

# Mexico Watch

Economic Research Department

First Quarter 2010



The global cycle boosts Mexican recovery

Competitiveness: not just exchange rate, very diverse sectorial performance

2010, monetary pause and appreciation margin in the peso

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Closing date: February 12, 2010

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## Editorial and Executive Summary

If 2009 was a year of intense recession in Mexico, with a GDP drop of 6.8%, 2010 will be, and is already being, the year of recovery. In fact, the economy has been growing since the third quarter of 2009 and will continue to do so in the next quarters, but at rhythms that, according to the scenario of the BBVA Economic Research Department will not reach the level of activity prior to the crisis until the middle of 2011, after growth of close to 4% in both years. The road that must be covered is longer and the climb not as steep as that of the previous adjustment, but consistent with activity in the more developed countries, particularly that of Mexico's main economic partner, the United States. This is because Mexico, which is very open to markets abroad, exports one third of its GDP, while income from remittances sent by Mexican immigrants abroad represent more than 2%, receives the main impulse for its economic performance from external demand, much more determining in size and persistence—in the case of the United States—than other economies that are also open to foreign markets.

In a global panorama of a soft recovery, compared with the average of previous recoveries, the United States will do relatively better than the rest of the developed areas. The stimuli of policies to resolve the past crisis were relatively more intense and decisive, both in the sphere of fiscal policy as in the recognition and solution of the problems of the capital and asset quality of the banking system. All of this should set the basis for increasing the private propulsion of activity through greater employment and the increase of household income and improving the banking system's response capacity in terms of credit supply.

The Mexican economy has faced the adverse global panorama with the support of a reduced need for external financing, a solid banking system that is capable of facing the economy's demand for credit, and inflationary perspectives anchored at low and stable levels. This, together with the intensity of the recession, has favored that a depreciation of almost 30% of the peso against the dollar since the beginning of the crisis in the third quarter of 2008, has not been transferred intensely through greater costs in the overall productive system. Thus, the gain in price competitiveness is close to 20%, which has made it possible for sales of Mexican products abroad to gain a higher percentage of the market. Nevertheless, these gains in price competitiveness are temporary, and are running out more easily in economies that are more open commercially to foreign markets, such as the Mexican economy. In Mexico, imports have a relatively high weight, not only in the country's GDP, but in the overall production of many activities, particularly those involving exports. But in order to manufacture and to export, a great number of inputs must be purchased abroad, which is almost half of the production cost, 45%, according to the Input-Output Figures of 2003 (*Tablas Insumo Producto de 2003*).

Measuring the competitiveness of an economy, its capacity to grow more than the market in which it operates with other competitors, is complex, given the extensive range of the concept, the diversity of

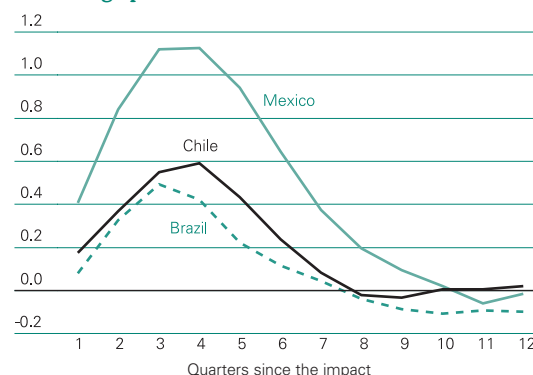
### Mexico: Business Cycle Indicator



Note: Weighted average of 21 indicators of economic activity, expenditures and expectatives  
Source: BBVA ERD

### Response in Growth to a 1 pp Change in U.S. GDP

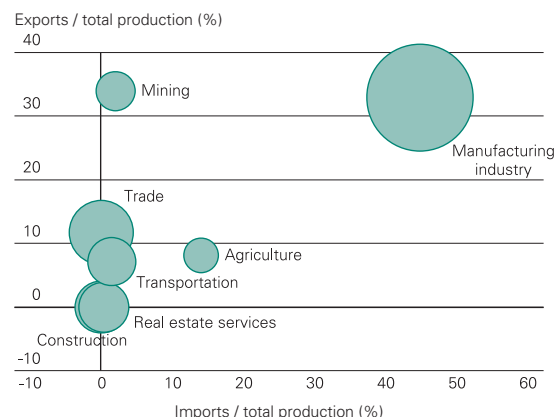
Percentage points



Source: BBVA ERD

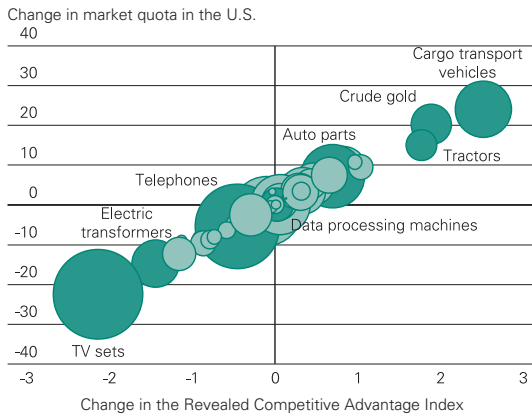
### Mexico: Foreign Trade and Production

Size of the circles: weight in total production of the economy



Source: BBVA ERD with INEGI and T-I-O data

**Mexico: Manufacturing Exports to the U.S.**  
 Change in sectorial quota and competitive advantage, 1998-2000 vs. 2007-2009, size of the circles: weight in the Mexican exports to the U.S.



Source: BBVA ERD

goods and services that are produced and the information available on the subject. Continuing with the analysis made in the previous issue of Mexico Watch, on this occasion we consider the advantages of each exporting sector of manufactured goods to the United States, comparing them, in addition, with the same sectors of their main competitors in that market. Based on the study, the conclusion is that Mexico has faced the growing global competition with only a scant loss of its share, and this has even reverted recently. However, this performance reflects very diverse sectorial performances. Mexican exports are specialized in those sectors favored by the advantage of the country's geographical location—the production of cargo vehicles and auto parts, for example—in which, in addition, there has been an intense process of productive integration through the investment of companies in the sector located in the United States in order to meet its domestic demand. In any case, the difference between the relatively favorable performance of auto parts and cargo vehicles, compared with automobile production, which has managed to maintain its share of penetration in the market, but which has not improved, surely as a consequence of the growing competition from other countries. However, the loss of penetration of Mexican exports is more intense in those sectors where there is no advantage in terms of transportation costs or in the supply of natural resources and there has not been an integration of the productive processes. All of this should lead us to reflect on the strategy to follow in order to take advantage of the benefits of geographical location or the provision of resources and support this with measures that will improve efficiency in the use of available resources and make investment more attractive.

If, from the standpoint of the real economy, 2010 will be a year of recovery for the financial variables, interest rates and exchange rates, it will be a period of transition toward levels closer to the fundamentals and to the cyclical position of the Mexican economy; this, after a year such as 2009, characterized by a negative differentiation, which began to be corrected in the final part of the year, a correction which should continue in the near future.

Transition in the exchange rate, which should continue the peso's appreciation trend toward levels closer to its equilibrium value in the long term, as the global environment allows, once the uncertainties regarding the strength of global recovery are dissipated, and more recently regarding the fiscal situation of some countries in the area of the euro. In this sense, the peso will maintain its appreciation margin throughout 2010, even considering the possible implementation, announced by the central bank, of actions aimed at raising the level of its international reserves in dollars. The analysis made shows that the use of mechanisms such as those employed by the Banco de México between 1996 and 2001—through financial options that without room for discretionality, permitted the acquisition of dollars when market conditions allowed—did not influence the value of the peso in terms of the dollar. There is even evidence that in the periods when these options were exercised, the value of the peso tended to appreciate. In any case, an intervention with these characteristics, could initially limit the appreciation boost that it could have on the peso, which could lead to less volatile behavior in its evolution and in line with the expected scenario of appreciation.

**Exchange Rate**  
 Pesos per dollar

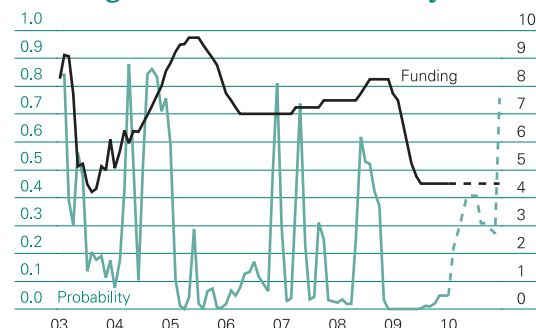


Note: Estimated as of first quarter 2010  
 Source: BBVA ERD

Transition in interest rates, with the continuity of the monetary pause by the central bank, at 4.5% throughout 2010, and with a yield in long-term public debt, which should continue to decline. As regards short-term rates, our analysis suggests a low probability that the central bank will not maintain the monetary pause throughout 2010. The consensus of both analysts and market expectations are converging toward this scenario, which has been in our projections since the early part of 2009. Contributing to this is the greater clarity of communication from Banco de México regarding the implementation of monetary policy, the importance that it is giving to the existing looseness in productive capacity as a relevant element in the lack of pressure from demand on prices, the central bank's bet on a non-permanent impact of the fiscal reform on inflation and the monitoring of inflationary expectations that continue to be anchored after absorbing the shock of 2009.

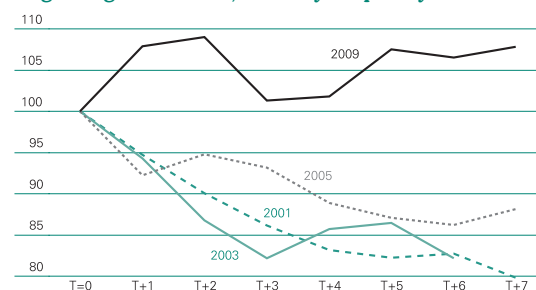
Finally, as regards long-term rates, there is a downward margin, although limited, toward levels close to 7.5% in the 10-year bond throughout 2010. The downward impact on interest rates of the greater preference due to global risk, the disappearance of short-term uncertainties regarding Mexican fiscal policy and the implementation of monetary policy will be counteracted by the markets discounting that the monetary pause policy will end at a greater or lower term, but will do so with an upward movement, both in Mexico and in the U.S.

### Funding and Increase Probability



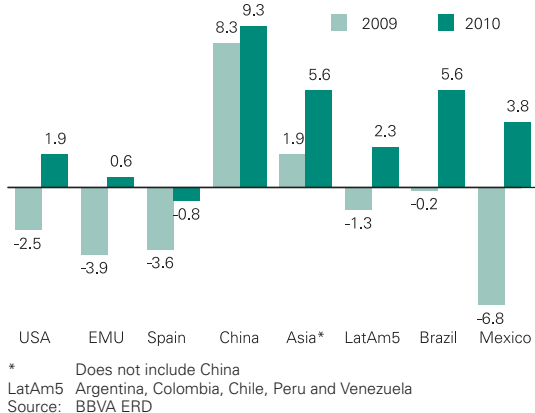
Note: Estimated as of February 2010  
Source: BBVA ERD

### M10 Yield Rate during the Monetary Relaxation Cycles Beginning T=0 = 100; monthly frequency

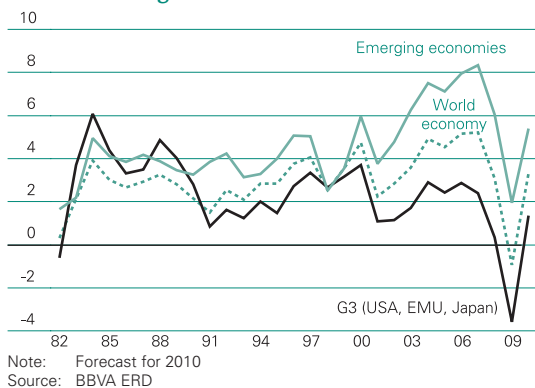


Source: BBVA ERD

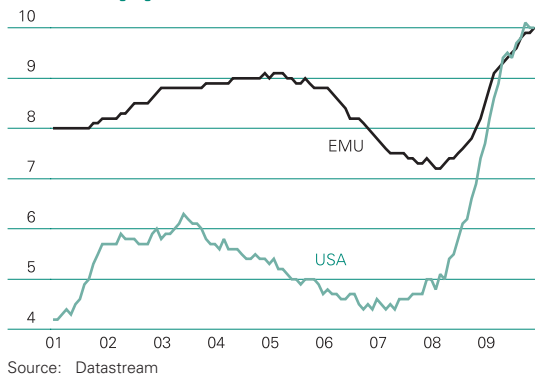
## World Economy: GDP Growth Annual % change



## World Economy: GDP Growth Annual % change



## Unemployment Rate % of active population



The symptoms of improvement are consolidating, more intensely in the U.S. than in Europe, and in the emerging economies as well. The risks of the scenario are downward, given the support still provided by the policies of demand and help to the global financial sector, the positive outcome of which is still pending.

Three months after the publication of the last Mexico Watch, the world economy continues to experience a clear improvement, with many economies recording positive quarterly growth, although with very heterogeneous rhythms of advance between the more developed areas and the emerging economies. The more developed countries are now showing the first symptoms of recovery, despite many of them having been damaged by the accumulated imbalances in the previous expansive phase. This improvement will be moderate, heterogeneous and subject to uncertainties with a downward trend. The reason is that the main support elements of spending, mainly that of private consumption, are still in a process of adjustment following past excesses—the case of the leverage level—or don't show an important improvement—the case of employment—. Moreover, the financial systems, in the process of recapitalization, and public balances, in a process of deterioration due to the impact of the recession and of the support measures implemented, show a latent frailty that is not independent of the scenario of future growth. Its effect on the real economy in the short and long term is not insignificant, so that it should remain among the priorities of the agenda.

In the U.S., the preliminary growth datum for the fourth quarter of 2009 (5.7% quarterly annualized) anticipated expectations: a faster recovery than in Europe, although it is still far from achieving growth supported in its propulsion capacity of private self-sustained, not dependent spending—more than half is due to the growth of inventories—. In this sense, the main downward risks are in the intensity and duration that the unleveraging process will ultimately have on households and in the possibility that the job market will take longer than expected in recording employment growth in a recurrent manner. Thus, it is probable that the growth of domestic demand, and therefore, that of the overall economy, will continue to be relatively weak during the next quarters. Our projection for GDP growth in 2010 is around 2%, far from that of the recession of 2009, with a GDP drop of 2.5%, but lower than that of the consensus, given that we give greater weight to the need of families to increase their savings and concentrate a greater proportion of these to paying off debt or purchasing financial assets, and in a lower proportion, to consumption.

In Europe, the economic scenario presents relatively similar characteristics, although with more negative aspects as regards the vulnerability of its financial sector or the recovery of its labor markets, which suggests a slower recovery pace than in the U.S. in 2010. It is true that the confidence and activity data in recent months reflect a growing dynamism in the economies of the European Union, but pending adjustments and the flexibility to adapt to them is lower. Moreover, the fiscal situation in many of these countries, with deficit



and debt levels growing at high rates, limits the maneuvering margin for economic policies and raises the need of implementing feasible adjustment programs. Because of all this, European economic growth is expected to be 0.6% in 2010.

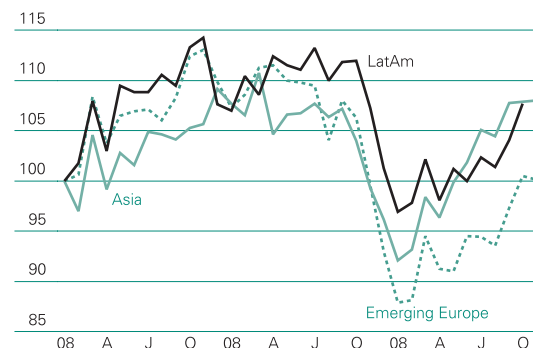
In the emerging economies, we begin to observe high growth rates, with China a good example of this, with 10.7% annual growth in the fourth quarter of 2009, the highest growth rate of the last two years. In addition, various indicators of activity and spending, such as industrial production and retail trade show marked growth. All of this has motivated the first steps of the Chinese authorities to gradually reduce credit incentives and withdraw other stimuli. Although this process is not exempt of risks, the Chinese government has sufficient tools to manage this transition without substantially affecting growth, so it is expected that progress in activity in the Asian region will be sustained over time.

