirable monetary policy, principally in monetary programs that seek to minimize the variability of inflation and the output gap, and where the policy instrument is an interest rate.
10 A study on the economic cycles in Mexico was prepared by the BBVA Bancomer Economic Research Department. See BBVA Working Papers No. 0701 and "Mexico Watch 1st Quarter 2008." (1Q 2008).

Chart 2. Estimate of the Natural Rate of Real Interest in Mexico

As has been argued throughout this article, the natural rate of real interest is an economic concept referenced to an equilibrium of the factors of production and financial variables whose horizon is defined toward the medium and long term. However, this equilibrium level also fluctuates in the short term, based on the shocks to all those elements that define the potential growth of the economy.

With the aim of econometrically estimating the natural rate of real interest in Mexico, we used the state-space methodology to extract from one, or several, equations, the lineal dynamics of the long-term elasticity of each equation. This methodology allows us to obtain the variability of the non-observed component of the estimate in question, and thus best approximate the long-term elasticity over a period of years.

Our sample (1982-2008) contains quarterly information and we use intervention variables for the periods of greater economic volatility (1987-88, and 1995-96). We estimate three equations of the ex-ante real interest rate*:

1) real interest rate based on three delayed and a constant rate(s)

$$ir_t = \alpha + \beta_j \sum_{j=1}^{3} ir_{t-j} + e_t$$

2) similar to equation (1) but includes real GDP growth as an explanatory variable

$$ir_t = \alpha + \beta_j \sum_{j=1}^{3} ir_{t-j} + \Delta PIB_t + \varepsilon_t$$

and 3) estimated monetary rule.

$$i_t = \alpha + \beta_1 (\pi_t - \hat{\pi}) + \beta_2 (OutputGap) + \beta_3 i_{t-1} + u_t$$

in which ir is the real interest rate, π is annual inflation, and i is the short-term reference interest rate.

In the three equations the state variable, or dynamically estimated variable, is the constant of the equation (with which we would be incorporating the dynamics of the non-observed component). Nevertheless, for the estimate (3) the interpretation is different, since instead of directly incorporating the long-term relation of the real rate, it incorporates the implicit nominal equilibrium interest rate in the estimated monetary policy rule for Banco de México (in this case only a sample of 1997-2008 is included). Therefore, we discount target inflation from this inflation rate to obtain the central bank's implicit real interest rate.

Thus, in a general way, the equations to be estimated are as follows:

$$\gamma_t = \alpha + \beta_j \sum_{j=0}^{n} X_{t-j} + \eta_t$$

in which X represents the vector of explanatory variables of the model and γ the dependent variables (in this case, the real and nominal interest rate for the case of the monetary rule).

The measurement equation is defined as:

$$\gamma_t = [1, \beta_1, \beta_2, ... \beta_n] \begin{bmatrix} \alpha \\ X_{t-1} \\ \cdot \\ \cdot \\ X_{t-n} \end{bmatrix} + \eta_t$$

and the status equation as:

$$\begin{bmatrix} \alpha \\ \beta_1 \\ \cdot \\ \cdot \\ \beta_n \end{bmatrix} = \begin{bmatrix} 1 & \cdots & 0 \\ \vdots & 1 & \vdots \\ 0 & \cdots & 1 \end{bmatrix}_{mn} \begin{bmatrix} \alpha_{t-1} \\ \beta_{1,t-1} \\ \cdot \\ \cdot \\ \beta_{n,t-1} \end{bmatrix} \begin{bmatrix} 1 \\ 0 \\ \cdot \\ \cdot \\ 0 \end{bmatrix}$$

Once the parameters are obtained, we calculate the long-term relation of these estimates using the delay operator of the dependent variable, yielding the following result (it should be recalled that α has been dynamically estimated in the status equation):

$$\gamma_t = \frac{\hat{\alpha}}{(A(L))}$$

in which $A(L) = (1 - \beta_1 L - ... - \beta_n L^n)$, and the parameters only represent the relations of the delayed effects of the interest rates.

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*   The ex-ante real rate is derived using medium-term inflation expectations, and for the periods for which no such information is available, the figure is extracted from the estimated trend (Hodrick-Prescott). The interest rate used is the yield on the 91-day Cete. This methodology has been used in the Economic Studies Service to estimate the real interest rate of other countries and is the basis of a recently developed macro-financial model.
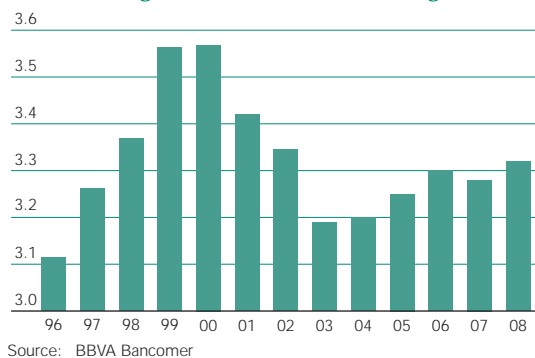
Source: BBVA Bancomer
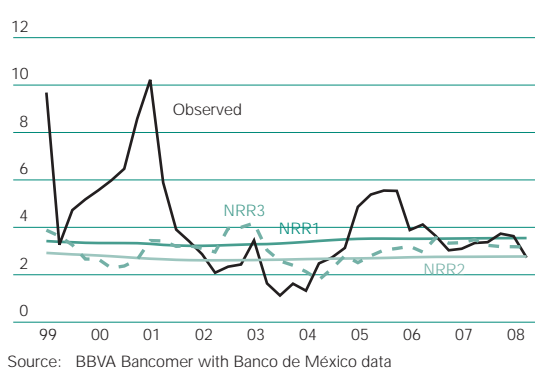
Natural Real Rate
2007-2008 average

	%
Estimate	
1	3.54
2	2.77
3	3.30
HP (ex-post)	3.35
HP (ex-ante)	3.65
Average	3.32

Source: BBVA Bancomer

1B Natural Rate of Real Interest
Annual average of the different methodologies used

Source: BBVA Bancomer

2B Natural Real Rate (Estimate 1,2,3) and Actual Real Rate
%

Source: BBVA Bancomer with Banco de México data

given the different shocks that affect the economy, we would consider that the best strategy to influence the balance of inflationary risks is to maintain the real rate at a level close to its equilibrium.

