

# Real Estate Outlook

Mexico

July 2011  
Economic Analysis

- 2011, year of recovery for the housing industry
- The impact of violence on housing, limited to segments and regions
- Uninhabited housing has grown, but this is nothing new, and is due to different factors
- The results of the 2010 census implies strong changes in population and housing trends

# Index

1. Summary.....	1
2. Situation	.
2a. Construction: progress in line with the economic cycle.....	2
2b. 2011: recovery year in the housing industry.....	6
Inset 1: State panorama of mortgage loans.....	12
3. Special topics	
3a. Violence and the housing market in Mexico.....	14
Inset 2: A quantitative approximation of the effect of violence on the housing market.....	17
3b. Results of the 2010 Population and Housing Census.....	18
3c. Uninhabited housing in Mexico according to the 2010 Census*.....	25
3d. The BBVA housing price index**.....	35
Inset 3: The dynamics of housing prices and their equilibrium in the long term.....	39
4. Annual macroeconomic indicators.....	40
5. Special Topics Included in Previous Issues.....	44

Closing date: June 13, 2011

\* We appreciate the collaboration of Rodrigo Barrera of Infonavit, and of Elsa Resano and Eunice Bañuelos of Inegi, in the integration of the information in this article.

\*\* We appreciate the collaboration of Ramón Montenegro and Nancy Colín for the integration of the information in this article.

# 1. Summary

## **The growth in construction advances in general terms, in line with expectations**

Its evolution, as was anticipated, points toward a recovery process of four years to reach the production levels prior to the start of the crisis. With the stimulus of public works and the recovery of the housing industry, its growth will surpass that of the economy as a whole in the second half of 2011 and in 2012.

## **2011 is a year of recovery for the housing industry**

Hand in hand with consumer confidence and the rebound in economic activity, housing demand again gains momentum. In terms of supply, housing support programs remain in place, as well as financing for housing construction. Toward the end of the year, the placing of mortgage loans could be recovering the levels seen in 2008, before the crisis.

## **The impact of violence on housing is limited to specific segments and regions; it is not a generalized problem**

The rebound in the levels of violence in the country has affected the housing industry, although in a more modest scale than some might think. The problem of violence continues to be strongly concentrated in a few cities that have a relatively low share in the total national placement of mortgage loans. Moreover, it must be recognized that, to a great extent, the stimulus to housing has been on the side of supply, through subsidies and financing plans for the population with lower resources. The impact of violence is reflected more on those population segments of medium and high income, where the factors associated with income and consumer confidence have greater relevance.

## **Uninhabited housing is important, although this is not a new phenomenon and is due to different factors**

Although in absolute terms, uninhabited housing has grown compared to total housing, it remains practically at the same level than in 2005. Various factors explain this phenomenon, some of which are natural (not all housing can be inhabited at all times), others associated with international migration, others due to conditions natural to the rural environment, and others to the accelerated growth in housing construction. A good part of the increase in uninhabited housing in the last five years responds to this factor, and this demands urgent attention by the agents involved in this industry (authorities of the three levels of government, builders, support institutions and financial intermediaries) in order to find alternatives that will curb its growth.

## **The 2010 census shows important changes in population trends**

The figures of the census show an important deviation in population growth estimates compared with what was observed and what was projected. A higher birth rate compared to what had been foreseen, and changes in migration trends explain the greater part of the difference between what was projected and what was observed. Some conditions could be due to temporary conditions, but others seem to be of substance, which will affect in an important manner on a higher population dynamic during the next decades.

## **The valuation of the attributes of housing has changed in recent years**

In determining housing prices, buyers have become more demanding when evaluating the attributes that housing offers. Factors such as location, the conditions of use (new or used) and the surface area have changed, as has their weight in determining the price.