As regards Latin America, the most recent indicators for the region continue to show a positive tone, with levels of activity that are now nearing those before the contraction occurred in the second half of 2008. Maintaining orthodox policies during the expansive phase limited the accumulation of external or fiscal imbalances characteristic in previous growth cycles, and the timely measures of economic policy implemented after the crisis broke out, have allowed many of these economies to mitigate its impact and attract new foreign capital flows. Nevertheless, the entry of capital flows in some emerging markets has begun to awaken uncertainties regarding pressures on the prices of some assets and on the exchange rate. For the next few months, we anticipate the beginning of the withdrawal of monetary incentives (fundamentally in Brazil), although the persistence of historically low inflation rates, and the environment of inflation targets among the respective central banks suggest that, in general, there is still room to dilate the increases in official interest rates.

**Growth perspectives continue subject to downward risks, especially in the developed economies.**

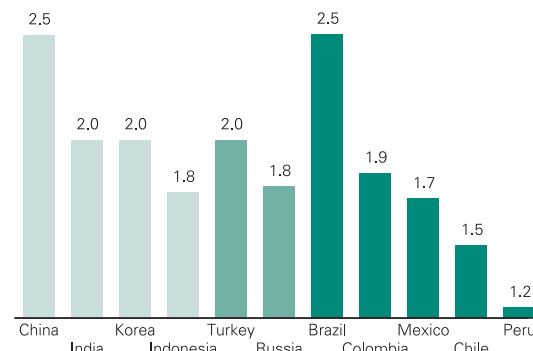
The global recovery is facing specific downward and highly inter-related risks, especially in the developed economies. The first of these refers to the strategy of suspension of the exceptional measures of economic policy adopted more or less intensely since the last quarter of 2008, both in monetary and fiscal matters. The premature suspension of these measures, as we noted in our previous publication, could seriously damage the incipient recovery, since many economies today are still very dependent on incentives from the public sector. The order of withdrawal from the different areas is also a relevant factor in this context, since to date, and particularly in the developed economies, there is little evidence that the final spending of families and companies supported on the sustainable growth of disposable income has been relieved by public spending as the main vector for growth. It is not in vain that the cycle of inventories is mainly leading this phase of incipient growth. Until this composition is modified, there is a clear risk that the withdrawal of fiscal incentives will damage the growth of many economies.

**Emerging Economies: Industrial Production Index January 2007 = 100**



Source: BBVA ERD

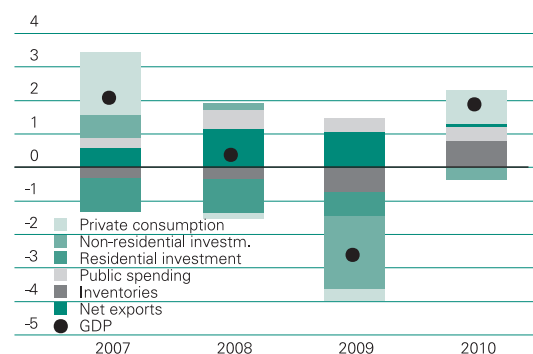
**Emerging Economies: Withdrawal Strategies Indicator**



Note: Higher values are consistent with earlier tensions in monetary policy

Source: BBVA ERD

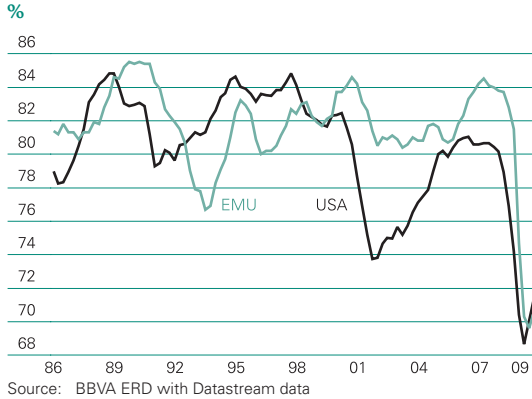
**USA: Contributions to GDP Growth Percentage points**



Note: Forecast for 2010

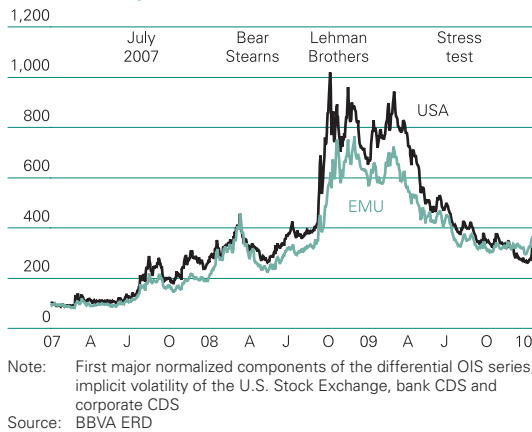
Source: BBVA ERD

### Utilization Capacity of the Economy



At the same time, the implementation of believable adjustment plans in the medium term is indispensable, which makes the equilibrium between maintaining the fiscal support while it is necessary and at the same time making its withdrawal believable, one of the key factors. However, this support policy without precedent, has a tangible cost in terms of risk for sovereign balances and consequently, for future financial stability. While this situation doesn't presume additional risks, monetary policy should continue to be lax for a still prolonged period of time. The fact that inflation expectations in the developed economies continue at stable levels, core inflation grows moderately and the capacity for use is at historically low levels, allows for a certain maneuvering margin with regard to the withdrawal of non-conventional support policies for liquidity.

### Financial Tensions Indicator



In the financial sphere, progress to date continues to be moderate, so the risks are still latent. One of the priorities in all agendas should be to continue to strengthen the banking systems of many economies. All of this is in order to normalize the channel of credit, which has been only partially recovered up to now. To this is added a risk of a regulatory nature, which has its origin in the reform proposals launched to date, and the costs of which, in terms of uncertainty and heterogeneity, threaten to implicate disparities in the rules of the game, behaviors that stimulate regulatory arbitration and could lead to a lower appetite (or a higher cost) to expand capital on the part of the public sector, thereby compromising global financial stability.

### The financial markets are stabilizing, although fragility is still latent

The continuity of the policies of low official interest rates in the developed countries with expectations of contained inflation has allowed tensions in the markets to stabilize progressively, serving also to anchor the yield curves of public debt, which continue to show historically low long-term rates.

The performance of the stock markets at a global level reflected the uncertainties mentioned above. In the last quarter of the year, the earnings that had been seen until then, tended to moderate. Nevertheless, this pattern was clearer in the developed economies than in the emerging markets, where there were still significant capital entries in the latter part of 2009.

### Exchange Rate



In the foreign exchange markets, the most relevant trend was the sensitivity of the dollar to investors' appetite for risk, with depreciations of the U.S. currency against the currencies of the main emerging markets. Thus, while the feeling in the markets was dominated by optimism regarding recovery and the perception of a clear undervaluation of risk assets, the dollar tended to depreciate, both against the currencies of other developed markets and against those of emerging countries. Toward the end of the year, and in 2010, the dollar recovered some of the ground lost, supported by a greater aversion to risk and a more negative turn in the valuation of other economies (especially in Europe). In 2010 it is expected that this pattern will tend to intensify and the dollar would tend to appreciate against the euro, but to depreciate against the emerging currencies.



## Mexico, Recovery Underway in a Favorable Global Scenario

**Upward revision of Mexico's growth outlook in 2010 to 3.8% spurred by an improvement in external demand and better employment performance. Stabilization of the economy's financing conditions.**

### Current situation of the Mexican economy improves

In the past few months Mexico has benefited from the recovery of external demand, particularly from the United States, given that the U.S. market is the main destination for Mexican manufacturing exports, with Mexico being an attraction for foreign tourists, and the source of migrant workers' remittances. In addition to the improvement in external demand, which directly favors the manufacturing industry, the Mexican economy has seen the impact of the recession mitigated by the relatively favorable performance of employment, given that disposable household and company income has not been ravaged by inflation. These factors have contributed to our decision to upwardly revise our growth projections for Mexico corresponding to 2009 from -7.2% to -6.8% and from 3.1% to 3.8% for 2010, respectively.

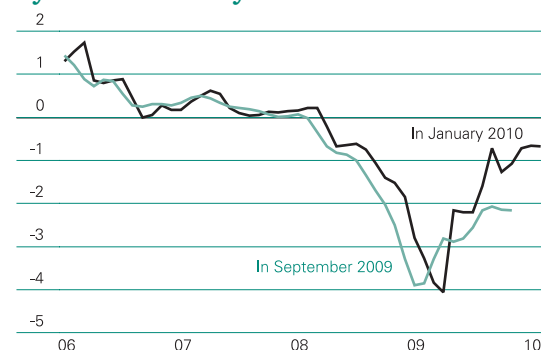
A global environment of economic recovery—more or less intense, but in the final analysis an improvement—supported by the drive from fiscal, monetary, and support policies aimed at bolstering the financial system, increased risk preference and the quest for profitability. For the Mexican economy, this improved behavior translated into more favorable financing conditions for companies, a support factor together with the improvement in the outlook for economic activity in terms of a turnaround in private investment and employment.

### Mexico benefits from the improved external environment...

The counterpart of Mexico being the country most exposed to a drastic and abrupt decline in U.S. foreign trade is, as has been seen in recent months, a more intense recovery in its exports. Specifically, total U.S. imports have recovered from year to year falls of close to 35% posted in mid-2009 to a 6% change in the last available data (December 2009), which leads to implied turnarounds in the seasonally adjusted level of such transactions since September. In this context, of particular importance are U.S. imports of Mexican goods, which have recovered from the inter-annual declines of around -30% posted by mid-2009 to annual growth of 19% in December.

It should be mentioned, as will be explained further on in this study, that Mexico has managed to capitalize competitive advantages with regard to its main competitors in the U.S. market, especially in branches in which characteristics such as geographical location and factor endowment have given Mexico an advantage. This is the case of motor vehicle production and the auto parts industry, in which foreign investment has increased its capital endowment and international productive integration. Influenced by the improvement in external demand, national industrial production displayed strength in the fourth quarter that was more favorable than estimated at the beginning of this period. In particular, with data through November 2009, despite having continued to post negative inter-annual variations (-5.5%), the monthly rate was positive and at 1% contrasted favorably with the expected -4% m/m decline. At the same time, the services sector, although at a somewhat slower rhythm, recovered favorably from the recession last year given its correlation with the trend in industry. The more immediate and intense support already provided to the Mexican economy through the rebound in U.S. demand for manufactured goods—boosted to a

### Synthetic Activity Indicator



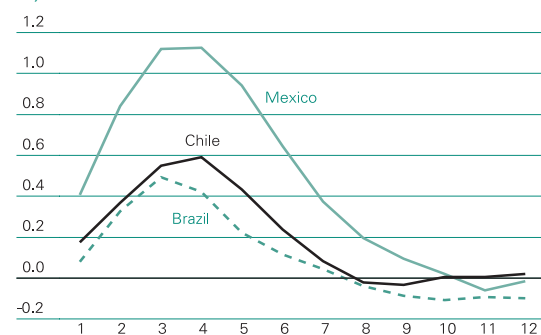
Note: Weighted sum of 21 different activity indicators, spending, and expectations  
Source: BBVA ERD

### U.S. Imports by Country of Origin Annual % change



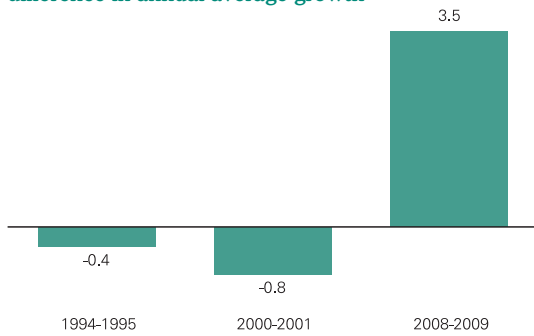
Source: BBVA ERD

### Response in Growth to a 1pp Change in U.S. GDP %, standardized shocks



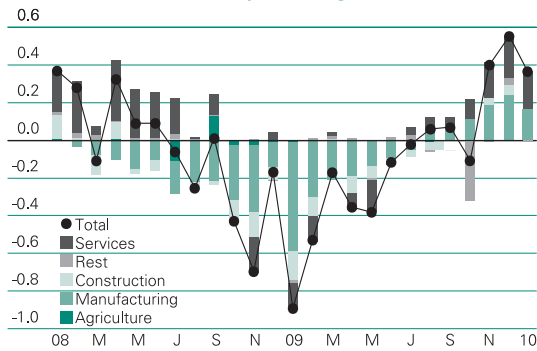
Source: BBVA ERD

**Employment & Activity, Relative Evolution**  
**IMSS and IGAE formal employment,**  
**difference in annual average growth**



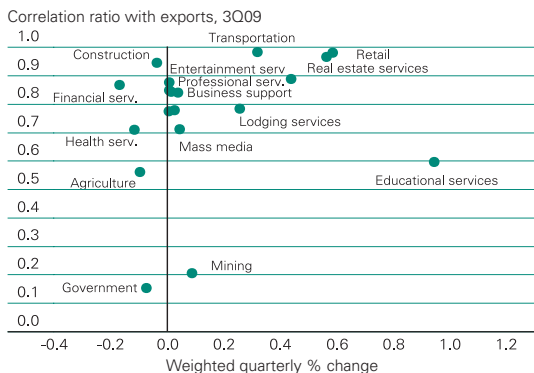
Source: BBVA ERD

**Private Sector Formal Employment**  
**Contributions to monthly % change**



Source: BBVA ERD

**Services & Correlation with Manufacturing**



Source: BBVA ERD

greater or lesser extent by a process of inventory accumulation—is expected to be followed by a recovery in the volume of remittances and tourism revenue to the extent that employment increases in that country. Not only does Mexico send 80% of its exports to the United States, but it also receives practically all family remittances from that country, which in 2008 was equivalent to 2.3% of GDP, a support factor in the income and spending level of families that are low income. Moreover, it should not be forgotten that 41% of Mexico’s foreign direct investment<sup>1</sup> comes from the United States.

This very close relationship implies an intense and persistent impact of what occurs in the United States, more so in the case of Mexico than in other countries. A way of formalizing this is through an econometric exercise estimating the response in Mexican GDP to a positive increase in U.S. GDP, in this case of one percentage point. As shown in the corresponding graph, the Mexican economy is not only the most exposed in terms of magnitude to a 1 pp permanent alteration in the growth of U.S. GDP, but it is also the one in which the impact is of greater persistence<sup>2</sup>. On average, for each pp that the U.S. economy grows or falls, Mexico’s economy responds as much as 0.8 pp more than the average of the emerging economies considered in this exercise, and takes four more quarters to converge, in absorbing the alteration<sup>3</sup>.

**... and from a more benevolent dynamics in employment than in other recessions**

Of particular significance in the recent recession is the more favorable dynamics in employment, and particularly in the formal component of the private sector. In fact, the difference in variations in inter-annual employment rates and economic activity was positive in this recessive period, for the first time in the past 17 years. While the average inter-annual contraction in the recessive period (14 months) was -6% in the case of the Global Indicator of Economic Activity (IGAE), in the case of private sector formal employment, the decline was -2.5% in the same time frame, with this comparison showing a contrary trend in the previous recessions. For example in 1994-1995 when the decline in economic activity averaged -6.2%, private sector formal employment fell -6.5%, on average.

The relative better performance of employment was focused, as was to be expected, in the manufacturing sector, which has begun to make a positive contribution to the growth in total employment, although it should be mentioned that the services sector has also begun to contribute positively to job creation. In both cases, the net growth in the number of workers was more evident in the last three months of the year.