Graph 1B shows the variability of the natural real rate since 1996. The sample allows us to concentrate the interpretation of the results for a period in which it is felt that there were no extreme shocks to the economy such as those observed in the 1980s and 1995 and, on the contrary, the economic fluctuations are more in line with the dynamism characteristic of the determining factors of the economic cycles in Mexico. A slight increase in the natural rate can be seen during the period of expansion of the economy at the end of the 1990s, to be adjusted later toward levels close to 3.0% during the strong downturn as of 2001. However, the variation range is quite narrow in these 12 years, and therefore, in principle we can assume that the use of this estimated rate (even with different methodologies) could have served as an additional practical tool in the implementation of a desirable monetary policy to reach the goals.

The relation between the actual real rate and the natural real rate derived from the three estimates is presented in graph 2B. As can be seen, the actual real interest rate remained above its equilibrium estimates during 1999 and 2000, years in which the economy still maintained important growth rates and inflation, after posting declines, broke the trend and appeared to resume its rise. During the strong downturn of the economy in 2001-2003, and the beginning of the consolidation of inflation in single-digit ranges, the real rate remained below the natural benchmark rate, and stayed at that level until the turnaround in GDP growth and inflationary pressures derived from the supply side in 2004 justified the beginning of a major monetary restriction. The aim here was to consolidate the formation of inflationary expectations (see Banco de México inflation reports). As inflation once again came close to the target of 3.0% toward the end of 2005 and 2006, the central bank began a strategy of accommodating its monetary policy, which has implied the movement of the reference interest rate in such a way that the actual real rate fluctuates around 3.0%, a level that is within the range of the natural real rate.

Up to now, the concept of the natural real rate, which we have estimated, does indeed seem to offer a tool-guide for the technical formulation of monetary policy in Mexico in recent years. Furthermore, the difference between the actual real rate and the natural rate, the "rate gap", could refer to a context of an economic imbalance between aggregate supply and demand. Figure 3B illustrates the rate gap and the output gap, the latter measuring the economic cycle. The relation is certainly direct: when the rate gap is low or even negative, the economic cycle is in its low end, but its expansive cycle begins, growth that is reflected in an increase in the rate gap. Higher rate gap levels coincide with the interruption of economic expansion and vice versa. The causality is reciprocal, on the one hand, a negative output gap leads the rate gap to equally negative levels and thus spurs the reactivation of the economic cycle and, on the other, the cycle slows down in phases in which the rate gap or real rate cycle is at its maximum levels.
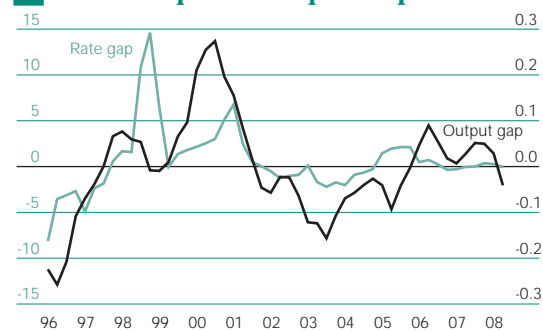
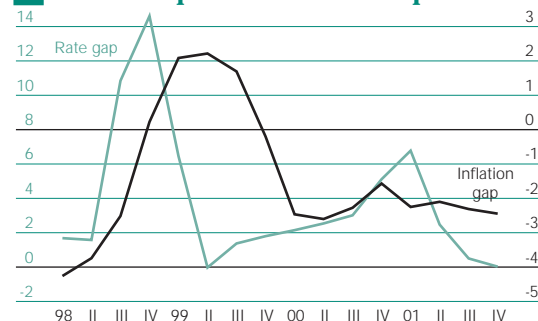It is notable that in the past two years both the natural real rate and the economic cycle have fluctuated at close to their equilibrium level. That is, a relatively soft cycle has materialized and monetary policy has been shown to accommodate its reference rate (to maintain the real rate around its natural state). In recent quarters, with the intensification of the economic downturn, but with the presence of supply shocks that have raised inflation, it seemed that the central bank had decided to continue to accommodate the nominal short-term rate at a level that would generate a neutral real rate.

The previous relation does not mean that within a process of inflation targets economic activity would not also be a target variable. It suggests that there should be a relation between the cyclical position of the economy and the balance of inflationary risks in the past few years and, therefore, that economic activity is part of a series of factors that determines the movement of this balance. Graphs 4B and 5B show the relation between the inflation gap and the rate gap. Without going into further details on this clear link, we would emphasize the reaction of the rate gap to deviations in inflation in relation to its trend, and the resulting response of the inflationary gap.

Once again, for the past few quarters, the strategy followed by the central bank in this context of economic deceleration and inflationary supply shocks can be appreciated. Monetary policy has been aimed at accommodating the real rate at a level close to the equilibrium point. When inflation strayed from the range of variability, the central bank boosted the reference interest rate only enough to accommodate the shock, and avoided over-restricting its monetary approach (given the economic uncertainty). At the current time, in an environment of reduced economic growth, but with still high inflation levels, we would expect the strategy of accommodating monetary policy to be maintained. Thus, while inflation slowly converges in the next few quarters toward the high range of variability, the central bank could reduce the short-term reference rate. Therefore, if projected inflation at the end of 2009 is 3.6%, the maneuvering room for accommodating the funding rate could be 7.25% (+ / - 25 bp). This would occur in a context of an economic downturn and high inflationary levels in 1Q09 but slowly converging toward the above-mentioned variable. Thus, in a strict sense, the maneuvering room for lowering the funding rate in these months is limited, since an accommodating policy would imply not modifying the funding rate until 2Q09. However, the scope of the projected economic downturn, and the downside risks, could justify a premature and greater monetary relaxation, above all in a context in which there is clear evidence that inflation will decline from its current levels.

To conclude, it should be emphasized that the implicit nominal equilibrium rate in equation three, which represents an estimated monetary rule, is 6.27%. Said another way, the implicit real rate considering the inflation target of 3.0% is 3.27%. The maneuvering room for monetary relaxation seemed at this moment to be greater than what had been projected, but as was already noted, this estimated equilibrium level of 6.27% is only consistent with stable annual inflation of around 3.0%, a situation that Banco de México does not expect to materialize until 2010.