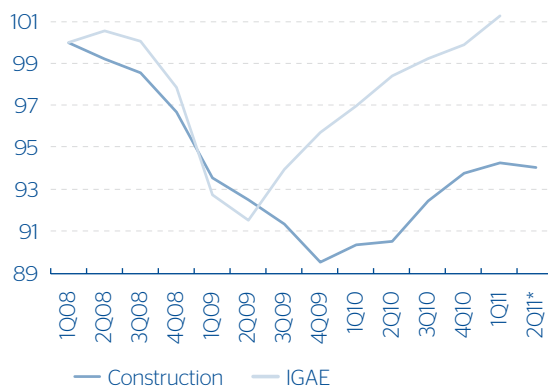
## 2a. Construction: progress in line with the economic cycle

The construction industry is still in the process of recovering the production levels prior to the beginning of the crisis. Its evolution, however, advances within expectations, and there are conditions that allow us to suppose that this process will gain momentum toward the second half of the year. In this section of **Mexico Real Estate Outlook**, we review the main trends in the construction industry and the indicators associated with this activity, in order to evaluate the speed of its recovery and project its growth outlook for the rest of 2011 and 2012.

### A well-known story

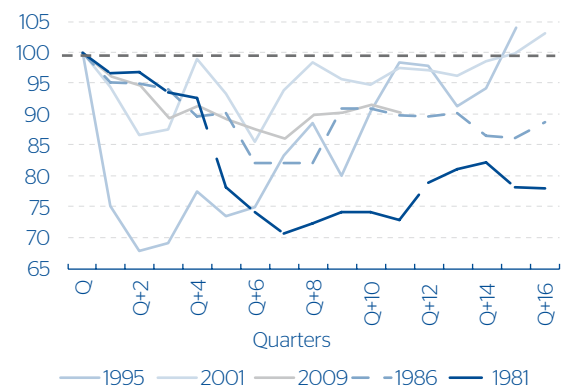
At the beginning of 2011, the economy had surpassed the production levels prior to the crisis. It took eleven quarters to overcome the recessive cycle, or nearly three years. For the construction industry, the recovery process has still not concluded, although this is no surprise. On the contrary, it is a well-known story, since the course is similar to that observed in the two recent recessions and where it is seen that the complete cycle could take up to four years.

Graph 1  
**Construction vs. Economic activity  
(Annual % change)**



\* Figures through April  
Source: BBVA Research with Inegi figures

Graph 2  
**Construction cycles  
(Annual % change)**



Source: BBVA Research with Inegi figures

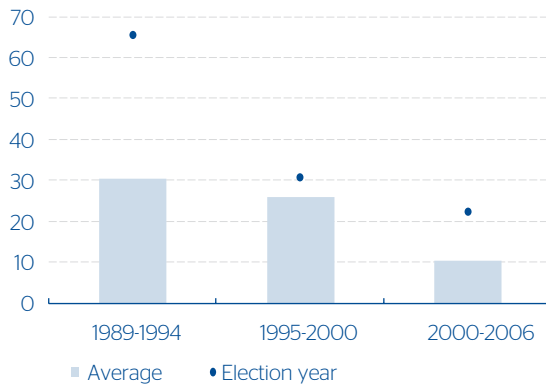
Although the start of 2011 has not been particularly vigorous in the construction industry, there are elements to assume that the pace will accelerate through the rest of the year and in 2012. The key factor will be the public investment component, which has lagged somewhat (in the January-March 2011 period, physical investment by the public sector showed real annual growth of 0.9%, while the expected annual growth rate is 4%), so it can be assumed that the growth rate will rebound in the second half of the year.

Then there is the general environment, in the economic and political spheres. In a year of improvement in public finances due to the economic recovery (with income tax collection levels in the first four months of the year showing a real annual increase of 8.4%) and to oil prices above those budgeted (in 2011, the price of the Mexican crude oil mix could be US\$95 dollars per barrel, a difference of more than 50% compared to official projections of US\$63 dollars per barrel)<sup>1</sup>. Moreover, the upcoming election period, which generates incentives to conclude public works, are in place for a rebound in public investment.

<sup>1</sup> Although it is true that there is an extraordinary gross income, which we estimate at approximately 14% of GDP, the impact on economic activity is reduced significantly due to the effects derived from the exchange rate, oil coverage, the import of fuel products and the corresponding transfer to economic activity, which could have an additional effect of 0.4% in GDP growth for this year. Refer to Mexico Outlook, corresponding to the second quarter of 2011.