**The recovery in manufacturing activity is being transmitted to the rest of the economy**

Moreover, it is important to mention that there is evidence that the recovery headed by the manufacturing sector has begun to permeate to other branches of the economy, mainly in those services most closely linked to manufacturing, as was to be expected. Such is the case of business support services or transportation services, but also those branches that

- 1 Data for 2008.
- 2 Estimated semi-structural variation. Five equations were estimated for annual growth in each of the selected countries. The variables of U.S. economic growth involved delayed reactions, and in some cases contemporary, in the equations of annual GDP growth of the emerging economies. In addition, it is assumed that there is no relationship among the emerging economies, except between Brazil and China, consistent with the complementary orientation of both economies in trading of raw materials. The block of equations represents a self-adaptive Vector regression.
- 3 Standard response to the size and volatility in the growth of each economy.

are to a large extent tied to the domestic market, such as real estate services, retail trade, and restaurants and hotels. In this sense, it should be noted that after the negative performance in retail and related activities due to last year's H1N1 health crisis, the tertiary sector of the economy recovered considerably in the third quarter and with available data for the final three months of the year, it can be concluded that the recovery continued although at a somewhat less intense rhythm.

Anchoring inflation at historically low figures has prevented an additional run on purchasing power, which on other occasions has been extremely intense, resulting from the loss of jobs. This less intense decline in real income together with maintaining the financial channel in operation, as opposed also to what occurred in 1995, has enabled the adjustment in private spending to be less abrupt. At the same time, the dynamics of public sector activities and mining production have special characteristics, including a lower impact from countercyclical economic policies in the fourth quarter on the one hand and the decline in oil production on the other hand, which has affected their dynamic and negatively impacted their recovery.

### Financing conditions were normalized as of the third quarter of 2009

During the fourth quarter of 2009, the financial variables continued to show an improvement, which had a positive impact on business activity and therefore in the number of financially profitable projects and on job creation. This favorable behavior was reflected both in the financing cost of sovereign debt as well as in the debt of the private business sector. These liabilities posted a fall during 4Q09 in the case of higher rated private debt (i.e., AAA-AA) whose spread in relation to public securities—without risk—diminished to an average of 52 bp during the last quarter of the year versus 58 bp the previous quarter.

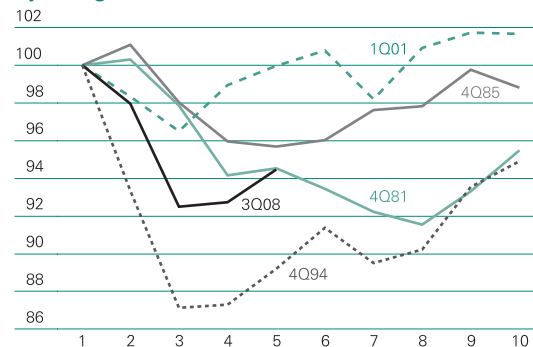
At the same time, the evolution of the spread on low-rated private paper in the past few months is even more favorable. The spread diminished considerably during the last quarter of the previous year, in the process deepening the downtrend in the implied risk that this spread reflects. During the 4Q09 the spread averaged 206 bp, a level 95 bp lower than the previous quarter. With this, the spread with higher-rated instruments narrowed, transferring the greater appetite for risk in the markets to private paper.

The improved context in the markets has implied better conditions for private debt issues, and indeed, the premium rate paid has declined both for high- as well as low-risk instruments. After medium- and long-term issues were practically put on hold from September 2008—the beginning of the financial crisis—until May 2009 (see graph), as of 3Q09 they began to post sustained growth, with average levels of more than 8.71 billion pesos monthly during the 4Q09 versus almost 8.66 billion pesos during the 3Q09. Thus, medium and long-term private debt placements have displayed a pronounced uptrend, which reflects the improved conditions in the markets that will continue to support economic activity and company's investment projects.

Finally, bank credit earmarked for companies has also posted very dynamic growth, higher than that of financing as a whole. In 2007 and 2008, this financing grew by average nominal rates of 30%, in response to high demand. Over the course of 2009, reduced real activity affected the demand for business credit, which could experience renewed growth during 2010 in accordance with the anticipated economic scenario of an improvement in activity expectations.

### GDP: Private Consumption

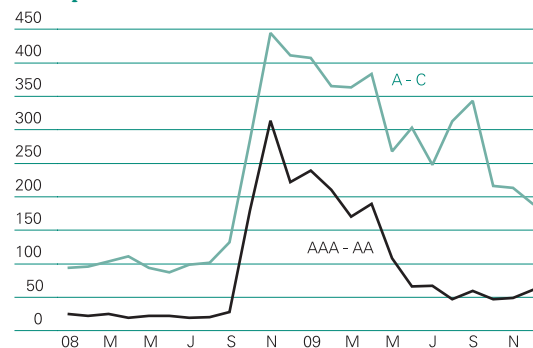
Cycle high = 100



Note: The date refers to the beginning of the period  
Source: BBVA ERD with INEGI data

### Short-term Corporate Debt Spreads

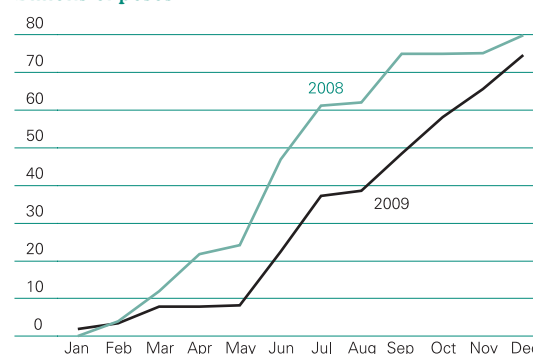
Basis points



Source: BBVA ERD

### Accumulated Medium- and Long-Term Corporate Debt Issues

Billions of pesos



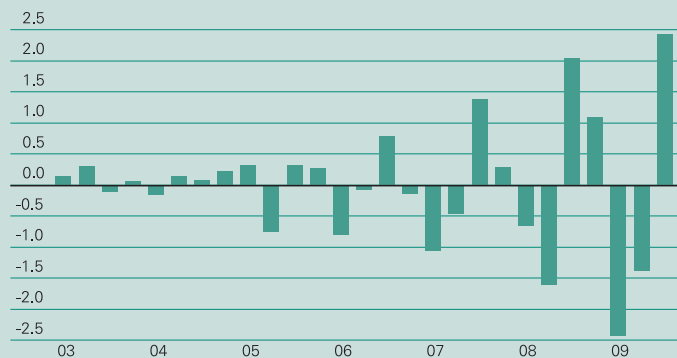
Source: BBVA ERD

## National Accounts: Aggregation Gap in Seasonally Adjusted Figures and Inventory Stock Variation

The national accounts reported by the INEGI (Mexico's National Statistics Institute) in seasonally adjusted figures show a growing gap between the official GDP level and the result of adding up its demand components, also presented in seasonally adjusted terms by INEGI. From a quarterly perspective and in accordance with the most recent data, as shown in the attached graph, this gap shows regular behavior and since it is annulled in the annual average, it is consistent with the result from the seasonally adjusted calculations used by INEGI not considering the restriction that the sum of the seasonally adjusted variables is the seasonally adjusted GDP<sup>1</sup>. The aggregation gap is growing as the base year, 2003, recedes in the past and is so large that it makes it impossible to analyze the contributions of specific components of quarter to quarter demand, although during the year as a whole this gap is annulled. This gap, when the time comes to make forecasts, should be treated as one more economic variable, with important weight in the quarter to quarter evolution of the perspectives.

### Mexico: Aggregation Gap of Seasonally Adjusted Quarterly GDP

% of GDP

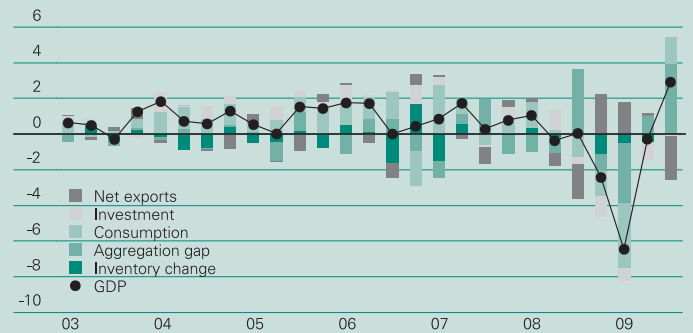


Source: BBVA ERD with INEGI data

1 Mexico's quarterly National Accounts with 2003 as the base year provide raw data (NSA), seasonally adjusted figures (SA), and trend (T) data, both from the standpoint of supply as well as demand. Only in raw data does the reported GDP coincide with the sum of the quarter to quarter component, whereas in the rest (seasonally adjusted figures and trend data) this is not the case. This approach, perfectly valid according to the National Account manuals, has the advantage of providing less volatile series in the aggregate figures than what would be obtained from the sum of the seasonally adjusted component at the cost of variable aggregation.

With the information available up to a few quarters ago, the consideration of this question was based on applying this gap to the inventory variation component, but the evolution of the gap now makes this approach inviable for the quarterly analysis of the figures, as can be seen in the corresponding graph.

### Mexico: Contributions to Quarterly Growth of Seasonally Adjusted GDP

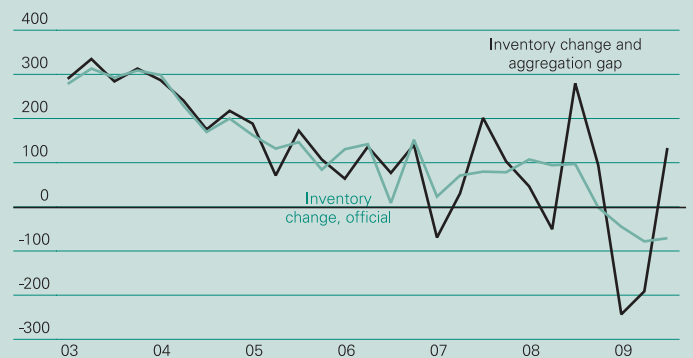


Source: BBVA ERD with INEGI data

Having arrived at this point, the known evolution of the inventory variation figure, which has been continually positive until very recently and with a declining secular trend, is also noteworthy. This is somewhat surprising, given that it involves a change in the inventory of inputs for intermediate consumption, of products that are unsold or in the process of manufacturing, of goods purchased for resale or of strategic products. Thus, if the variation is positive, the inventory level would grow explosively.

### Mexico: Inventory Variation, Official and Estimated, Adding the Aggregation Gap

Level, billions of pesos at 2003 prices



Source: BBVA ERD with INEGI data

Theoretically, the inventory variation must be positive or negative, fluctuating around an equilibrium level based on whether inventories are accumulated or depleted, which implies a positive or negative contribution to growth, depending on the case. However, the evolution of this variable's behavior in Mexico has been very different from that observed in the national accounts registry of other economies.

When making an international comparison of inventories' scope and trend in accordance with a common database (the U.N. National Statistics Office), Mexico differs considerably from other economies. The magnitude of the Inventory Variation variable from a historical perspective is close to 10% of the country's average GDP for the 1970-2008 period. This contrasts strongly with the average for the sample, excluding Mexico, with the corresponding figure being 0.7% (standard deviation of 1.1)<sup>2</sup>. For the most recent period, from 2003 to 2008, the average weight of this inventory variation for Mexico was 4.7% of GDP, while for the rest of the sample the corresponding figure was 0.4%.

### Inventory Stock Variation

% of GDP, 2003-2008 average



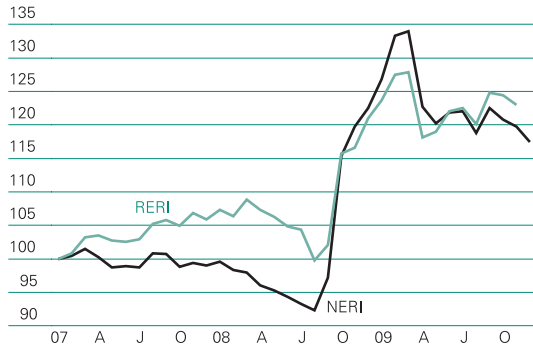
Source: BBVA ERD with U.N. data

<sup>2</sup> The countries included in the analyzed sample are Australia, Brazil, Canada, Chile, Finland, France, Germany, Greece, India, Italy, Japan, the Netherlands, Norway, Portugal, Russia, Saudi Arabia, Singapore, South Africa, Spain, Switzerland, Turkey, Great Britain, and the United States. All the international comparisons are based on the U.S. National Statistic Division.



## Mexico: Nominal Exchange Rate Indexes (NERI) and Real (RERI)

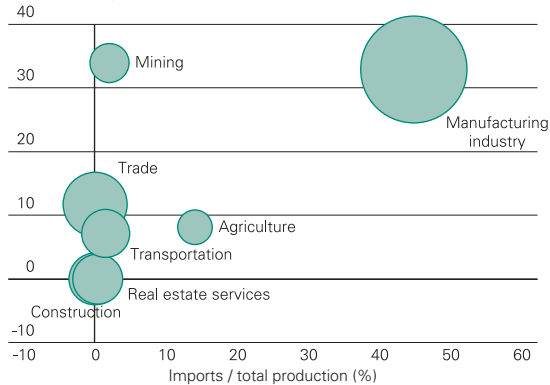
January 2007 = 100



Source: BBVA ERD with Banco de Mexico data

## Mexico: Foreign Trade and Production

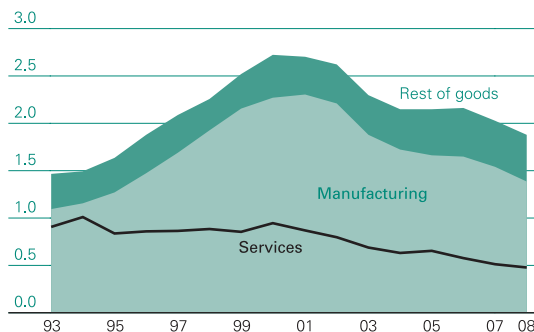
Exports / total production (%)



Note: The size of the circles denote the weight in total production of the economy.

Source: BBVA ERD with INEGI and T 1-0 data

## Mexico: Share in World Trade



Source: BBVA ERD with World Trade Organization data

The boost from the exchange rate on exports is temporary. From a sectorial perspective, competitiveness is very diverse, depending on the degree of protection that the locality provides, on the integration of transnational productive processes or on the competition of third parties

### Competitiveness based on price is a transitory support for activity

One of the factors that mitigates the intensity of the recession and that is favoring the recovery of the Mexican economy is the depreciation of the peso, which, in nominal terms has depreciated 27% against the dollar since the 3Q08 and, in real terms, —considering relative inflation—and 20% against the group of countries with which Mexico trades. This gain in price competitiveness favors sales abroad, but it is not a permanent advantage, given that the lower value of the peso also favors the pressure of costs through more expensive prices of imports. This occurs more markedly in economies that are more open to trading abroad such as the Mexican economy. In Mexico, imports have a relatively high weight, not only in GDP but in the entire productive process of many activities, especially those engaged most in exporting. As can be seen in the attached graph, where the size of the sphere reflects the weight of each sector in total production of the country<sup>1</sup>, the manufacturing industry, which represents 33% of the production of the Mexican economy, assigns one third of all its production to exports<sup>2</sup>. But in order to produce and export, it needs to make purchases abroad, which represent 45% of the total of its production, according to the Product Input Tables of 2003<sup>3</sup>.

### Competitiveness, a relative advantage

The measurement of the competitiveness of an economy, its capacity to grow more than the market in which it develops with other competitors, is complex, given the vastness of the concept, the diversity of the goods and services that are produced and the information available. Also, if this is about comparing the competitiveness of two economies, aspects such as the different legal structures, of costs or of the endowment of resources, makes finding a neutral comparison problematic. One way of solving these difficulties is to assume that competitiveness, the relative advantage in carrying out an activity, is achieved through specialization. An economy, sector or company will specialize in that in which it has an advantage

- 1 Total production of a sector (the entire economy) is the sum of final consumption demand, sector investment and exports (economy) plus that destined to satisfy the demand of other activity sectors. To that production, imports must be added, so as to have the total supply of goods and services of the economy.
- 2 The remaining two thirds are destined to the rest of the demand components—consumption and investment—and to meet the demands of production inputs for other sectors.
- 3 In addition, exports evolve according to external demand, income effect, and the real exchange rate, price effect. The econometric specification of this relation finds, in general terms, that the elasticity of exports to income is more intense and persistent for income than for price. If there is installed capacity, the arrival of orders raises production more and in a more sustained manner than the depreciation of the currency.



compared to others, in that which maximizes its usefulness—GDP, benefit, income—according to the endowment of resources that it has and to the efficiency in its use, derived from all those variables that affect what is usually called business climate.