3B Rate Gap and Output Gap*

* The output gap has been estimated using the HP filter; the rate gap is the spread between the actual real rate and the natural rate (average of the three estimated equations)
Source: BBVA Bancomer with Banco de México data

4B Rate Gap and Inflation Gap*

* Estimated using the HP filter
Source: BBVA Bancomer with Banco de México data

5B Rate Gap and Inflation Gap*
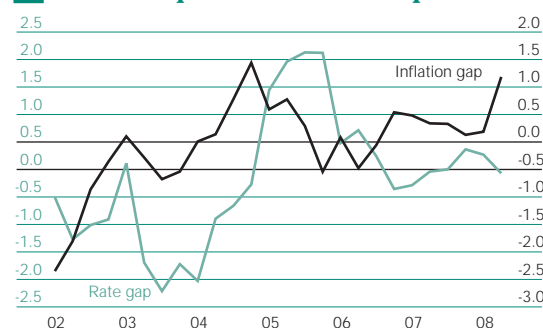
* Estimated using the HP filter
Source: BBVA Bancomer with Banco de México data

D.- Considerations on monetary policy

Going forward, with a projected inflation of 3.6% at the end of 2009, and if the central bank were to maintain the strategy of making the actual real rate an equilibrium rate, the maneuvering room of the funding rate could be at least in the 7.25%-7.0% range in 2009. This is in a context of an economic slowdown and high inflation levels in 1Q09, but converging slowly toward the target. However, in the next few months, maneuvering room is limited, since an accommodating policy would imply not moving the funding rate until 2Q09, because the real rate observed is currently fluctuating around natural rate levels. Only an intensification of the downturn in Mexico could justify a preventive monetary relaxation before that date. That is, the scope of the projected economic deceleration, and the downside risks, could justify an early monetary relaxation, above all in a context where there is clear evidence that inflation will decline from its current levels (greater than 5.0%). We feel that there are elements that sustain a decision to move up the monetary relaxation and to bring the funding rate to below 7%.

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Public Insecurity in Mexico

Carlos Herrera   carlos.herrera@bbva.bancomer.com

The main topic of interest and concern for the nation today is Public Safety

Increasingly more frequent and numerous are the citizens, social groups and firms that are asking for more effective action by the government to combat delinquency. It is an activity that has generated great fear and uncertainty among the population and that is causing substantial losses in human and material resources. For example, different organizations of the private sector have estimated that the absence of the Rule of Law, losses generated by delinquency and expenses by private persons to protect their integrity and that of their assets represent an economic cost of between 10% and 15% of GDP, while officials of the Treasury Ministry have recognized that already criminal activity may reduce almost one percentage point from economic growth, which undoubtedly reduces the general wellbeing.[1]

It is then clear that the costs of public insecurity are quite high and the deterioration of the quality of life of the population would have to be added. For example, delinquency has already restricted the liberty of movement of persons, destroyed numerous family nuclei and transformed the configuration of urban areas. And, even though delinquency is affecting all of us, its incidence is possibly more negative for the more unprotected social groups, being that they own fewer goods—which it is more complicated for them to replace—, they have less information and practical possibilities of access to administrative agencies and the procurement of justice.

Due to the importance of the topic of public safety, this article will update the situation and the arguments that were first considered in the BBVA Bancomer Proposal Series in issue 18 entitled "Public Safety", a document analyzing the role of the State as supplier of Public Security service and the delinquency problem from an economic standpoint.[2] It should be noted that even though it has been almost seven years since the publication of this document, a large part of the analysis and its diagnosis have remained in force.

This article reaches the conclusion, as will be seen further on, that the best way to combat delinquency lies in the prevention of crime. And, from the economic standpoint, this demands the structure of an institutional order that will modify the expected cost/benefit relationship for criminal activity. This line of thought is based on the pioneer work on cost/benefit and human capital by Gary S. Becker, Nobel Prize in Economics 1992.

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1   See El Financiero on line, "Insecurity Places a Brake on Economic Growth in Mexico" Carstens, El Financiero, Financial Section, Wednesday, September 3rd, 2008. It should be noted that there are reports that delinquency has a negative impact on the country's competitiveness and, because of thist, on its future wellbeing. For example, the World Economic Forum in its last Report of Global Competitiveness 2007-2008 presents different indicators that indicate that organized crime, police inefficiency and the high costs of crime and of violence already represent notable disadvantages for Mexico's competitiveness.

2   Carlos A. Herrera, "Seguridad Pública", Economic Studies Service, BBVA Bancomer, Proposals Series No. 18, December 2001.

Crimes Reported to the Office of the Attorney General according to Jurisdiction
Crimes per every 100,000 inhabitants

Source: BBVA Bancomer with INEGI data
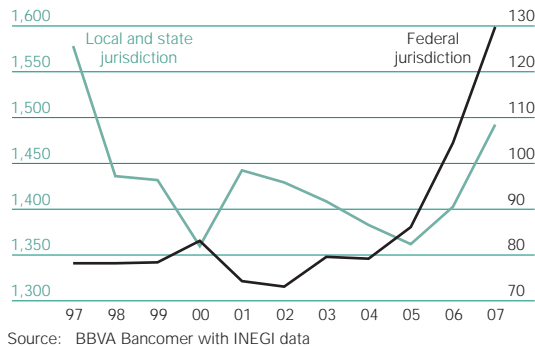
Recent evolution of delinquency

Although Mexico's problems of public insecurity problems are not new, statistics show that delinquency has increased significantly in recent years. According to official figures published by the National Institute of Geography and Information Technology (INEGI for its initials in Spanish), between 2000 and 2007, the number of crimes reported to the public prosecutor offices for every 100,000 inhabitants, rose from 1,360 to 1,492 in the local and state courts and from 83 to 130 in the case of the federal jurisdiction. These figures reflect that 94% of the crimes on average should be pursued by the local authorities, but that the remaining 6% of crimes of federal responsibility has registered a significant increase: 56% vs. 10% in those of local jurisdiction.[3] See graph.