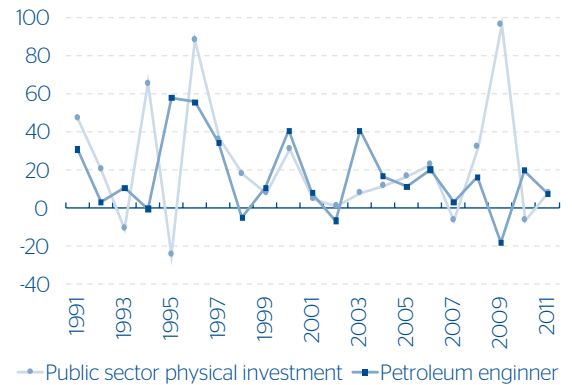
The story is eloquent on this subject. Investment spending by the federal government tends to increase notably in election years. Also, investment spending has an important component linked to tax revenue, and this in turn to the evolution of oil revenue. Therefore, except for atypical conditions (such as the 1995 crisis and the counter-cyclical policy of 2009), a correlation can generally be established between the evolution of oil revenues and investment spending.

Graph 3  
**Physical investment by the public sector (Real annual % change)**



Source: BBVA Research with Inegi figures

Graph 4  
**Physical investment by the public sector vs. oil revenues (Real annual % change)**



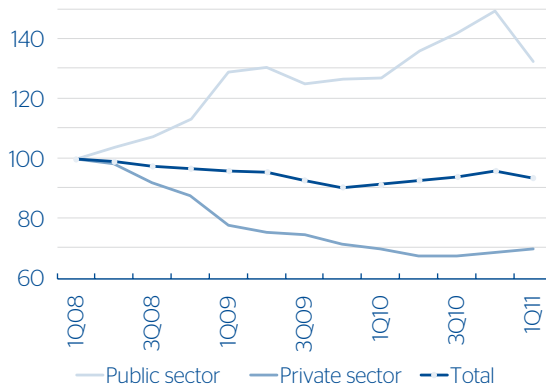
Source: BBVA Research with Inegi figures

**The public sector recovers gradually**

The indicators for activity in the construction industry show that the crisis had a strong impact on the private sector (with a drop of up to 30% in real terms compared with the levels at the beginning of 2008), which was counteracted in part by public sector works (for which the production value remained upward practically without interruption between 2008 and 2010). That is, there was an important effort by the government to offset the adverse effects of the recession, and had it not been for this, the impact on activity would have been more significant. This resulted in a fundamental difference between the recent crisis and previous ones.<sup>2</sup>

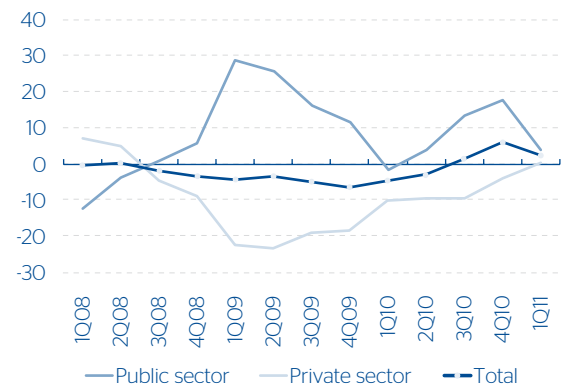
Nevertheless, a look at the details of the recent evolution allows us to confirm that, after reaching minimum levels the reactivation of works by the private sector resumed toward the middle of 2010.

Graph 5  
**Construction, production value: Public sector vs. private sector (1Q08 Index = 100, Sa Series)**



Sa= seasonally adjusted  
Source: BBVA Research with Inegi figures

Graph 6  
**Construction, production value: Public sector vs. private sector (Real annual % change)**



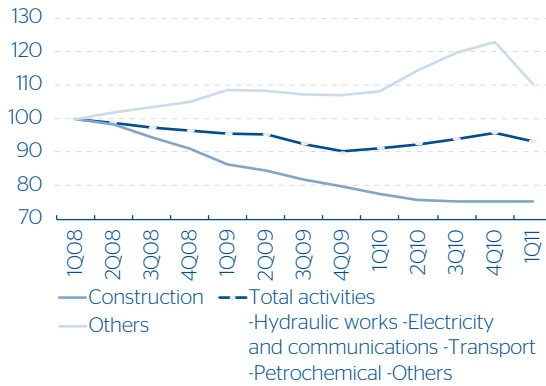
Source: BBVA Research with Inegi figures

<sup>2</sup> In the January 2011 and July 2010 issues of Mexico Real Estate Outlook this subject is analyzed in greater detail.