In the case of exports, the most direct way to measure competitiveness (or at least its evolution) is the quota or share that the country maintains of total trade. As can be observed in the attached graph, according to data from the WTO (World Trade Organization), the weight of Mexican exports in total trade of goods maintained a growing trend since the mid 80's, and this intensified in the mid 90's, but touched the ceiling in 2001. Since then, it has maintained a downward trend. That is, the size of the trade market of goods at a global level grows faster than Mexican sales do. In the case of services trade—transportation, tourism, telecommunications, finances, insurance—a secular declining trend is maintained, precisely in a market of growing dynamism, especially among the most developed countries.

When analysts focus on the main destination for exports of goods, it turns out that over 80% of the total are directed to the United States, a high concentration that makes this section be centered on the analysis of the competitiveness of Mexican exports of manufactured goods to the U.S., the main products and foreign market of Mexico. It is in this type of goods and market where the evolution of competitiveness is determined, the relative advantage of the Mexican economy abroad.

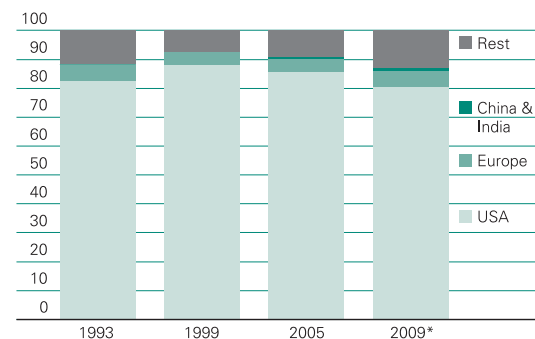
From an aggregate standpoint, it seems that both the signing of the NAFTA—the North American Free Trade Agreement—in 1994 and the entry of China as a global competitor at the beginning of the past decade, are events that marked the trend for competitiveness of Mexican exports to the U.S..

The trade opening process is beneficial for increasing activity, as reflected in the Mexican case, for example, by the signing of the free trade agreement with the European Union in 2000, which came fully into force in 2003 and that has supposed that Mexico has been able to increase the sales of goods destined to that zone (see graph). In this sense, the progress made in the elimination of trade barriers must be welcomed. Thus, Mexico has maintained an intense trade opening policy in recent decades, based particularly on the signing of agreements that will facilitate trade interchange and promote investment. The most important instrument that has been used to achieve these objectives is the signing of Free Trade Agreements (FTA) of which there are 12 in force. Also, signed with 24 countries or groups are Accords of Reciprocal Promotion and Protection of Investment, as well as Agreements to avoid double taxation, in force with 34 countries.

**What has happened with the competitiveness of exports of Mexican manufactures to the U.S. in the last 10 years? Advantages revealed with divergent profiles according to the product**

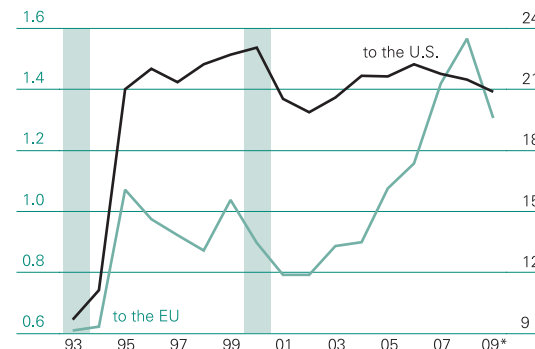
As can be observed in the graph on the previous page, Mexico's share in the manufacturing market of the U.S. grew continuously until the

**Mexico: Destination of Exports of Goods % of total**



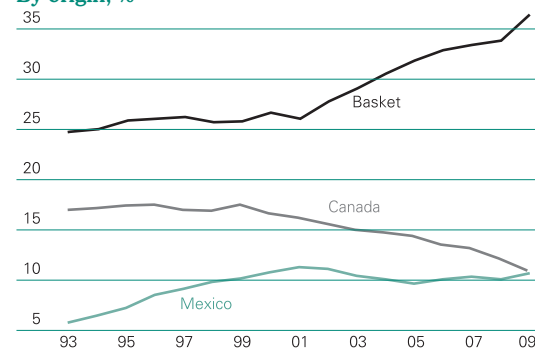
\* Data through November  
Source: BBVA ERD with INEGI data

**Mexico: Exports of Goods % of Mexico's GDP**



\* Data through November  
Note: Shaded areas: free trade agreements signed with the U.S. (1993) and the EU (2000)  
Source: BBVA ERD with INEGI data

**Market Share of Manufactures in the U.S. By origin, %**



\* Data through the third quarter  
Source: BBVA ERD with Trade Stats Express data

## Index of Revealed Competitive Advantage

The IRCA is structured as follows:

$$IRCA_i^a = \frac{M_i^s / \sum_{i=1}^n M_i^a}{M_i^w / \sum_{i=1}^n M_i^w}$$

And where:

$IRCA_i^a$ : Index of Revealed Comparative Advantage for product  $i$  of country  $a$

$M_i^s$ : imports of U.S. of product  $i$  from country  $a$

$\sum_{i=1}^n M_i^a$ : total imports of country's manufactures by the U.S.

$M_i^w$ : U.S. imports of good  $i$  from the world

$\sum_{i=1}^n M_i^w$ : total imports of U.S. manufactures

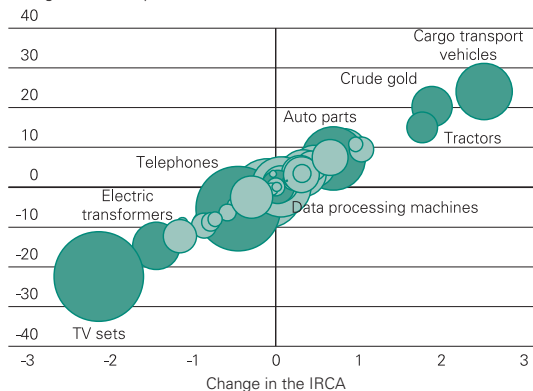
That is, this is about the quota share of each product  $i$  weighted inversely by the total quota of the country in question, in this case Mexico, in total U.S. imports. The revealed advantage, the competitiveness of product  $i$  will be greater the longer the distance between the product quota and the total of the country of origin's share in that of the destination.

If the IRCA > 1 (for example, 1.2) would imply that share of product  $i$  exported by country  $a$  has a higher share (in the sample 20% higher) than its share in all exports considered and, therefore, reveals a comparative advantage.

Source: BBVA ERD

## Mexico; Change in Quotas, IRCA and Weight in Manufactures 1998-2000 vs. 2007-3Q09

Change in market quota in the U.S.



Note: The change in the circles denotes the weight of the product in total Mexican manufacturing exports

Source: BBVA ERD

start of the past decade and, since then, it has remained practically stable until 2009 in which earnings have been posted, derived from increased price competitiveness due to the peso's depreciation against the dollar. The rest of the main suppliers of manufactures to the U.S. have shown diverging performances, with drops in Canada and Japan and a continuous improvement in the group of countries that are Mexico's competitors<sup>4</sup>.

For a more detailed analysis, 72 of the main product categories are being studied, because they represent 85% of Mexican manufacturing exports<sup>5</sup>. Also, in order to study the competitiveness of each product, we are resorting to the Indexes of Revealed Comparative Advantage (IRCA)<sup>6</sup>.

According to Balassa (1965)<sup>7</sup>, the relative exporting performance of a country in a product can reveal the comparative advantage of that product since the trade interchange can reflect relative costs and differences, not necessarily of the market, such as subsidies to exports or tariffs. Thus, this is a particularly useful measure, considering that it is possible to measure the comparative advantage of a country in a specific product in an indirect manner and not necessarily through the analysis of the relative prices that each category faces, which would be extremely complicated to quantify.

Given the construction of the IRCA as a quotient of quotas, the relationship between the change in said index and of the market quota in the U.S. is direct: those products in which the advantage revealed grows are those that have increased their penetration in the U.S. market. In the attached graph, the changes of both variables are placed together, quota of the products and the IRCA between the 1998-2000 and 2007-2008 periods, periods that mark the fall of the penetration of Mexican imports in the U.S. As shown in the graph in which the size of the circle denotes the weight of the product in the total of Mexican manufacturing exports, very diverse situations coexist, with quota gains of 25% in cargo transportation vehicles—4.6% of Mexican manufacturing exports—growths close to 10% in auto parts—6% of sales abroad—and drops between 10% and 30% in telecommunications and TV equipment, respectively, in which the total was 22% of Mexican manufacturing exports in 2009.

4 The basket of countries competing with Mexico is taken based on Chiquiar, Fragoso and Ramos-Francia (2007): The Comparative Advantage and the Performance of Mexican Manufacturing Exports in the 1996-2005 period, Banco de Mexico WP Series No. 2007-12. In this document, the countries within this group are those with a high and significant correlation coefficient with Mexico, in terms of its sectorial patterns of competitive advantage. Those countries competing for the U.S. import market are: China, Taiwan, Thailand, South Korea, Malaysia, Hong Kong, Singapore, Philippines, Indonesia, Hungary, Poland and Portugal.

5 It should be mentioned that the information on foreign trade statistics of Mexico is published according to the classification of the Harmonized System (HS) which is a classification by product, while the Census Bureau uses the International Trade Classification System (ITCS), which is why conversion tables were used for its correspondence to three digits.

6 Based on Balassa (1965), The Changing Pattern of Comparative Advantage in Manufactured Goods. The Review of Economics and Statistics, vol. 61, no. 2, p. 259-266.

7 Balassa, B. (1979). The Changing Pattern of Comparative Advantage in Manufactured Goods. The Review of Economics and Statistics, vol. 61, no. 2, 259-266.

On the other hand, in branches that suppose around 30% of total non-oil exports, both the quota in the U.S. market and in the IRCA have remained unchanged in the period analyzed herein.

Centering the analysis on those goods for which the change in the IRCA is higher and negative, it turns out that these are of a very diverse type, for example, in their technological weight, ranging from telecommunications equipment (telephones) to the manufacture of clothing, passing through television equipment or electronic conductors.

In the attached chart, 15 branches are enumerated with a higher loss in the period under study. Thus, it is possible to relate this loss of competitive advantage with two key factors. On one hand, it seems reasonable to think that lower production costs outside of Mexico have an impact especially on the competitiveness of those products in which the distance to the destination market—transportation costs—is not a significant barrier. In this sense, the integration of productive chains at an international level could also be factor that affects Mexico's share.

### Advantages revealed and basket of competitors

It is interesting to compare Mexico's loss of advantage in specific branches with the earnings of the basket of its close competitors. To mention specific cases, the IRCA, in the case of TV sets, presents a secular declining trend from the beginning of the decade of the 90's, at the same time that these products coming from China increasingly enjoy a greater advantage. A similar case is that of electric conductors where not only China but also the basket of countries competing more directly with Mexico in the U.S.<sup>8</sup> are increasingly positioned as exporters with a greater revealed advantage. Thus, in 5 branches in particular, the loss of Mexico's competitive advantage is directly related with the earnings of the basket of competitors: TV sets, telephony equipment, electric conductors, electric transformers and measuring instruments.

Thus, in one third of Mexico's higher export goods, the measurement of competitive advantage dropped significantly in the period under analysis, while the quota remained at 46%. In the remaining 21% of Mexican exports, an improvement in competitiveness has been produced, especially intense in the manufacture of cargo vehicles and auto parts.

Among the branches with greater gains in the competitiveness indicator, the case of the automobile industry is particularly outstanding, where it should be mentioned that, in contrast with what happened some years ago, some branches of heavy vehicles, such as tractors as well as auto parts, are the ones that have stood out in competitiveness, while automobile manufacturing (7% of the manufacturing exports) have maintained their competitiveness index and have slightly lost their quota in the U.S. (2%). In these three cases, the

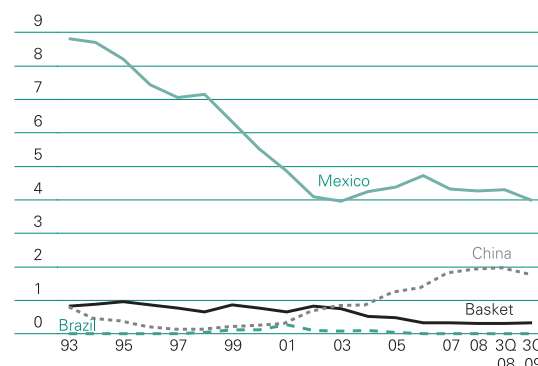
<sup>8</sup> Included separately in the IRCA analysis of Brazil where it is of note that in the case of electric machinery, in addition to the basket of competitor countries of Mexico described previously, Brazil increased its competitive advantage compared with Mexico, also in branches like controlling mechanisms for tanks and heaters.

### Mexico: Greater Losses in Revealed Competitive Advantage 1998-2000 vs. 2007-2009

| IRCA change         |      | IRCA change         |      |
|---------------------|------|---------------------|------|
| TV sets             | -2.1 | Wagons for merchan. | -0.8 |
| Elec. transformers  | -1.4 | Other dress-making  | -0.8 |
| Bathroom furniture  | -1.4 | Coffee              | -0.7 |
| Electric generators | -1.2 | Elec. transformers  | -0.7 |
| Tow trucks          | -1.1 | Copper pipes        | -0.6 |
| Women's clothing    | -0.9 | Radios              | -0.5 |
| Faucets and equip.  | -0.9 | Telephones          | -0.5 |
| Apparel             | -0.9 |                     |      |

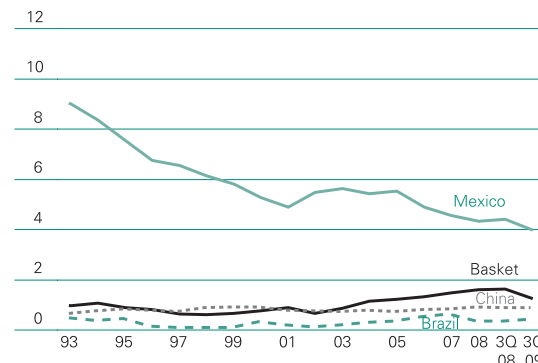
Source: BBVA ERD

### Revealed Competitive Advantage Index: TV Sets



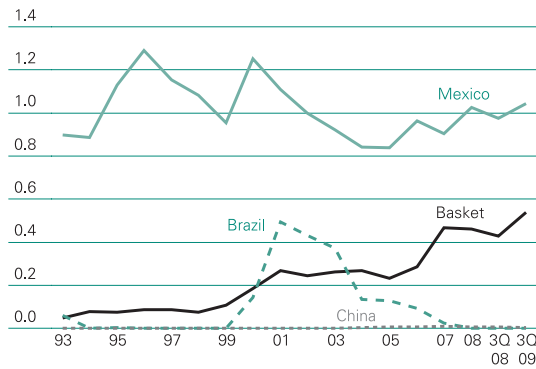
Source: BBVA ERD

### Revealed Competitive Advantage Index: Electric Transformers



Source: BBVA ERD

### Revealed Competitive Advantage Index: Transportation Vehicles

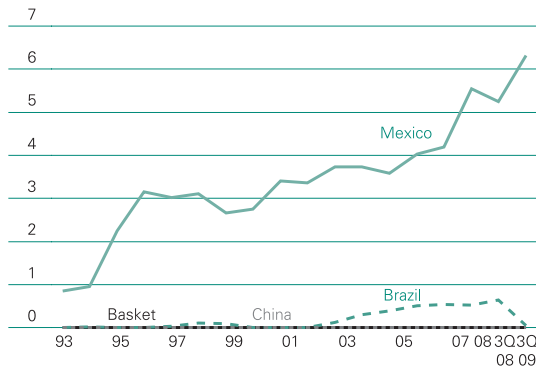


### Mexico: Higher Earnings from Revealed Competitive Advantage 1998-2000 vs. 2007-2009

| IRCA change          |     | IRCA change       |     |
|----------------------|-----|-------------------|-----|
| Cargo transportation | 2.5 | Polyacetates      | 0.7 |
| Crude gold           | 1.9 | Auto parts        | 0.7 |
| Tractors             | 1.8 | Pumps for liquids | 0.7 |
| Silver and platinum  | 1.0 | Fruit and nuts    | 0.7 |
| Candy                | 1.0 | Steel bars        | 0.6 |
| Medical apparatuses  | 0.8 |                   |     |

Source: BBVA ERD

### Revealed Competitive Advantage Index: Cargo Transport Vehicles



competitiveness dynamic of the basket of countries competing with Mexico is significant; while the basket has continuously increased the measure of competitiveness in the automobile branch, in cargo vehicles and in auto parts, Mexico still enjoys a great advantage compared with the basket.