However, as is well known, the number of crimes could be even higher considering that not all the crimes are reported. Thus, taking as a reference the last National Survey on Insecurity by the INEGI (ENSI-2005), the total number of crimes could be in reality 5.4 times higher than those reported, since, for example in 2004, the number of crimes recognized by the population older than 18 was 8,239,179, while only 1,452,178 were reported.[4]

According to data of the ENSI-2005, the most frequent crimes are those that affect private property goods. Statistics show that the most frequent crimes are street assault with violence to passers-by (muggings) (28.7%), theft in homes (17.8%) and theft of vehicle accessories, spare parts or tools (11.4%). Other illicit activities such as kidnapping and express kidnapping and sexual crimes are registering a lower incidence: 0.5% and 1.7% of the total. Reality supports the hypothesis that economic motivations play an important role as a cause for crime, although there could be other explanations of a psychological or sociological nature.

Combating delinquency

Undoubtedly public security is one of the most important services that the State must provide to guarantee social coexistence, economic development and general wellbeing. In Mexico, the above is fully recognized in the prime legal code, in Article 21 of the Political Constitution of the United Mexican States, which stipulates that "public safety is the responsibility of the Federation, the Federal District, the States and the Municipalities that includes crime prevention, investigation and persecution in order to make it effective." Within the country's institutional framework, the Legislative Power is responsible for typifying crimes and sanctions; the Judicial Power for imposing penalties; and the Executive Power for persecuting the alleged delinquents through the Office of the Attorney General of Mexico (PGR for its initials in Spanish) and of the Ministry of Public Safety (SSP for its initials in Spanish) at the federal level, and at the state and municipal level, this corresponds to the local Legislative, Judicial and Executive Powers.

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3   See INEGI, "Estadísticas Judiciales en Materia Penal de los Estados Unidos Mexicanos 2006", 2007 Edition, Aguascalientes, Ags. Mexico.
4   The ENSI is a survey of national coverage of homes. For greater detail, see INEGI and Instituto Ciudadano de Estudios sobre la Inseguridad A.C., "Tercera Encuesta Nacional sobre Inseguridad 2005" ("Third National Survey on Insecurity 2005"), Aguascalientes, Ags. Mexico.

However, under the institutional framework of the country currently in force, combating delinquency shows severe limitations. For example, the Public Security Ministry in the "Sectorial Program of Public Safety 2007-2012" makes a diagnosis of the situation prevailing in Mexico through 2006 and recognizes, among other points:[5]

- Coordination among different government entities within the scope of their legal authority have registered limited and inconsistent capacities and, frequently, the dispersion and duplicity of action have prevailed among the different police corporations.
- The prosecution of crime model, based on the Department of the Public Prosecutor as the investigating authority and with the help of the police, has been surpassed by crime.
- Police corporations lack clear and precise operating procedures, a weakness in the confidence control programs and deteriorated labor conditions.
- In the current process of crime persecution and sanctions, the victim will once again be a victim at least four times, when he was the object of crime, when he reports it, when the crime is investigated, and when the accusation is legally processed.
- There is a serious crisis regarding the Law and the Rule of Law. Many times, it seems to be more profitable to act outside the Law rather than obey it.

In view of the situation described, the Public Function Ministry proposed several actions for combating delinquency, among others:

- To establish a new police model based on scientific investigation.
- To align the federal police operation under a single command or authority.
- To prevent crime through the presence of police in public spaces.
- To motivate citizen participation and to encourage civic awareness regarding respect for the Law.
- To professionalize and integrate a service of a homogenous police career.
- To develop methodologies for the different police corporations of the country.
- To exchange data bases on the imprisoned population.

Also, a series of legal provisions that reformed the Constitution with regard to penal matters were published in the Official Daily Gazette of the Federation in June 2008, emphasizing the following:

- The terms of persons confined are increased for the investigation of felonies by organized crime. A person could be confined for up to 40 days vs. 48 hours, which were applied previously. The term could be increased for up to 80 days should the investigation so require.
- The indictment and oral penal process is introduced (oral hearings). This penal processing system will come into force in a maximum term of 8 years.

The above steps point to a direct connection in combating delinquency, but it is still too soon to be able to evaluate its impact,

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5   See Ministry of Public Safety, "Decreto por el que se aprueba el Programa Sectorial de Seguridad Pública 2007-2012". ("Decree for Approval of the Sectorial Public Safety Program 2007-2012") Official Daily Gazette, Monday, January 28, 2008.

Programmable Expenditures
Selected items, % of GDP

	2008 PEF	2009 SHCP
Agencies of Direct Control		
IMSS	2.35	2.28
Pemex	1.58	1.54
CFE	1.70	1.53
ISSSTE	0.68	0.68
LyFC	0.26	0.25
Total	**6.58**	**6.28**
Administrative Branches		
Public Education	1.50	1.42
Health	0.60	0.59
Social Development	0.43	0.50
Conacyt	0.10	0.12
Total	**2.64**	**2.63**
Communications & Transportation	0.50	0.37
Energy	0.31	0.33
Ministry of Finance	0.28	0.26
Economy	0.09	0.09
Labor and Social Security	0.03	0.03
Tourism	0.03	0.03
Total	**1.25**	**1.11**
Sagarpa	0.56	0.47
Semarnat	0.34	0.30
Agrarian Reform,	0.05	0.04
Federal Court	0.01	0.01
Agrarian Courts	0.01	0.01
Total	**0.96**	**0.83**
National Defense	0.30	0.32
Public Safety	0.17	0.24
Navy	0.12	0.12
Office of the Attorney General (PGR)	0.08	0.10
Total	**0.67**	**0.78**
Department of the Interior	0.06	0.07
Ministry of Foreign Relations	0.05	0.04
Office of the Presidency	0.01	0.01
Public Function Office	0.01	0.01
Legal Consultant's Office	0.00	0.00
Total	**0.13**	**0.14**

Source: BBVA Bancomer based on the Finance Ministry's "Economic Program 2009"