The contraction of activity by the private sector is reflected in construction, at the level of type of works. While this component had a real drop of more than 25% during the crisis, the rest of activities (transportation, water works, electricity and communications and oil and petrochemicals) rose up to 20% in real terms.

Graph 7

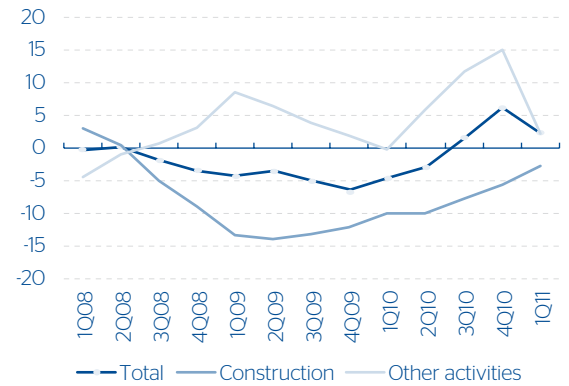
**Construction, production value: construction vs. other works (1Q08 Index = 100, Sa series)**



Ae= ajustadas por estacionalidad  
Fuente: BBVA Research con cifras de Inegi

Graph 8

**Construction, production value: construction vs. other works (Real annual % change)**



Fuente: BBVA Research con cifras de Inegi

In particular, within construction, the greater part of the adjustment was due to housing. Other works by the private sector, such as industrial plants, offices and shopping centers, have had an evolution more in line with the recovery of the economic cycle.

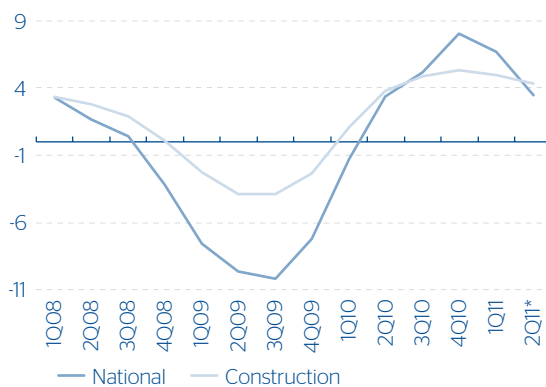
**The indicators associated with the industry confirm the rising trend**

Indicators such as construction jobs and cement sales give an idea of the recovery trend in the construction industry. For the former, annual growth rates began to be posted again (after two years of declines) in the second quarter of 2010, and toward the end of the year, growth was stronger than in the rest of formal employment (8.18% vs. 5.3% in the fourth quarter). In the early months of 2011 (January-May) the trend has been maintained in general (an increase of 5.3% vs. 4.7% in the rest of activities).

Cement sales show a similar trend, although, at a more moderate pace, and with some periods beginning after employment (positive annual rates in the fourth quarter) also indicate a recovery trend, consistent with the economic cycle.

Graph 9

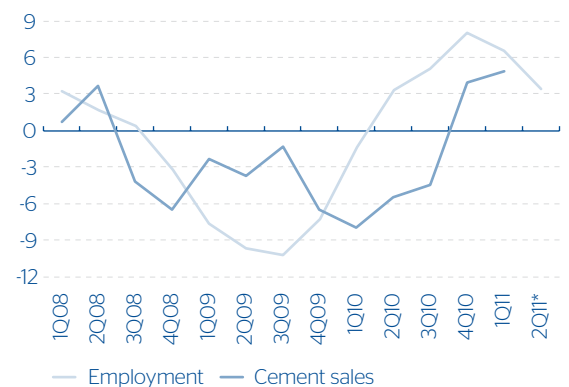
**Formal employment: construction vs. other activities (Real annual % change)**