It should be recalled that as of the signing of the NAFTA by Mexico in 1994, more than 15 years ago, the automobile industry was one of the branches that most benefited from the advantage of geographical location and lower production costs. As part of the process of industrial restructuring numerous U.S. firms transferred part or all of their production to Mexico. In the most recent period, however, even though Mexico's market share in the U.S. has not changed much (it is slightly negative), the improvement in competitor competitiveness is a factor of attention. On the other hand, it is significant that Mexico has focused on other products, also in the automobile branch, such as the manufacture of cargo transportation vehicles, tractors and auto parts.

Other branches that have also increased their competitiveness are some that suppose production advantages, because Mexico has favorable endowments and lower transfer costs such as steel, silver and platinum and gold bars.

It seems that the main competitive advantage for Mexico lies in its geographic location. Based on the comparisons of the factors that could be behind the marked improvement in terms of comparative advantage of the basket of competitors vs. Mexico and that most probably reflect improvement in productivity, is the need for Mexico to continue in the process of the second generation of structural reforms. According to different indicators available<sup>9</sup>, it seems that Mexico has been lagging behind countries like China in matters such as efficiency in the labor market, both in terms of direct costs and in terms of inefficient price formation. For example, while China is in 12th place at a world level in terms of setting salaries in accordance with marginal productivity, Mexico is in 99th place. Other areas to improve are those relative to the improvement regarding property rights, public safety, transparency in public administration and a not too efficient legal framework in Mexico.

## 2010, Monetary Pause and Peso Appreciation Margin

In 2010, the central bank will maintain its monetary pause, the long-term rates will have a certain margin of decline and the peso will show an appreciation. In a global environment, cyclically more favorable and financially with lower risk aversion, the Mexican financial variables will continue to reduce their negative differentiation.

**The Mexican financial variables are reducing the negative differentiation that they experienced in 2009. A positive global context would provide an additional margin for improvement**

Since the publication of the previous edition of Mexico Watch three months ago, Mexican financial variables have begun to revert the negative differentiation experienced during the global financial rally that began in March 2009, after the more intense period of the crisis that had begun in September 2008. More recently, in accordance with our scenario, some factors are reducing the appetite for risk in a transitory manner. It is about the doubts regarding the sustainability of the Chinese<sup>1</sup> expansion rate and the concern regarding the fiscal situation of some European countries.

Within this less favorable context, the financial assets of greater risk have shown generalized drops and the sovereign spreads in some countries are posting intense expansions. The differentiation among the markets is changing in line with the macroeconomic risks perceived, that is, greater affectability in Eastern Europe and in some Latin American countries, particularly commodities exporters to China.

In recent months, the Mexican financial variables have tended toward a relatively improved performance. The Mexican Stock Exchange Index—IPC for its Spanish initials—has registered relatively higher earnings in periods of a high appetite for risk, while in periods when it is lower, its losses are relatively lower than those of markets that had been previously differentiated positively (i.e. China and Brazil). The Mexican peso has also shown a relative appreciation compared with other currencies of emerging economies, both in the last month and in the last three months, and the peso's appreciation compares favorably with depreciations that other currencies have had. If the uncertainties regarding a disorderly drop in economic activity in China and the fiscal position of some developed economies is diluted, we believe that Mexican assets, particularly the peso, will continue to consolidate the reduction trend of the negative differentiation that was observed during most of 2009.<sup>2</sup>

As to the risk measures, the performance had been consistent with that of the revaluation of the previously mentioned risky financial assets. Now, on the one hand, the Mexican CDS continues to show a more favorable evolution—a 12.8% decrease in view of a 1.6%

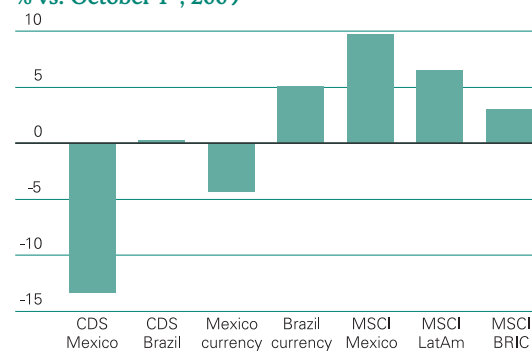
- 1 The authorities increased the reserve requirement for the banks, in an effort to reduce the credit growth rate. This nurtures the fear that this preventive monetary restriction places too much of a brake on one of the sources of global growth. To this is added the perception of the possible existence of bubbles in some assets, which has reduced the exposure to risk in emerging markets.
- 2 In addition, it is considered that the implementation by the central bank of dollar purchase mechanisms in order to increase the reserve level does not influence the exchange rate level. For greater details, see the explanation in the section on the exchange rate.

### 5-Year CDS Index October 1st, 2009 = 100



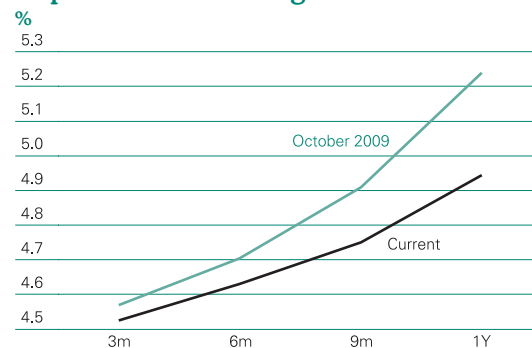
Source: BBVA ERD with Bloomberg data

### Positive Differentiation of the Domestic Financial Variables % vs. October 1st, 2009



Source: BBVA ERD with Bloomberg data

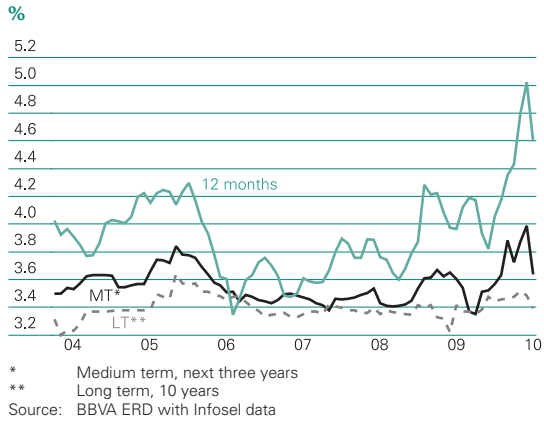
### Market Expectation of Implicit Bank Funding in the IRS Curve



Source: BBVA Bancomer with Valmer data



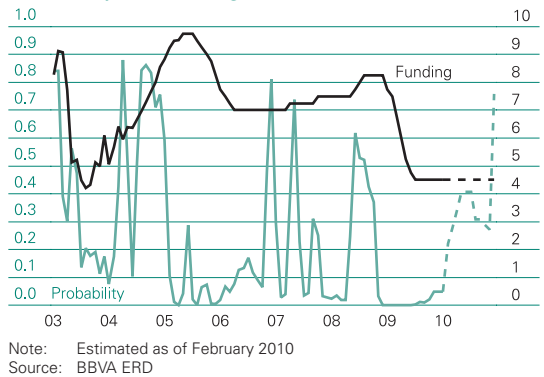
### Inflationary Expectations



### Output Gap and Real Funding Rate



### Ordered-Probit Funding Model: Increase Probability of a funding increase



increase of Brazil in the last three months—; and, on the other, the EMBI+ is consistent with the recent evolution of the global perceived risk. In brief, Mexican financial assets have been closing the broad gap that had been opened with the evolution of the variables of other emerging countries during most of 2009.

### A clearer message from Banxico (the central bank) regarding its monetary position moderates expectations of a rise in interest rates in 2010, bringing them close to the BBVA Economic Research Department (ERD) scenario.

Banco de México (Banxico) has indicated that, in the absence of indirect inflationary effects from public price increases and from indirect taxes, and if inflation expectations remain anchored, the impact on inflation from these transitory shocks should not be counteracted. With this, Banxico clearly established its monetary policy strategy in facing a 2010 period of a foreseeable non-permanent rise in inflation rates. This suggests that, in the coming months, the central bank will continue to evaluate the incoming information and will not be in any hurry to raise interest rates.

As long as the economic recovery is so gradual that the output gap continues on negative ground, something that will be occurring for all of 2010-2011 both for the central bank and for the BBVA ERD, these flexible conditions should reduce the severity of the transfer to the consumer of the change in taxes and public prices<sup>3</sup>. In the scenario described above, Banxico will maintain the monetary pause throughout 2010, although the probability of a rise in the funding rate will increase in the last months of the year when, according to the BBVA ERD scenario, inflation could surpass the average range of the expected inflation by the central bank and, at the same time, the recovery process will be more consolidated. In fact, the quantitative instruments used<sup>4</sup> suggest that the probability that Banxico will not maintain the monetary pause, at least through the first three quarters of the year, is reduced, although it increases to higher levels in the later months of the year (see graph).

The transparency of this monetary position (*“In principle, Banco de México should not counteract the direct impact of fiscal measures on prices”*<sup>5</sup>), influenced not only delaying and reducing market expectations on the tensioning of monetary policy but also on analysts’ perspectives. In December 2009, the consensus anticipated that the first increase in the funding rate would occur at the beginning of the year. Currently, with information through the first week in February, it is considering that it will take place in July.

The central bank’s evaluation on the risk balance for 2010-11 has been consistent in its most recent communication: it remains moderately inclined toward that of higher inflation. The intent of the communication strategy continues to have a clear objective: to keep inflation expectations well anchored. They emphasize the role of “the looseness in the output gap” to mitigate the effect of prices on the change in taxes and public prices. The central bank is

3 Banco de México emphasized that the output gap that will “continue on negative ground in 2010 and 2011” will not only prevent demand pressures but will also limit the effect of the supply shocks.  
 4 See the box inset on a probability assignment model in case of a rate increase by the central bank.  
 5 Presentation by Dr. Agustín Carstens, Banco de México Governor, at the ITAM seminar: Economic Outlook for 2010, January 8, 2010.



expected to maintain a wait-and-see strategy —adopted since its communication on the monetary policy decision of January 15th—: it will not be in any hurry to increase the interest rate, except for an adverse reaction of inflationary expectations and/or an accumulation of shocks that will have a bearing on a new upward revision of inflationary forecasts, —i.e. that the pressure on prices acquires a generalized character—that distances or compromises its inflation target. Thus, the risk balance will continue to justify maintaining the monetary pause throughout 2010.

### The downward space of the yield curve in the medium and long terms is limited

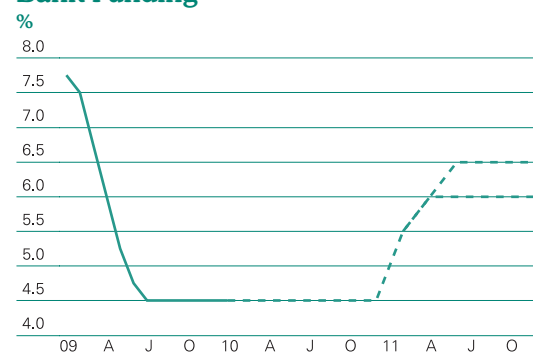
The medium- and long-term rate curve did not decrease in 2009, despite the marked monetary slackening implemented. (See Chart “The Downward Rigidity of M10 in 2009 despite the fact that the Marked Monetary Slackening Implemented Responded to Different Factors at Different Moments”). After the M10 yield increased by more than 250 bp in the autumn of 2008, it was adjusted downward with marked volatility a little before that year ended. Since then, it has continued to fluctuate at around 7.9%, a level slightly lower than that seen in 2008, despite the fact that the funding rate dropped 200 bp on average between 2008 and 2009, from 7.7% to 5.7%.

In the early weeks of 2010, the M10 and M5 interest rates have averaged 7.9% and 7.2%, respectively, with a relatively narrow fluctuation band in terms of global factors (fiscal risk) and lower domestic aversion to risk in view of the imminent economic recovery. Also, the clearer message on the central bank’s monetary policy has favored greater stability. As a result, foreign bond holdings have not only reverted the capital outflows at the end of 2008 and the stagnation throughout the greater part of 2009, but have also reached new highs. Even so, it should be noted that low liquidity is maintained on the secondary market, which has continuously played against the market and put a brake on the drop in earnings.

According to our estimates, there is still a slight downward margin of adjustment in the medium and long segments of the curve throughout the coming months. As expectations of higher economic growth are confirmed with real data throughout 2010 and 2011, and, by this, fears of a fiscal nature decline and, with average oil prices at around 65 dpb (Mexican mix), the appetite for domestic bonds should increase within a context of the continuation of carry-trade strategies on the global markets.

Nevertheless, this downward margin is already limited and could be transitory due to different factors that will be gradually incorporated into investors’ analysis: a) it is foreseeable that the rise in inflation will maintain a relatively high inflationary premium; b) the consolidation of the monetary pause will be accompanied by a higher factoring in of a rise in short-term interest rates at levels closer to the equilibrium (at around 6.0%-6.5%); c) the change in policy with regard to debt issues by Mexico’s Finance Ministry will increase the supply of medium- and long-term bonds, as well as the manner of issuing new series (“Syndicated Bonds”). In addition, there are some risks that are not possible to disdain and which can slow down the drop in domestic yields: 1) a high public deficit that the developed economies are facing could pressure global rates upward; 2) doubts regarding the debt payment capacity of some emerging countries (although Mexico has

### Bank Funding



Note: Estimated as of February 2010  
Source: BBVA ERD

### Government Bond Holdings By Foreigners



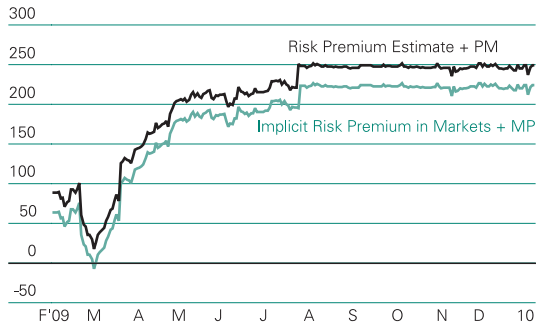
Source: BBVA ERD with Banco de México data

### Liquidity Indicator in M Bonds



Note: Turn-over indicator: securities traded/securities in circulation  
Source: BBVA ERD with Banco de México data

**Structural Risk Premium of the Curve (M10 - 1M) + Effect of Monetary Policy Position**  
Basis points



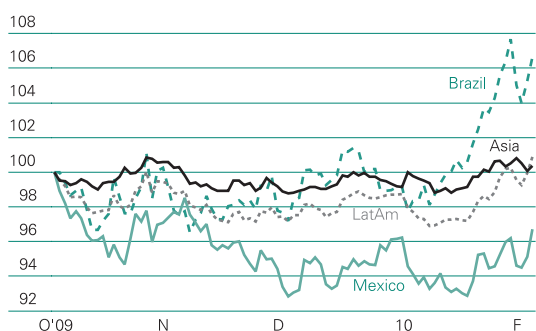
Note: Market risk (10andIRS - 10-year bond) less (3m IRS -3m yield) - adjustment for IRS EIIR Swap Premium.  
Risk Premium Estimate: own (equilibrium risk premium of 50-100bp)  
Source: BBVA ERD

**M10**



Note: Estimated as of February 2010  
Source: BBVA ERD

**Exchange Rate vs. Dollar**  
October 1st, 2009 = 100



Note: LatAm includes Argentina, Brazil, Chile, Colombia, Mexico & Peru  
Asia includes Philippines, South Korea, Taiwan, Singapore, Indonesia and Thailand. Non-weighted averages  
Source: BBVA ERD with Bloomberg data

no problem with regard to the level, composition or financing of its debt); 3) maintaining low liquidity on the secondary market. Taking into account all these factors, it is foreseeable that the M10 yield could fall until it reaches rates close to 7.5% and end 2010 at levels close to 7.6%, all of this with an upward risk.