Public Spending on Public Safety and National Defense in OECD Countries
2005, % of GDP
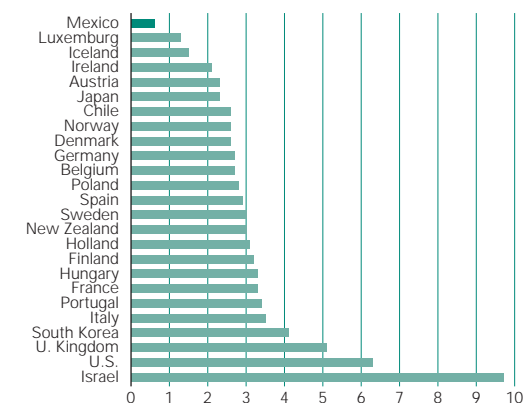
Source: BBVA Bancomer with Finance Min. & OECD Factbook 2008 data

which will depend by much on its implementation. Nevertheless, a dominant reality today in the country is that the legal, technical, administrative and budgetary instruments of the State continue to be out of line in the fight against delinquency. .The following examples could illustrate this

- Public safety programs are lacking, which, at a local level, could reinforce and complement federal actions.
- There is still a great heterogeneity in the penal codes of the states regarding the standardization of crimes and their sanctions. For example, serious offenses such as kidnapping or express kidnapping are still not typified as crimes nor are the same sanctions applied throughout the country.
- Even with the constitutional reform regarding penal matters to introduce oral hearings, local legislatures must still define which crimes might be resolved in this way and delimit the actions of the Office of the Public Prosecutor.
- An expeditious legislative procedure is needed that will allow rendering a decision to the various bills regarding public safety. For example, according to press information, there currently exist in Congress a little more than 32 reform bills on public safety and national defense on which judgment has not yet been pronounced.[6]

On the other hand, the scope of the fight against delinquency in Mexico is also limited by budgetary allocation conditions. The public security and national defense items do not seem to be a priority as that which the Constitution grants them. For example, between 1997 and 2008, the federal budget for public safety on average was 0.7% of GDP and, for 2009, it is proposed to be slightly higher and equal to 0.8% of GDP.[7] In contrast, the State productive activity—by means of several organizations of direct control— have registered expenditures of over 6% of GDP and branches such as the environment and agriculture currently have much higher budgets than those of the Office of the Attorney General of Mexico and the Department of the Navy. See graph.

In addition, considering the international experience as a reference, Mexico shows a very low expense on public safety and national defense. For example, excluding countries such as the U.S. and Israel with a very high expense for national defense, the average expenditure on security and national defense of the OECD countries stands at 3% of GDP, although some economies, such as Portugal and Hungary, at a development level similar to Mexico, record expenditures higher than the average of 3.3% and 3.4% of GDP, respectively.[8] See graph.

6   See Juan Arvizu, "*Duermen en San Lázaro iniciativas en Seguridad*" ("Safety Bills Dormant in San Lazaro"). El Universal, Sunday, September 21, 2008.
7   The historic average includes the budget of several government Ministries: Interior through 2000, Public Safety as of 2001, National Defense. Navy, Office of the Attorney General, and the resources of the Fund of Contributions for Public Safety to the States. On the other hand, the 2009 figure corresponds to the proposal of the economic program for 2009. See SHCP, "*Propuesta Programa Económico 2009*" ("*2009 Economic Program Proposal*"), Press Release 073/2008. September 8, 2008.
8   The figures include the Public Safety and National Defense items. In Mexico's case, the source is the SHCP (Ministry of Finance), and for the international statistics, the OECD Factbook 2008: Economic, Environmental and Social Statistics, OECD, Paris.

An economic focus for combating delinquency

Understanding the incentives that an individual might have for committing a crime is a very important step for preventing and reinforcing the fight against delinquency. Due to the above, in this section a synthesis of the analysis of the cost-benefit of the proposed crime is presented by Gary S. Becker, Nobel Prize in Economics 1992.

According to Gary S. Becker, criminals are rational economic agents who evaluate the expected benefits and costs of their criminal activity. Thus, Becker, in a simple although profound manner, considers that an individual commits a crime providing that, in current value, its benefits are higher that its expected costs. Clearly, the higher the benefits could be, the higher the motivations are for criminal activity. However, the cost structure is what plays a key role in the materialization and incidence of crime.

Included in the costs is the cost of opportunity that an individual must assume by engaging in crime. This cost is, for example, the real wage that he could obtain otherwise through legal economic activity. Then, to this cost of opportunity must be added the cost of the punishment or penalty that an individual can expect should he be caught after having carried out an illegal activity.

Taking as a reference the previous model, the incidence of criminal activities will be greater to the extent that the costs are relatively low for a certain benefit level. In this way, all actions directed toward imposing more severe penalties and punishment to delinquents raise the costs of delinquency and lead to a reduction in the potential incidence of illegal activities.

However, a key element in the expected costs facing criminals is the probability of punishment. For example, if the probability of getting caught and condemned for a crime are low, so will the expected costs be for the delinquents, and, consequently, the potential incidence of criminal activity will increase. The opposite will occur if the probability of getting caught or sentenced is high. Nevertheless, since delinquents are risk takers, the certainty of being punished for criminal activity could have greater weight in the cost structure than the severity of the punishment itself. However, an integral focus that combines severe penalties and high probabilities of punishment could be an effective strategy in the long term to raise the expected costs of criminal activity significantly.

Conclusions

Some considerations and conclusions that can be derived from the economic analysis of criminal activity are as follows:

1) Poverty and unemployment could have repercussions on the low costs of opportunity for individuals, although they are not sufficient conditions to explain their possible incursion in criminal activities. Other moral or social considerations could play an important role in the perception of costs and benefits of individuals. Nonetheless, public policies focused on generating conditions for greater productivity and economic growth in the country are an instrument that could contribute to reducing crime, in the medium and long terms, because the expansion of employment opportunities in legal economic activities raises the costs of opportunity of incurring in criminal activities.

**Some Elements to Consider
in Combating Crime**

1. An integral focus is required:
     Prevent
         Capture
            Process
               Sanction
     Repair damage to victim
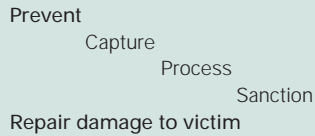
**2. Economic analysis suggests increasing expected
costs:**

  Raise opportunity costs
    Strengthen human capital and employment
    opportunities in legal activities

  Raise expected costs of punishment
    Harden penalties
    Increase punishment probabilities
      Improve police coordination
      Develop anti-crime intelligence and technology
      Strengthen legal support in Public Prosecutor enquiry

Source: BBVA Bancomer

For example, a public policy that results in better education for the population strengthens the human capital of people and this raises their employment and wage opportunities in legal productive activities, which increases the opportunity costs of incursion in criminal activities. Other public policies that could boost levels of growth and wellbeing in Mexico and, with this, raise the opportunity costs of criminal activity may be seen in issue 33 of the BBVA Bancomer Proposed Series entitled "Ten Actions for Boosting Productivity and Wellbeing".

2) An effective strategy for inhibiting potential criminal activities consists in preventively raising its expected costs. In this sense, combating crime and impunity can be developed on two fronts simultaneously: raising the penalties and sanctions, but, in particular, the probabilities for punishment. On the first front, measures can be applied such as the standardization of penalties and sanctions throughout the country and the extinction of the power to be able to award, in favor of the State or of the victims, the goods that might be the instrument, product or object of the crime On the second front, a key factor is the coordination between the police corps in the various areas of government, strengthening criminal investigation and intelligence, strengthening the Penitentiary System and achieving uniformity of criteria between the Office of the Public Prosecutor and the court system, to the effect that all preliminary criminal investigations might be duly upheld from the legal point of view.

3) The best way to combat crime lies in its prevention. Once an individual engages in criminal activity, the incentives for continuing it are very strong: 1. Even after serving a sentence, individuals with criminal records have a low opportunity cost for continuing in this activity, since their criminal records limit their possibilities for entering legal economic activities. 2. An individual in prison may learn from the experience of other prisoners to be a better delinquent and once freed, he reduces the probability of getting caught and the expected costs of punishment.

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United States Indicators and Forecasts

	2007	2008	2009	I'08	II'08	III'08	IV'08	I'09	II'09	III'09	IV'09
Economic Activity											
GDP (real annual % change)	2.0	**1.4**	**-0.8**	2.5	2.1	0.8	**0.2**	**-0.5**	**-1.4**	**-1.2**	**-0.3**
Personal consumption expenditures	2.8	**0.2**	**-2.5**	1.5	1.3	0.0	**-1.8**	**-2.6**	**-3.3**	**-2.7**	**-1.3**
Gross fixed investment	-3.1	**-3.2**	**-2.2**	-2.5	-3.6	-4.8	**-1.9**	**-1.6**	**-2.2**	**-1.6**	**-3.4**
Non-residential	4.9	**3.2**	**-2.5**	6.2	4.2	1.8	**0.6**	**-1.0**	**-2.6**	**-3.2**	**-3.4**
Residential	-17.9	**-21.0**	**-10.3**	-21.3	-21.6	-21.3	**-19.7**	**-15.0**	**-13.1**	**-8.8**	**-3.4**
Total exports	8.4	**8.4**	**2.0**	10.1	11.0	6.9	**5.9**	**4.8**	**2.0**	**0.7**	**0.6**
Total imports	2.2	**-2.3**	**-3.1**	-1.0	-1.9	-3.1	**-3.1**	**-3.7**	**-2.6**	**-3.0**	**-3.2**
Government consumption	2.1	**3.0**	**3.2**	2.6	2.6	3.1	**3.6**	**3.8**	**3.5**	**2.8**	**2.8**
Contribution to Growth (pp)											
Personal consumption expenditures	2.0	**0.2**	**-1.7**	1.0	0.9	0.0	**-1.3**	**-1.9**	**-2.3**	**-1.9**	**-0.9**
Private investment	-0.9	**-0.7**	**-0.3**	-0.4	-1.1	-1.2	**-0.3**	**-0.4**	**-0.1**	**-0.1**	**-0.5**
Net exports	0.6	**1.4**	**0.8**	1.4	1.7	1.4	**1.3**	**1.2**	**0.7**	**0.6**	**0.6**
Government consumption	0.4	**0.5**	**0.6**	0.5	0.5	0.5	**0.6**	**0.7**	**0.6**	**0.5**	**0.5**
Prices and Costs (annual % change, average)											
CPI	2.9	**4.2**	**0.8**	4.1	4.4	5.3	**2.8**	**1.8**	**0.8**	**-0.5**	**1.0**
Core	2.3	**2.3**	**1.2**	2.4	2.3	2.5	**2.0**	**1.5**	**1.3**	**0.8**	**1.1**
PCE	2.6	**3.6**	**1.1**	3.5	3.7	4.4	**2.7**	**2.0**	**1.2**	**0.2**	**1.0**
Core	2.2	**2.2**	**1.4**	2.2	2.3	2.5	**2.0**	**1.7**	**1.5**	**1.1**	**1.2**
GDP deflactor	2.7	**2.4**	**1.4**	2.3	2.0	2.7	**2.5**	**2.1**	**1.5**	**0.7**	**1.3**
Productivity	1.4	**2.5**	**0.9**	3.3	3.2	2.0	**1.3**	**0.8**	**0.0**	**0.8**	**2.0**
Real compensation per hour	1.2	**-0.6**	**0.4**	-0.8	-0.2	-0.8	**-0.6**	**-0.6**	**0.2**	**1.2**	**0.9**
Unit labor cost	2.7	**1.0**	**0.3**	0.0	0.7	2.3	**0.9**	**0.4**	**1.0**	**-0.1**	**-0.2**
Other Indicators											
Industrial production (real annual % change)	1.7	**-0.8**	**-2.9**	1.9	0.2	-2.6	**-2.4**	**-2.9**	**-2.9**	**-3.3**	**-2.4**
Capacity utilization (%)	81.0	**78.6**	**74.7**	80.6	79.7	77.9	**76.2**	**75.6**	**75.0**	**74.4**	**73.8**
Light weight vehicle sales (millions, annualized)	16.2	**13.3**	**11.9**	15.2	14.1	12.9	**11.0**	**10.6**	**11.5**	**12.4**	**13.3**
Housing starts (thousands, annualized)	1,341	**934**	**741**	1,053	1,025	877	**781**	**751**	**722**	**731**	**760**
Nonfarm payrolls (thousands of new jobs, average)	91	**-141**	**-288**	-82	-71	-159	**-250**	**-282**	**-312**	**-304**	**-256**
Unemployment rate (average, %)	4.6	**5.7**	**8.2**	4.9	5.3	6.0	**6.7**	**7.9**	**8.3**	**8.4**	**8.3**
Personal savings rate	-0.2	**0.0**	**0.0**	-0.3	-0.2	0.1	**0.4**	**-0.1**	**0.1**	**0.6**	**1.0**
Trade balance (US$ billions)	-700	**-680**	**-582**	-177	-181	-177	**-146**	**-144**	**-161**	**-157**	**-121**
Current account balance (US$ billions)	-730	**-688**	**-600**	-704	-734	**-704**	**-611**	**-600**	**-670**	**-626**	**-506**
% of GDP	-5.3	**-4.8**	**-4.2**	-5.0	-5.1	-4.9	**-4.2**	**-4.2**	**-4.7**	**-4.4**	**-3.5**
Fiscal balance (US$ billions, fiscal year)	-163	**-607**	**-938**	—	—	—	**—**	**—**	**—**	**—**	**—**
% of GDP	-1.2	**-4.2**	**-6.5**	—	—	—	**—**	**—**	**—**	**—**	**—**
Financial Markets (eop)											
Fed Funds (%)	4.25	**0.50**	**0.50**	2.25	2.00	2.00	**0.50**	**0.50**	**0.50**	**0.50**	**0.50**