**The peso maintains a margin of appreciation**

Since the global crisis started and until the end of 2009, the Mexican peso has had an appreciation proportionally lower than that registered by the currencies of other Latin American economies. As the dimension of the U.S. recession became evident, the magnitude with which it would impact the Mexican economy also became clear, which would be the most affected in the region, reopening in a parallel manner matters such as the vulnerability of the Mexican public accounts in this environment. Fiscal uncertainty and fears of a drop in the rating of the country's sovereign had a bearing on the relatively less intense appreciation of the peso during almost the entire year of 2009. Thus, in periods of greater aversion to international risk, the peso lost ground to a greater extent than other emerging currencies. However, during the greater risk asset revaluating cycle, the peso gained against the dollar and the euro, although in a significantly lower proportion than the average and without compensating the previous depreciation.

In the peso quotation, the market anticipated the unfavorable context of the Mexican economy, in such a way that when, in November and December 2009, two rating companies reduced the sovereign debt rating, the peso did not have a reaction. It even started a favorable performance, probably linked to the fact that the doubts on changes in the rating would dissipate in the near future, not only by maintaining a stable outlook in face of the previous negative one, but also by anticipating few structural changes in its evaluation. Since the end of 2009, within a context of greater certainty on the economic recovery in the United States and in Mexico, and in view of the strong asset revaluation of other emerging markets, the Mexican peso has shown a positive differentiation against the rest of the currencies, both in an environment of lower risk aversion and in sporadic periods of a lower appetite.

Notwithstanding the recent stability of the Mexican currency, as opposed to what has happened to the currencies of other emerging economies, the peso is still quite depreciated compared to the levels it had prior to the financial crisis in the autumn of 2008. The favorable cyclical profile that the Mexican economy is facing in line with that of the U.S., the higher appetite for risk and the return of capital flows, financial stability, carry-trade opportunities and Mexico's reduced exposure to demand coming from emerging economies are factors that are supporting the revaluation of the peso. Also, the Mexican currency is still depreciated compared to its equilibrium level, consistent with the growth differential, inflation and rates and it is estimated that it stands at between 11.5 and 12.5 pesos per dollar. This assumes a support factor, so if the negative differentiation continues to decrease, the currency could tend to appreciate at least toward the high part of that range. Nevertheless, in the short term financial volatility could be prolonged, in hopes of greater certainty as to the strength of the economic recovery and of the final resolution on the new proposals for regulation of the financial system.

### Mechanisms of accumulation of reserves: no impact on the peso/dollar exchange rate

Throughout 2009, different steps were taken to assure the financing supply in dollars in the Mexican economy and, at the same time, facing possible pressure on the exchange rate. Thus, Banco de México intervened on the market by selling over US\$14 billion from the reserves in 2009 and opened, together with other central banks, a swap line for US\$30 billion with the Fed, of which it only used US\$3.2 billion. In addition, the IMF made available a credit line of US\$47.0 billion. These steps, among others, sought jointly to minimize the currency exchange pressure, as well as to dilute the uncertainty regarding the financing of the Balance of Payments.

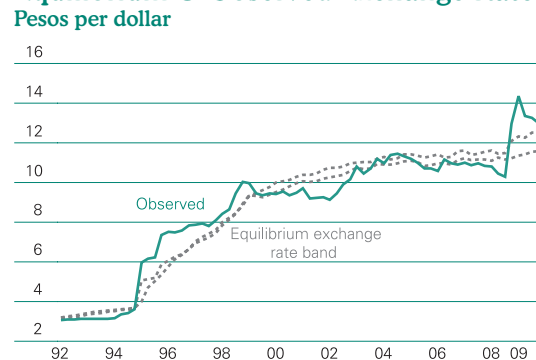
In a context of lower financial and currency exchange tensions for the peso, Banco de México announced the conclusion of the swap line with the Federal Reserve, at the same time that it is proposing the renewal or not of the credit line with the IMF. In this situation, the Governor of the central bank (Banco de México) has declared that the Foreign Exchange Commission is studying the possibility of implementing dollar purchase mechanisms in the market as part of a plan to boost the International Reserves (IR).<sup>6</sup> The Governor indicated that the Foreign Exchange Commission could utilize a dollar purchase mechanism through options, such as that used by the central bank during the 1996-2001 period. The plan does not seek to set an objective for the exchange rate and would have clearly defined rules ex ante to annul the possibility of discretionality.

The option mechanism used between 1996 and 2001 provided commercial banks the right to sell U.S. dollars to Banco de México, if certain conditions were complied with. The strike price of the put option was not fixed. If the right of sale was exercised, the strike price would be at the “fix exchange rate” of the previous working day and the latter would have to be lower (a more appreciated peso) than the average of the previous 20 working days. The aim of these rules is to accumulate International Reserves when market conditions generate a sufficient dollar supply, although at the same time, impeding the central bank from purchasing dollars when a pressure situation on the exchange rate was present.

From August 1996 to June 2001, Banxico accumulated US\$12.2 billion of IR under this options sale mechanism. The amount is equivalent to 75% of the total options auctioned and contributed close to 30% of the total increase of the reserves in that period. The analysis conducted by the BBVA ERD (Economic Research Department), consistent with the work documents of Banco de México<sup>7</sup>, suggests that the implementation of this mechanism did not have an influence on the peso/dollar exchange rate. We even found evidence that in the period when the options were exercised, the exchange rate tended to appreciate. In this way, the execution of a similar mechanism would not have an impact on the expected development of the exchange rate, determined by the previously indicated factors. In any case, an intervention with these characteristics could limit the initial boost for the appreciation of the peso that could occur, which would only propitiate a less volatile performance in its evolution and in line with the projected appreciation scenario.

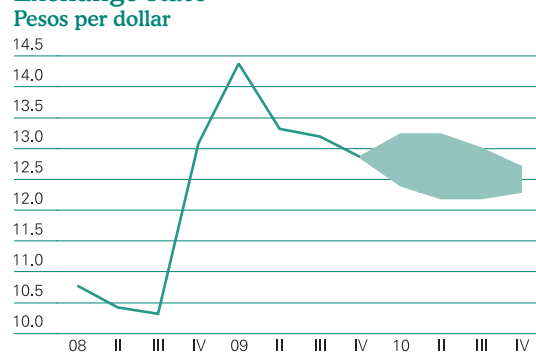
6 There is no reason for this possible intervention to annul the availability of US\$250 million in auctions, when the peso registers depreciation of over 2.0% compared to the day before.  
 7 For example, see Werner (1997).

### Equilibrium & Observed Exchange Rate



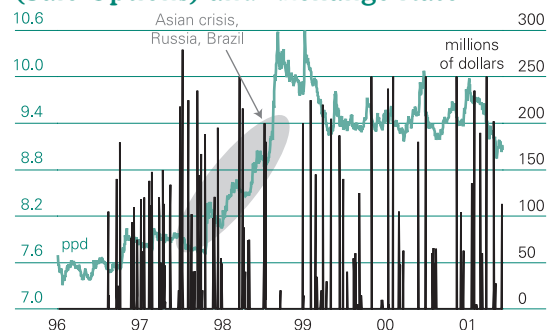
Source: BBVA ERD

### Exchange Rate



Note: Estimated as of first quarter 2010  
 Source: BBVA ERD

### Dollar Purchases by the Central Bank (Sale Options) and Exchange Rate



Source: BBVA ERD with Banco de México data

## Probability Model of Movements in Banco de México Rates

### Monetary interest rates: inertial, with discreet and gradual movements

One of the main goals of monetary policy rules is to approximate the implementation of short-term rate policies, for example through Taylor Rules<sup>1</sup>. In general, these approximations adequately reflect the average behavior of short-term interest rates, the main monetary policy instrument of central banks that have a monetary policy based on inflation targets—such as is the case with the Banco de México (Banxico)—or those with dual goals (inflation and economic growth)—as occurs with the U.S. Federal Reserve<sup>2</sup>. However, focusing on the level of the interest rate with instruments that provide averages poses the problem that the rate is modified infrequently and discreetly, usually in multiples of 25 basis points (bp)<sup>3</sup>.

Monetary policy is characterized by three interrelated empirical regularities<sup>4</sup>: (i) inertia, which refers to the fact that even with the incorporation of new economic information, interest rates are not very often adjusted; (ii) stepping, when a central bank modifies interest rates, doing so in a series of discreet changes, typically in multiples of 25 bp that usually fluctuate between -75 bp and 75 bp; and (iii) gradualism, in which the main monetary policy instrument is modified, with the fluctuation occurring in a series of small changes instead of fewer but more significant variations. Thus, even though modifications of 50 bp or more are introduced, the great majority of the monetary policy variations follow a series of discreet 25 bp adjustments in the same direction. This phenomenon is commonly referred to as smoothing. In the case of Mexico, this behavior of the funding rate has been clear since 2005, when Banxico (the central bank) abandoned the use of the money market short to influence interest rates levels, and began to directly establish the level of the funding rate.

### Ordered Probit, measuring the probability of discreet movements in interest rates

To reflect this discreet behavior of the changes in interest rates in a monetary policy rule, a qualitative election model, an Ordered Probit, will be used. In this model a probability is assigned to which the dependent variable

—in the case at hand, the discreet change in the interest rate—assumes some specific ordered values, in this case in three categories.

A dynamic Ordered Probit model was considered in which the resulting interest rate is estimated based on the probability that at any given moment in time Banxico might or might not modify the funding rate (upward or downward). The dependent variable involves three discreet values, 0, 1 and 2, depending on whether the interest rate was reduced by at least 25 bp, left unchanged, or increased by at least 25 bp<sup>5</sup>. The selection of the relevant variables in terms of the discreet reaction of monetary policy was based on the type of variables considered in the traditional Taylor Rules: deviations in activities and prices regarding the central bank targets. It is assumed that Banxico formulates its monetary policy decisions in accordance with the following equation:

$$\Delta i_t = f((\pi_{t-1} - \pi^{\wedge}_{t-1}), (\pi_{t-2} - \pi^{\wedge}_{t-2}), Y_{t-1}, i_{t-1}) \quad (1)$$

in which  $\Delta i_t$  is the change in the funding rate,  $\pi$  is observed inflation,  $\pi^{\wedge}$  is the upper limit of the variability range of the central bank target of 3.0% +/- 1 p<sup>6</sup>,  $\pi - \pi^{\wedge}$  is a dichotomic variable that assumes a value of 0 when  $\pi - \pi^{\wedge}$  is <0 and one of 1 when  $\pi - \pi^{\wedge}$  is >0,  $Y$  is the inter-annual variation of the IGAE—the economic activity indicator—and  $i$  is the funding rate.

Let us consider Banxico's not observed funding rate target,  $\Delta i_t^{\wedge}$ , whose changes respond to:

$$\Delta i_t^{\wedge} = X_t \beta + \varepsilon_t \quad \varepsilon_t \sim N(0, \sigma_{\varepsilon}^2) \quad (2)$$

in which  $X_t$  denotes the set of explanatory variables in equation (1). Then, it is assumed that the funding rate changes in accordance with the following rule:

$$\begin{aligned} \Delta i_t &= 0 & \text{if} & \quad i_t^{\wedge} < i_{t-1} - \alpha_1 \\ \Delta i_t &= 1 & \text{if} & \quad i_{t-1} - \alpha_1 < i_t^{\wedge} < i_{t-1} - \alpha_2 \\ \Delta i_t &= 2 & \text{if} & \quad i_t^{\wedge} < i_{t-1} + \alpha_2 \end{aligned} \quad (3)$$

1 See Taylor, ed (1999) and Orphanides (2007)  
 2 See Bernanke et. al. (1999) and Taylor (1999)  
 3 See Genberg et. al. (2004)  
 4 See Brooks et. al. (2008)

5 The number of possible values that a dependent variable can assume can be extended i.e., discriminating between changes of +/-50 and +/-25 bp. However, a larger number of categories could lead to an overlapping of the estimated thresholds.  
 6 The medium range of inflation projected by Banxico published in its Quarterly Inflation Reports is considered as an upper limit since 1Q08 because it generates better results.

In this case, the first (third) equation in (3) indicates that the observed funding rate will diminish (or will increase) when the target funding rate is significantly lower (greater) than the rate observed in the previous month. The model involves the unknown threshold parameters<sup>7</sup>  $\alpha_1$  and  $\alpha_2$  as well as the vector of parameters  $\beta$ , all estimated as to maximum plausibility<sup>8</sup>.

### The estimated probabilities reflect the movements in the Banxico rates

The table shows the results of the estimates (2003-2009 monthly data). The parameters are statistically significant and show the correct sign. That both the parameter coefficient ( $\pi_{t-1} - \pi_{t-1}^{\wedge}$ ) as well as ( $\pi_{t-2} - \pi_{t-2}^{\wedge}$ ) are high can be taken as an indication that for the central bank the deviation of inflation in relation to the upper limit of the target (and/or with regard to the average range of the projected evolution of price increases) is important, as is the persistence of this deviation.

### Ordered Probit Estimate of Banco de México's Reaction Function

Period of the sample; January 2003 - December 2009

| Explicative Variables              | Coef.  | Std. error |
|------------------------------------|--------|------------|
| $(\pi_{t-1} - \pi_{t-1}^{\wedge})$ | 1.307  | 0.376      |
| $(\pi_{t-2} - \pi_{t-2}^{\wedge})$ | 1.144  | 0.373      |
| $Y_{t-1}$                          | 0.177  | 0.047      |
| $i_{t-1}$                          | -0.486 | 0.126      |
| Threshold parameters               |        |            |
| $\alpha_1$                         | -3.694 | 0.895      |
| $\alpha_2$                         | -1.156 | 0.794      |
| Observations                       | 84     |            |
| LR statistic                       | 53.154 |            |
| Pseudo-R <sup>2</sup>              | 0.340  |            |

Note: The standard errors are Huber/White  
Source: BBVA Bancomer

<sup>7</sup> Threshold parameters

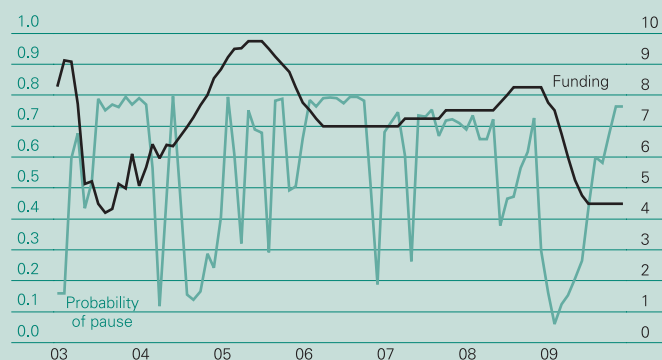
<sup>8</sup> It is important to note that given that the independent variable assumes three values (0, 1, and 2), there are only two cut points (i.e.,  $\alpha_1$  and  $\alpha_2$ ), and that the probabilities estimated at any point in time total one.

If inflation deviates from the threshold, Banxico will react, and it will do so more intensively to the extent that this deviation is more persistent. As would be expected, since the central bank's only goal is price stability, the  $Y_{t-1}$  parameter indicates that the reaction to changes in the inter-annual variation in economic activity is consistent with the Taylor Rule (i.e., an increase in economic growth would push rates upward, while decreased growth would tend to induce a decline). Finally, the negative sign of the  $i_{t-1}$  parameter could suggest that as the Banco de México implements a restrictive or relaxed monetary policy, the probability that this cycle will continue diminishes as time passes.