eop   end of period
CPI   Consumer price index
PCE   Personal consumption expenditures index

Mexico Indicators and Forecasts

	2005	2006	2007	2008	2009	I'08	II'08	III'08	IV'08	I'09	II'09	III'09	IV'09
Economic Activity													
GDP (seasonally-adjusted series)													
Real annual % change	3.1	4.9	3.2	**1.8**	**0.0**	3.2	2.1	1.6	**0.5**	**0.2**	**-0.1**	**-0.2**	**0.1**
Per inhabitant (US dollars)	8,196	9,045	9,687	**10,486**	**9,625**	10,374	10,854	**10,877**	9,857	10,031	9,849	9,512	9,384
US$ billions	841	937	1,013	**1,110**	**1,032**	1,091	1,149	**1,154**	1,046	1,064	1,048	1,014	1,002
Inflation (eop, %)													
Headline	3.3	4.1	3.8	**6.2**	**4.0**	4.2	5.3	5.5	**6.2**	**6.0**	**5.2**	**4.6**	**4.0**
Core[1]	3.4	3.8	4.1	**5.5**	**3.7**	4.3	5.0	5.4	**5.5**	**5.4**	**5.0**	**4.4**	**3.7**
Financial Markets													
Interest rates (eop, %)													
Bank funding	8.25	7.00	7.50	**8.25**	**5.50**	7.50	7.75	8.25	**8.25**	**7.25**	**6.25**	**5.50**	**5.50**
28-day Cetes	8.02	7.02	7.44	**8.00**	**5.45**	7.48	7.78	7.61	**8.00**	**7.15**	**6.05**	**5.48**	**5.45**
28-day TIIE	8.57	7.37	7.93	**8.65**	**6.00**	7.93	8.19	8.66	**8.65**	**7.65**	**6.65**	**5.95**	**6.00**
10-year Bond (average)	9.43	8.42	7.84	**9.24**	**7.20**	7.66	8.14	8.73	**8.97**	**7.43**	**6.60**	**6.33**	**6.73**
Exchange rate													
Pesos per dollar, average	10.92	10.93	10.95	**12.82**	**12.83**	10.76	10.37	10.42	**13.03**	**13.42**	**13.43**	**13.27**	**13.23**
Public Finances*													
Fiscal balance (% of GDP)	0.1	-0.1	0.0	**0.0**	**-1.8**	nd	nd	nd	**0.0**	**nd**	**nd**	**nd**	**-1.8**
FRPS (% of GDP)	-1.3	-0.8	-1.1	**-2.0**	**-2.8**	nd	nd	nd	**-2.0**	**nd**	**nd**	**nd**	**-2.8**
External Sector													
Trade balance (US$ billions)	-7.6	-6.1	-10.1	**-16.3**	**-32.4**	-1.5	-0.8	-6.1	**-8.1**	**-6.5**	**-6.6**	**-12.0**	**-7.2**
Current account (US$ billions)	-5.6	-6.0	-10.2	**-17.6**	**-35.5**	-2.8	-2.7	-5.0	**-7.2**	**-8.4**	**-9.1**	**-11.4**	**-6.6**
Current account (% of GDP)[2]	-0.7	-0.6	-1.0	**-1.5**	**-3.5**	-0.7	-0.7	-1.0	**-1.5**	**-2.1**	**-2.8**	**-3.6**	**-3.5**
Oil (Mexican mix, dpb, eop)	45.1	49.8	79.5	**52.0**	**53.0**	89.4	114.2	92.7	**52.0**	**47.6**	**49.7**	**51.1**	**53.0**
Monetary Aggregates & Banking Activity (ann. % chge., eop)[3]													
Core bank deposits	4.7	3.2	10.6			12.0	10.5	7.6					
Commer. banks performing loans	27.1	28.1	24.1			21.4	14.8	9.2					
Aggregate Demand[4] (ann. % chge., seasonally-adjusted)													
Total	3.1	6.8	4.1	**2.8**	**-0.2**	4.9	3.6	2.4	**0.2**	**-0.2**	**-0.3**	**-0.3**	**0.0**
Domestic demand	5.2	5.8	4.2	**2.8**	**0.8**	3.8	3.5	2.0	**1.9**	**1.5**	**0.8**	**0.3**	**0.5**
Consumption	4.6	4.9	3.8	**2.7**	**0.9**	3.7	2.7	2.2	**2.3**	**1.5**	**1.0**	**0.7**	**0.4**
Private	5.1	5.6	4.2	**2.8**	**0.7**	4.2	3.0	2.3	**1.7**	**1.1**	**0.7**	**0.6**	**0.6**
Public	0.2	0.3	1.0	**2.3**	**2.0**	0.7	0.9	1.2	**6.5**	**4.5**	**3.0**	**1.2**	**-0.7**
Investment	7.6	9.7	5.6	**3.0**	**0.3**	4.1	6.3	1.2	**0.2**	**1.4**	**0.0**	**-1.0**	**1.0**
Private	9.9	12.6	6.3	**1.8**	**-0.7**	1.8	8.1	-1.1	**-1.6**	**-1.1**	**-1.3**	**-0.7**	**0.4**
Public	3.1	2.1	1.9	**8.1**	**5.2**	6.9	8.4	11.0	**6.0**	**14.6**	**5.8**	**-2.0**	**2.5**
External demand	7.0	11.0	6.1	**4.0**	**-3.5**	7.1	5.2	4.3	**-0.6**	**-2.9**	**-3.7**	**-3.9**	**-3.5**
Imports	8.5	13.0	7.0	**5.5**	**-0.8**	9.9	8.2	4.6	**-0.6**	**-1.3**	**-0.8**	**-0.8**	**-0.4**
GDP by sectors (ann. % chge., seasonally-adjusted)													
Primary	-2.6	6.4	2.0	**3.6**	**1.5**	0.0	4.8	4.7	**4.6**	**9.3**	**-2.9**	**2.4**	**-1.3**
Secondary	2.6	5.3	1.9	**-0.2**	**-2.5**	2.5	-0.1	-1.3	**-2.0**	**-4.2**	**-3.6**	**-1.4**	**-0.6**
Mining	-0.3	1.4	-3.4	**-6.5**	**-9.8**	-5.7	-8.9	-6.4	**-5.1**	**-12.4**	**-8.3**	**-9.5**	**-9.0**
Manufactures	3.6	5.2	2.7	**1.1**	**-2.0**	3.4	3.6	-0.2	**-2.2**	**-3.1**	**-3.7**	**-1.4**	**0.5**
Construction	2.5	7.9	3.0	**0.0**	**0.3**	0.0	1.8	-1.1	**-0.6**	**-2.0**	**-1.4**	**3.2**	**1.5**
Electricity, gas and water	2.0	12.2	7.2	**4.9**	**2.7**	8.1	7.5	1.9	**2.5**	**1.0**	**2.4**	**5.1**	**1.9**
Tertiary	4.2	5.2	4.2	**2.9**	**0.6**	4.0	3.1	2.7	**1.6**	**0.7**	**0.5**	**0.2**	**1.2**
Retail, restaurants and hotels	3.9	5.5	3.7	**3.8**	**1.2**	4.4	4.7	4.5	**1.8**	**2.1**	**1.0**	**-0.4**	**2.0**
Transportation and communications	5.0	7.0	6.1	**4.5**	**2.0**	6.6	5.7	3.5	**2.5**	**0.4**	**1.0**	**2.9**	**3.5**
Financial, insurance and real-estate	6.1	8.4	6.1	**3.6**	**1.9**	4.4	3.6	2.2	**4.3**	**1.0**	**1.8**	**3.3**	**1.5**
Community and personal	2.8	1.9	2.4	**0.6**	**-1.6**	0.9	0.7	1.2	**-0.3**	**-1.2**	**-1.3**	**-3.2**	**-0.6**

eop	end of period	1	Core index that does not include education
dpb	dollars per barrel	2	Accumulated, last 12 months
FRPS	Financial Requirements of the Public Sector	3	Banco de México data
na	not available	4	Base 1993=100; GDP by sectors base 2003=100. The observed data of the primary, secondary and tertiary sectors are seasonally-adjusted by INEGI, the rest are own seasonally-adjusted
Note:	**Bold** figures are forecast	*	As of 2009 the Fiscal Balance definition changes, therefore data is not comparable

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Economic Research Department BBVA Group

Chief Economist
José Luis Escrivá

Unit Heads
North America: Jorge Sicilia
Mexico: Adolfo Albo
United States: Nathaniel Karp

Emerging Markets: Alicia García-Herrero
Emerging Markets Analysis: Sonsoles Castillo
South America and Chile: Joaquín Vial / Miguel Cardoso
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Europe: Miguel Jiménez
Spain: Julián Cubero

Quantitative Analysis: Giovanni di Placido
Global Trends: David Tuesta
Financial Scenarios: Daniel Navia
Sector Analysis: Ana Rubio

North America Economic Research Dept.

Jorge Sicilia   j.sicilia@bbva.bancomer.com

Mexico
Adolfo Albo   a.albo@bbva.bancomer.com
Javier Amador   javier.amador@bbva.bancomer.com
David Aylett   david.aylett@bbva.bancomer.com
Fernando González   f.gonzalez8@bbva.bancomer.com
Leonardo González   leonardo.gonzalez@bbva.bancomer.com
Octavio Gutiérrez   o.gutierrez3@bbva.bancomer.com
Ociel Hernández   o.hernandez@bbva.bancomer.com
Carlos Herrera   carlos.herrera@bbva.bancomer.com
Alma Martínez   alma.martinez@bbva.bancomer.com
Fco. Javier Morales   francisco.morales@bbva.bancomer.com
Juan Luis Ordaz   juan.ordaz@bbva.bancomer.com
Cecilia Posadas   c.posadas@bbva.bancomer.com
Eduardo Torres   e.torres@bbva.bancomer.com
Pedro Uriz   pedro.uriz2@bbva.bancomer.com

United States
Nathaniel Karp   nathaniel.karp@compassbank.com
Marcial Nava   marcial.nava@compassbank.com
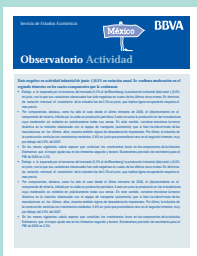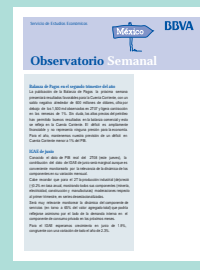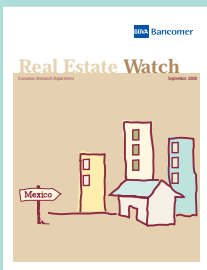Ignacio San Martín   ignacio.sanmartin@compassbank.com

Fernando Tamayo   fernando.tamayo@bbva.bancomer.com
Elisa Sánchez   elisa.sanchez@bbva.bancomer.com

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