The graphs show the behavior of the funding rate observed in response to the probability estimated by the Ordered Probit model of at least a 25 bp decrease, no change, or of at least a 25 bp increase in the funding rate.

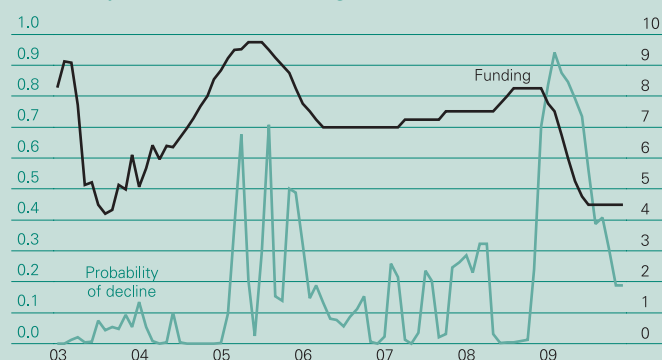
### Ordered Probit Funding Rate Model: Pause

Probability of a pause in the funding rate



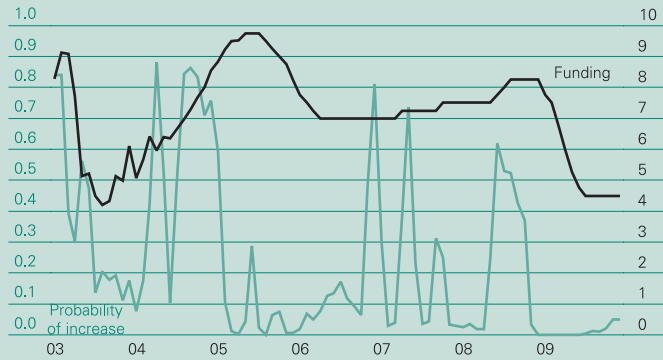
### Ordered Probit Funding Rate Model: Decline

Probability of a decline in funding rate





**Ordered Probit Funding Rate Model: Increase**  
 Probability of an increase in the funding rate



Source: BBVA Bancomer

As can be seen, during the period encompassed by the sample, the probability of a monetary pause tends to be the highest. This is consistent with the previously mentioned inertia. During the estimated period, the central bank kept the funding rate unchanged on 48 occasions (at 57% of the meetings on monetary policy decision), lowered it by at least 25 bp 16 times (19% of the meetings), and raised it by at least 25 bp in 20 meetings (24% of the total).

Although the model tends to suggest that no changes will be introduced in the funding rate, it also anticipates and indicates the moment in time in which a modification in the central bank’s monetary policy is most probable, either to begin a relaxation cycle or to initiate a stage of monetary restriction. For example, both in the August 2005–April 2006 downside cycles as well as in the most recent January–July 2009 cycle, the probability of a pause diminished significantly at the same time that the likelihood of a decline in the funding rate rose considerably. In a similar manner, during the restrictive cycle of February 2004–March 2005 and when the preventive increases were applied during 2007 and 2008—which did not end up representing a monetary cycle—the probability of a rise estimated by the model grew significantly prior to when these increases occurred. For the case of the increases, it would appear that when the model indicates a probability of around 30–40% or higher, it tends to an-

ticipate that Banco de México will raise interest rates. In terms of the declines, the threshold seems to be higher, a probability of around 40–50%, and it would appear that both the relaxation cycle of 2005 as well as that of 2009, were anticipated by the increase in this probability.

**In Conclusion**

Banxico has followed a strategy of not making many changes in monetary policy in response to incoming information (inertia). Nevertheless, in response to certain developments that could become particularly adverse—i.e., if the continuous increase in inflation in an expansive cycle such as in 2008 had contaminated inflation expectations—the central bank would tend to adopt a flexible monetary policy and with a focus on risk management would begin a stage of gradual upward movements. The estimated Ordered Probit model appears to anticipate and indicate when a change in monetary policy could occur. It is one more instrument in the analysis of the central bank’s performance that joins others such as the Taylor Rules in their different specifications or in following Banco de México’s communication policies in the economic context that emerges at each moment in time.

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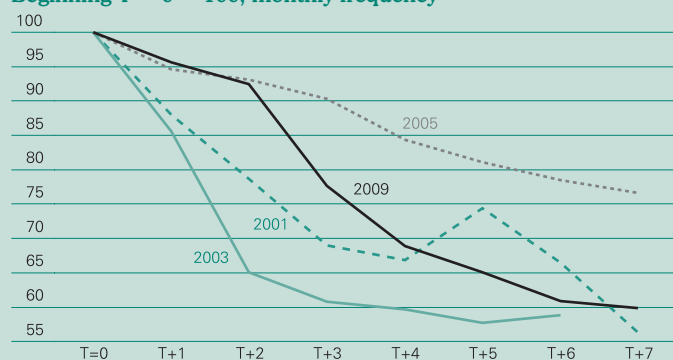
## Long-term Rates: Why Their Downward Rigidity in 2009

### In 2009 long-term rates did not respond to the sharp drop in short-term rates with declines of their own

In its latest monetary relaxation cycle, the central bank began to reduce the funding rate in January 2009. Our monetary policy estimates had already suggested at the time—with our base scenario on inflation and growth at that moment—that the reduction in short-term interest rates would be significant. Between January and July, Banco de México reduced the funding rate by 375 bp. The expansive monetary approach has been one of the most aggressive implemented thus far if we consider not only the scope of the reduction in short-term interest rates, but also that, in some months, these rates were negative *ex post* in real terms for the first time in a cycle of monetary relaxation.

### Monetary Relaxation Cycles

Beginning T = 0 = 100; monthly frequency



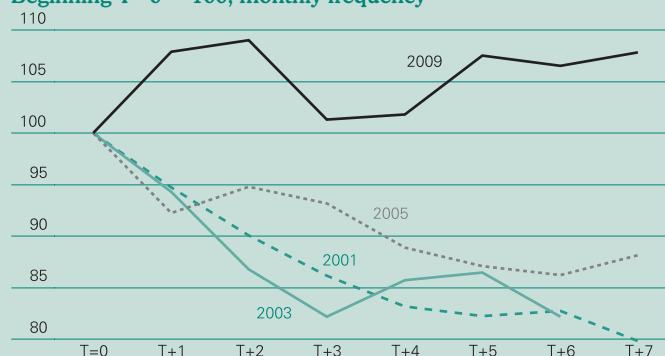
Source: BBVA Bancomer

Despite the significant reduction in the funding rate, the M10 interest rate not only did not diminish, but rather increased moderately and kept fluctuating within a narrow range during the relaxation cycle as well as when it ended (see graph). The average interest rate during the four quarters of 2009 was 8.0%, 7.9%, 8.1%, and 8.0%, respectively. This evolution clearly contrasts with that of previous relaxation cycles of monetary policy. Although it is normal that the slope of the yield curve increases during these cycles, this growth usually responds to the decrease in long-term interest rates being less pronounced than that of short-term interest rates. For example, on average in the three previous monetary relaxation cycles, the slope increased 22% (versus a 47% rise during the course of the monetary relaxation cycle in 2009). In the three previous cycles the M10 rate

diminished 15% on average, slightly more than a third of the reduction in the short-term interest rates. Had the M10 evolved congruently with the previous expansive monetary cycle policies, its rate would have diminished to levels of around 7.0% toward the end of last year.

### Evolution of the M10 during the Monetary Relaxation Cycles

Beginning T=0 = 100; monthly frequency



Source: BBVA Bancomer

### Global risk aversion and domestic uncertainties prevented the M10 rate from falling during 2009

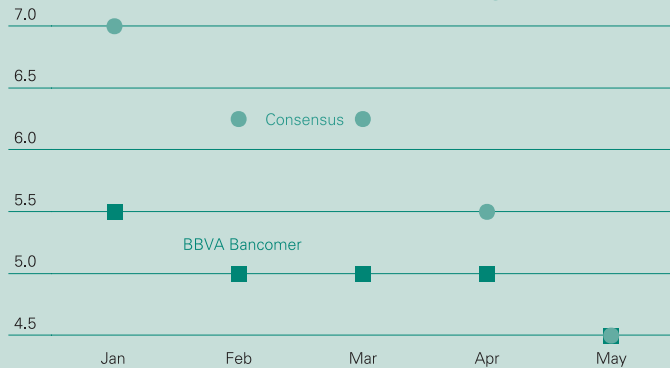
After the M10 rate increased by more than 250 bp during the 4Q08, it adjusted downwardly with strong volatility prior to the end of the year (and before the monetary policy relaxation began). From then on, during 2009, the rate kept fluctuating at around 8.0%, a level slightly lower than during 2008, although the bank funding rate fell 200 bp on average between 2008 and 2009, from 7.7% to 5.7%, and it diminished 325 bp from 8.25% to 4.50% during the first seven months of 2009.

In the beginning, during the 1Q09, two factors were decisive in the downward rigidity of the M10 rate. In the first place, the market did not anticipate strong reductions in the funding rate. Secondly, risk aversion experienced renewed growth during January-February 2009. With regard to the first factor, in our opinion, communication, as well as the doubts that could have been transmitted to the economic agents due to the different levels of rate reductions at the beginning of the relaxation cycle in the 1Q09 (-50 bp in January, -25 bp in February, and -75 bp in March), prevented transferring the Board of Governor's preferences on how to deal with the severe recession that analysts' consensus had already anticipated at the time. This partially explains why, by not factoring in

strong and permanent changes in the short-term rates (the market was always behind the curve), the effect of the monetary policy in the long end of the curve was less than it could have been.

### Funding Rate Estimates

BBVA Bancomer vs. the consensus, 2009, end of period



Source: Banamex surveys

With regard to the second factor at the time (1Q09), in the early months of 2009, risk aversion in the markets again intensified. The uncertainty surrounding the operation of the financial system affected financial assets of greater risk. Thus, in February the peso depreciated significantly in relation to the U.S. dollar, with the exchange rate closing the month at 15.3 pesos per dollar. This weakness of the peso posed, on the one hand, a risk for the trend for inflation to converge with the evolution anticipated by the central bank. On the other hand, there was no appetite for risk in the markets and the financial variables, among them the M10 rate, felt the effect. As a result, foreign investor bond holdings maintained their downtrend during January-February 2009.

Subsequently, during the 2Q-3Q09 other factors began to enter into play that prevented the decline in long-term interest rates. The liquidity of long-term bonds in the secondary market diminished considerably and remained close to its minimum levels during this period<sup>1</sup>. Moreover, the global markets made an important negative differentiation with regard to Mexican financial variables, which limited their margin for improvement during this period. The rally that resulted from the abundance of liquidity and the return of an appetite for risk in response to a certain degree of optimism in relation to the economic recovery and the search for higher yields, benefited Mexican financial variables to a lesser extent. The peso appreciated significantly less than other currencies, while foreign investment flows, including those earmarked for the bond market, reached Mexico much more incipiently than was the case in other countries.

In the final part of the year, the uncertainty regarding the impact of the fiscal policy changes on inflation—which caused an increase in the inflation premium—and with regard to the downgrade in the sovereign debt rating anticipated by the markets—which led to an increase in the risk premium—worked against a decline in long-term rates toward the end of the 3Q09 and during the 4Q09. Finally, already at that time, the consolidation of the monetary pause implied from then on a greater factoring in of a rise in short-term interest rates at levels closer to the equilibrium (around 6.0%-6.5%).

<sup>1</sup> Our turnover index (ratio of shares traded/free float) remained at around 1.3%, that is, it reflected a liquidity of less than half the level that prevailed in the 1H08, before the financial crisis.

## United States Indicators and Forecasts

|   | 2008   | 2009         | 2010          | I'09   | II'09  | III'09 | IV'09        | I'10          | II'10         | III'10        | IV'10         |
|---|--------|--------------|---------------|--------|--------|--------|--------------|---------------|---------------|---------------|---------------|
| <b>Economic Activity</b>                        |        |              |               |        |        |        |              |               |               |               |               |
| GDP (US\$ billions)                             | 14,441 | 14,259       | <b>14,798</b> | 14,178 | 14,151 | 14,242 | 14,463       | <b>14,657</b> | <b>14,737</b> | <b>14,785</b> | <b>15,012</b> |
| Nominal growth (%)                              | 2.6    | -1.3         | <b>3.8</b>    | -1.4   | -2.4   | -2.1   | 0.8          | <b>3.4</b>    | <b>4.1</b>    | <b>3.8</b>    | <b>3.8</b>    |
| Real growth (%)                                 | 0.4    | -2.4         | <b>1.9</b>    | -3.3   | -3.8   | -2.6   | 0.1          | <b>1.7</b>    | <b>2.4</b>    | <b>2.3</b>    | <b>1.1</b>    |
| GDP deflator                                    | 2.1    | 1.2          | <b>2.3</b>    | 1.9    | 1.5    | 0.6    | 0.7          | <b>2.6</b>    | <b>2.6</b>    | <b>2.2</b>    | <b>1.8</b>    |
| Personal consumption (real % change)            | -0.2   | -0.6         | <b>1.4</b>    | -1.5   | -1.7   | -0.2   | 1.1          | <b>1.3</b>    | <b>1.8</b>    | <b>1.4</b>    | <b>1.2</b>    |
| Government consumption (real % change)          | 3.1    | 1.9          | <b>1.5</b>    | 1.7    | 2.5    | 1.9    | 1.6          | <b>2.7</b>    | <b>1.3</b>    | <b>0.9</b>    | <b>1.0</b>    |
| Gross fixed investment (real % change)          | -5.1   | -18.4        | <b>-0.9</b>   | -18.8  | -21.0  | -19.5  | -14.1        | <b>-3.3</b>   | <b>-0.2</b>   | <b>0.2</b>    | <b>-0.2</b>   |
| Construction <sup>1</sup>                       | -22.9  | -20.4        | <b>5.2</b>    | -23.9  | -25.6  | -18.9  | -12.1        | <b>0.1</b>    | <b>8.3</b>    | <b>5.8</b>    | <b>7.0</b>    |
| Industrial production (real annual % change)    | -2.2   | -9.6         | <b>-7.6</b>   | -11.6  | -12.9  | -9.3   | -4.5         | <b>-7.6</b>   | <b>-7.6</b>   | <b>-7.6</b>   | <b>-7.6</b>   |
| <b>External Sector (constant US\$ billions)</b> |        |              |               |        |        |        |              |               |               |               |               |
| External balance                                | -708   | <b>-390</b>  | <b>-283</b>   | -417   | -396   | -433   | <b>-464</b>  | <b>-240</b>   | <b>-288</b>   | <b>-367</b>   | <b>-296</b>   |
| Total exports                                   | 1,831  | <b>1,560</b> | <b>1,251</b>  | 1,509  | 1,494  | 1,574  | <b>1,663</b> | <b>1,275</b>  | <b>1,284</b>  | <b>1,253</b>  | <b>1,190</b>  |
| Total imports                                   | 2,539  | <b>1,950</b> | <b>1,534</b>  | 1,888  | 1,833  | 1,976  | <b>2,104</b> | <b>1,500</b>  | <b>1,557</b>  | <b>1,609</b>  | <b>1,471</b>  |
| Current account balance (% of GDP)              | -4.9   | <b>-3.0</b>  | <b>-2.0</b>   | -2.9   | -2.8   | -3.0   | <b>-3.2</b>  | <b>-1.6</b>   | <b>-2.0</b>   | <b>-2.5</b>   | <b>-2.0</b>   |
| <b>Prices (annual % change)</b>                 |        |              |               |        |        |        |              |               |               |               |               |
| Final annual inflation                          | 0.1    | 2.7          | <b>1.2</b>    | -0.4   | -1.4   | -1.3   | 2.7          | <b>2.4</b>    | <b>1.9</b>    | <b>1.7</b>    | <b>1.2</b>    |
| Average annual inflation                        | 3.8    | -0.4         | <b>2.0</b>    | 0.0    | -1.2   | -1.6   | 1.4          | <b>2.3</b>    | <b>2.4</b>    | <b>1.8</b>    | <b>1.3</b>    |
| <b>Other Indicators</b>                         |        |              |               |        |        |        |              |               |               |               |               |
| Primary fiscal balance <sup>2</sup> (% of GDP)  | -3.2   | -9.9         | <b>-10.7</b>  | —      | —      | —      | -9.9         | —             | —             | —             | <b>-10.7</b>  |

1 Residential investment

2 Fiscal Balance (% of GDP)

Note: forecasts in **bold**

## Mexico Indicators and Forecasts

|   | 2006  | 2007  | 2008   | 2009         | 2010         | I'09  | II'09 | III'09 | IV'09        | I'10         | II'10        | III'10       | IV'10        |
|---|-------|-------|--------|--------------|--------------|-------|-------|--------|--------------|--------------|--------------|--------------|--------------|
| <b>GDP (seasonally-adjusted series)</b>                                 |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Real annual % change  | 5.1   | 3.3   | 1.4    | <b>-6.8</b>  | <b>3.8</b>   | -9.0  | -8.9  | -6.3   | <b>-2.9</b>  | <b>4.9</b>   | <b>5.6</b>   | <b>2.9</b>   | <b>1.8</b>   |
| Per inhabitant (US dollars)   | 9,075 | 9,687 | 10,292 | <b>8,110</b> | <b>8,880</b> | 7,439 | 7,893 | 8,501  | <b>8,606</b> | <b>8,497</b> | <b>8,583</b> | <b>9,102</b> | <b>9,337</b> |
| US\$ billions   | 952   | 1,025 | 1,098  | <b>872</b>   | <b>963</b>   | 800   | 849   | 914    | <b>926</b>   | <b>921</b>   | <b>930</b>   | <b>987</b>   | <b>1,012</b> |
| <b>Inflation (average, %)</b>   |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Headline  | 3.6   | 3.8   | 5.1    | 5.3          | <b>4.6</b>   | 6.2   | 6.0   | 5.1    | 4.0          | <b>4.3</b>   | <b>4.2</b>   | <b>4.4</b>   | <b>5.3</b>   |
| Core <sup>1</sup>   | 3.5   | 3.8   | 4.9    | 5.3          | <b>4.9</b>   | 5.8   | 5.6   | 5.1    | 4.7          | <b>4.7</b>   | <b>4.9</b>   | <b>5.0</b>   | <b>5.2</b>   |
| <b>Financial Markets (eop, %)</b>                                       |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Interest rates  |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Bank funding  | 7.0   | 7.5   | 8.3    | 4.5          | <b>4.5</b>   | 6.8   | 4.8   | 4.5    | 4.5          | <b>4.5</b>   | <b>4.5</b>   | <b>4.5</b>   | <b>4.5</b>   |
| 28-day Cetes  | 7.2   | 7.4   | 8.0    | 4.5          | <b>4.6</b>   | 7.0   | 5.0   | 4.5    | 4.5          | <b>4.5</b>   | <b>4.5</b>   | <b>4.5</b>   | <b>4.6</b>   |
| 28-day TIEE   | 7.5   | 7.9   | 8.7    | 4.9          | <b>4.9</b>   | 7.7   | 5.3   | 4.9    | 4.9          | <b>4.9</b>   | <b>4.9</b>   | <b>4.9</b>   | <b>4.9</b>   |
| 10-year Bond (average)  | 8.4   | 7.8   | 8.4    | 8.0          | <b>7.7</b>   | 8.0   | 7.9   | 8.1    | 7.9          | <b>7.9</b>   | <b>7.7</b>   | <b>7.5</b>   | <b>7.6</b>   |
| Exchange rate (average)   |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Pesos per dollar  | 10.9  | 10.9  | 11.1   | 13.5         | <b>13.0</b>  | 14.4  | 13.3  | 13.3   | 13.1         | <b>13.2</b>  | <b>13.2</b>  | <b>13.0</b>  | <b>12.7</b>  |
| <b>Public Finances*</b>   |       |       |        |              |              |       |       |        |              |              |              |              |              |
| FRPS (% of GDP)   | 0.1   | -1.1  | -2.1   | -3.0         | <b>-3.7</b>  | 0.0   | 0.0   | --     | -3.0         | --           | --           | --           | <b>-3.7</b>  |
| <b>External Sector<sup>2</sup></b>                                      |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Trade balance (US\$ billions)   | -6.1  | -10.1 | -17.3  | -4.7         | <b>-14.7</b> | -2.0  | 0.8   | -3.1   | -0.4         | <b>-0.7</b>  | <b>-2.2</b>  | <b>-6.3</b>  | <b>-5.4</b>  |
| Current account (US\$ billions)   | -4.4  | -8.4  | -15.9  | <b>-4.1</b>  | <b>-13.5</b> | -3.5  | 0.9   | -1.9   | <b>0.4</b>   | <b>-1.2</b>  | <b>-2.4</b>  | <b>-5.1</b>  | <b>-4.8</b>  |
| Current account (% of GDP)  | -0.5  | -0.8  | -1.5   | <b>-0.5</b>  | <b>-1.4</b>  | -0.4  | 0.1   | -0.2   | <b>0.0</b>   | <b>-0.1</b>  | <b>-0.3</b>  | <b>-0.5</b>  | <b>-0.5</b>  |
| Oil (Mexican mix, dpb, eop)   | 53.1  | 61.7  | 84.4   | 57.7         | <b>63.3</b>  | 39.4  | 60.1  | 64.1   | 70.3         | <b>66.0</b>  | <b>61.7</b>  | <b>60.3</b>  | <b>65.3</b>  |
| <b>Employment</b>   |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Formal Private (annual % change)  | 3.2   | 14.0  | 2.0    | -3.1         | <b>2.2</b>   | -2.3  | -3.8  | -3.9   | -2.5         | <b>0.9</b>   | <b>2.2</b>   | <b>2.8</b>   | <b>2.8</b>   |
| Open Unemployment Rate (% active pop.)                                  | 28.1  | 3.7   | 4.0    | 5.5          | <b>5.2</b>   | 4.8   | 5.7   | 5.9    | 5.8          | <b>5.6</b>   | <b>5.3</b>   | <b>5.1</b>   | <b>4.9</b>   |
| <b>Aggregate Demand<sup>4</sup> (ann. % chge., seasonally-adjusted)</b> |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Total   | 6.9   | 4.2   | 2.2    | <b>-10.2</b> | <b>4.3</b>   | -12.5 | -13.6 | -10.3  | <b>-4.1</b>  | <b>5.2</b>   | <b>7.3</b>   | <b>3.4</b>   | <b>1.7</b>   |
| Domestic demand   |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Consumption   | 6.2   | 4.3   | 2.1    | <b>-6.1</b>  | <b>3.6</b>   | -6.9  | -9.0  | -6.3   | <b>-1.9</b>  | <b>5.3</b>   | <b>6.3</b>   | <b>2.6</b>   | <b>0.5</b>   |
| Private   | 5.1   | 3.6   | 1.5    | <b>-5.1</b>  | <b>3.6</b>   | -7.4  | -7.7  | -4.5   | <b>-0.7</b>  | <b>6.4</b>   | <b>6.4</b>   | <b>2.2</b>   | <b>-0.3</b>  |
| Public  | 5.7   | 3.9   | 1.6    | <b>-6.2</b>  | <b>4.2</b>   | -9.0  | -8.9  | -5.5   | <b>-1.1</b>  | <b>7.0</b>   | <b>7.0</b>   | <b>2.8</b>   | <b>0.1</b>   |
| Investment  | 1.7   | 2.1   | 0.6    | <b>2.4</b>   | <b>0.4</b>   | 3.7   | 1.0   | 2.5    | <b>2.1</b>   | <b>2.5</b>   | <b>3.2</b>   | <b>-1.6</b>  | <b>-2.6</b>  |
| Private   | 10.4  | 6.7   | 4.2    | <b>-9.6</b>  | <b>3.7</b>   | -5.3  | -13.8 | -12.7  | <b>-6.2</b>  | <b>1.5</b>   | <b>5.8</b>   | <b>4.1</b>   | <b>3.5</b>   |
| Public  | 13.0  | 5.7   | 1.9    | <b>-17.0</b> | <b>4.5</b>   | -14.0 | -23.3 | -19.8  | <b>-9.8</b>  | <b>-0.3</b>  | <b>6.6</b>   | <b>6.1</b>   | <b>6.1</b>   |
| External demand   | -1.6  | 10.8  | 13.1   | <b>16.0</b>  | <b>1.6</b>   | 29.7  | 23.9  | 10.9   | <b>3.8</b>   | <b>6.3</b>   | <b>3.9</b>   | <b>-0.7</b>  | <b>-2.7</b>  |
| Imports   | 11.0  | 5.6   | 1.6    | <b>-19.1</b> | <b>4.6</b>   | -20.8 | -23.5 | -19.7  | <b>-11.6</b> | <b>2.0</b>   | <b>6.8</b>   | <b>3.6</b>   | <b>6.0</b>   |
| Imports   | 12.7  | 7.0   | 4.5    | <b>-20.2</b> | <b>6.3</b>   | -22.9 | -27.0 | -21.6  | <b>-7.8</b>  | <b>6.1</b>   | <b>13.1</b>  | <b>5.0</b>   | <b>1.4</b>   |
| <b>GDP by sectors (ann. % chge., seasonally-adjusted)</b>               |       |       |        |              |              |       |       |        |              |              |              |              |              |
| Primary   | 6.0   | 2.1   | 3.2    | <b>1.3</b>   | <b>2.6</b>   | 2.0   | 1.7   | -1.0   | <b>2.6</b>   | <b>5.4</b>   | <b>1.7</b>   | <b>2.0</b>   | <b>1.5</b>   |
| Secondary   | 5.8   | 2.5   | -0.7   | <b>-7.6</b>  | <b>3.5</b>   | -11.4 | -9.9  | -6.8   | <b>-2.3</b>  | <b>3.9</b>   | <b>5.7</b>   | <b>3.1</b>   | <b>1.6</b>   |
| Mining  | 1.4   | -0.6  | -2.3   | <b>0.4</b>   | <b>0.0</b>   | -2.0  | 1.6   | 2.0    | <b>0.0</b>   | <b>-0.4</b>  | <b>0.1</b>   | <b>0.2</b>   | <b>0.1</b>   |
| Electricity   | 12.1  | 3.7   | 2.3    | <b>0.0</b>   | <b>3.1</b>   | -3.0  | -1.2  | 2.4    | <b>2.0</b>   | <b>2.5</b>   | <b>3.3</b>   | <b>3.4</b>   | <b>3.2</b>   |
| Construction  | 7.6   | 4.4   | -0.6   | <b>-7.2</b>  | <b>4.9</b>   | -9.4  | -6.3  | -6.7   | <b>-6.4</b>  | <b>2.8</b>   | <b>4.3</b>   | <b>5.5</b>   | <b>7.0</b>   |
| Manufactures  | 5.9   | 2.6   | -0.4   | <b>-10.6</b> | <b>4.2</b>   | -15.4 | -14.9 | -10.0  | <b>-1.7</b>  | <b>5.9</b>   | <b>8.2</b>   | <b>3.0</b>   | <b>0.1</b>   |
| Tertiary  | 5.2   | 4.0   | 2.1    | <b>-6.8</b>  | <b>3.7</b>   | -7.4  | -10.1 | -6.6   | <b>-3.1</b>  | <b>4.3</b>   | <b>5.7</b>   | <b>2.8</b>   | <b>2.0</b>   |
| Retail, restaurants and hotels  | 6.5   | 4.6   | 2.8    | <b>-16.0</b> | <b>5.5</b>   | -18.9 | -18.9 | -16.7  | <b>-8.9</b>  | <b>9.2</b>   | <b>7.4</b>   | <b>3.6</b>   | <b>2.2</b>   |
| Transportation, mail and warehouse                                      | 5.6   | 3.7   | 0.9    | <b>-9.3</b>  | <b>6.0</b>   | -11.1 | -12.6 | -7.4   | <b>-5.8</b>  | <b>8.7</b>   | <b>10.2</b>  | <b>3.6</b>   | <b>1.4</b>   |
| Masive media information  | 10.6  | 10.0  | 8.0    | <b>3.3</b>   | <b>6.0</b>   | 1.3   | 3.8   | 4.4    | <b>3.8</b>   | <b>7.0</b>   | <b>5.6</b>   | <b>6.2</b>   | <b>5.4</b>   |
| Financial and insurance   | 16.7  | 11.2  | -1.1   | <b>-3.8</b>  | <b>1.2</b>   | -4.7  | -5.2  | -7.5   | <b>2.2</b>   | <b>0.1</b>   | <b>0.5</b>   | <b>2.1</b>   | <b>2.0</b>   |
| Real-estate and rent  | 4.1   | 3.0   | 3.2    | <b>-4.6</b>  | <b>3.1</b>   | -8.9  | -6.3  | -3.1   | <b>-0.1</b>  | <b>5.1</b>   | <b>2.8</b>   | <b>2.4</b>   | <b>2.2</b>   |
| Prof., scientific and technical servs.                                  | 3.0   | 3.1   | 2.3    | <b>-4.8</b>  | <b>1.9</b>   | -3.6  | -3.4  | -5.3   | <b>-6.9</b>  | <b>0.4</b>   | <b>2.2</b>   | <b>2.9</b>   | <b>2.2</b>   |
| Company and corporate management  | 19.7  | -2.9  | 4.3    | <b>-1.5</b>  | <b>2.6</b>   | 2.1   | -1.2  | -4.1   | <b>-2.8</b>  | <b>0.5</b>   | <b>4.0</b>   | <b>3.4</b>   | <b>2.5</b>   |
| Business support services   | 3.7   | 3.1   | 1.5    | <b>-4.5</b>  | <b>1.0</b>   | -3.3  | -5.2  | -6.0   | <b>-3.4</b>  | <b>-1.7</b>  | <b>1.9</b>   | <b>2.5</b>   | <b>1.2</b>   |
| Education   | 0.1   | 2.1   | 0.9    | <b>-4.1</b>  | <b>6.0</b>   | -0.4  | -16.5 | -0.1   | <b>0.7</b>   | <b>1.6</b>   | <b>21.5</b>  | <b>1.7</b>   | <b>1.6</b>   |
| Health and social security  | 7.8   | -0.5  | 1.1    | <b>0.8</b>   | <b>1.0</b>   | -1.9  | 4.2   | -1.0   | <b>2.0</b>   | <b>2.7</b>   | <b>-1.8</b>  | <b>2.1</b>   | <b>1.1</b>   |
| Cultural and sport  | 2.2   | 3.5   | 1.7    | <b>-2.8</b>  | <b>1.2</b>   | -3.2  | -3.6  | -2.4   | <b>-1.9</b>  | <b>-0.1</b>  | <b>1.5</b>   | <b>1.8</b>   | <b>1.7</b>   |
| Temporary stay  | 1.6   | 2.5   | 0.9    | <b>-10.0</b> | <b>2.3</b>   | -6.8  | -18.0 | -8.6   | <b>-6.5</b>  | <b>-4.0</b>  | <b>11.0</b>  | <b>1.8</b>   | <b>1.2</b>   |
| Other services exc. government  | 3.3   | 3.9   | 1.8    | <b>-2.2</b>  | <b>2.0</b>   | -1.9  | -4.5  | -1.8   | <b>-0.5</b>  | <b>1.3</b>   | <b>2.6</b>   | <b>2.2</b>   | <b>1.9</b>   |
| Government activities   | -0.3  | 1.2   | 0.1    | <b>3.3</b>   | <b>0.3</b>   | 4.8   | 6.0   | 2.2    | <b>0.1</b>   | <b>0.1</b>   | <b>0.1</b>   | <b>0.5</b>   | <b>0.4</b>   |

eop end of period  
 dpb dollars per barrel  
 FRPS Financial Requirements of the Public Sector  
 na not available  
 Note: **Bold** figures are forecast

1 Core index that does not include education  
 2 Accumulated, last 12 months  
 3 Banco de México data  
 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  
 \* As of 2009 the Fiscal Balance definition changes, therefore data is not comparable

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