\*Figures through May  
Source: BBVA Research with Inegi figures

Graph 10

**Indicators associated with construction: employment and cement sales (Real annual % change)**



\*Figures through May  
Source: BBVA Research with Inegi figures

**Growth in construction, surpassing national GDP in 2011 and 2012**

Despite the relative lag in public spending at the beginning of the year, construction advances in general terms, within expectations, and as generally occurs in periods of economic expansion, at a higher pace than the rest of the economy. Our base scenario of previsions incorporates the effect of an acceleration in public spending in the second half of 2011, with which growth for the entire year could be 5.4% for construction GDP, against 4.7% for national GDP. This trend will be maintained, and could even be greater in 2012, when public sector spending could increase.

Chart 1

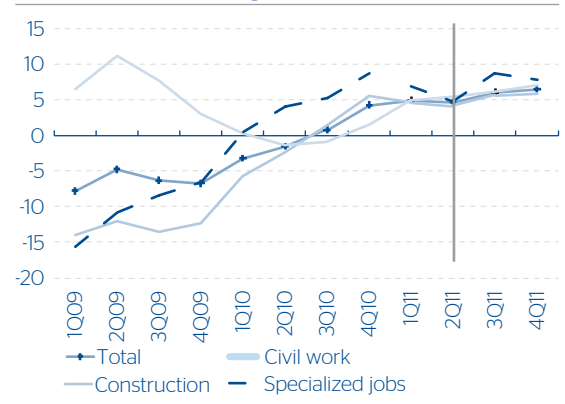
**Construction GDP  
(Real annual % change)**

	Total	Construction	Civil works	Specialized Works
2008	3.1	0.0	10.3	-0.5
2009	-7.3	-14.2	6.5	-10.3
2010	0.1	-0.4	-0.1	4.7
1T11	4.9	4.6	5.0	7.0
2T11p	4.7	4.1	5.5	4.8
3T11	5.7	5.6	6.2	7.1
4T11	6.5	5.9	7.1	7.9
2011p	5.4	5.0	5.7	7.1
2012	6.7	6.6	6.4	8.9

P = Projection  
Source: BBVA Research with Inegi figures

Graph 11

**Construction GDP  
(Real annual % change)**



Source: BBVA Research with Inegi figures

**Conclusions: toward construction growth surpassing the average for the economy**

Although still below the production levels prior to the crisis, the recovery of the construction industry is advancing, in a trend similar to that of the previous recessive episodes. In terms of the activity by the private sector, housing has shown the greatest lag, although there are clear signs of a change in trend. As for the public sector, at the beginning of 2011, the spending lag in investment works has moderately put a brake on construction momentum, although this is a temporary condition which should be reverted in the second half of the year and above all in 2012. As in periods of expansion in economic activity, the construction industry will lead growth in these years.

## 2b. 2011: recovery year in the housing industry

### Introduction

2011 is a year of recovery for the economy and for the housing industry as well, even though, regarding the latter, the figures registered in the early months of this year only partially reflect the improvement in the overall situation. This section of **Mexico Real Estate Outlook** reviews the main housing market trends in terms of supply and demand and shows that, in general terms, the evolution of the industry is advancing in accordance with what was foreseen. In this line, it can be anticipated that the indicators that showed a certain slowness at the beginning of the year, will accelerate their rhythm in the second half of the year, by which the balance for the entire period will be favorable. This, however, does not mean that there will not be challenges, because these are well identified and must be attended to, so as to guarantee that housing will achieve sustained growth, more in line with the performance of the economy in the medium term.

### On the side of demand, bank credit is reactivating

Among the timely indicators of mortgage activity through the first half of this year, of note are the loans granted by the banks. In the January-April period, the figures were showing 8% growth in the number of loans and 20.2% in the amount of credit granted currently, measured in nominal terms (17.1% in real terms). This rise has its counterpart seen from the side of the segments, in those of medium-high and high income. The former, supported to a good measure by co-financings (which depend on the conditions of the public institutions), registered a drop of 13% in the January-April period, although it changed. The residential and residential plus segments had increases of 11.4% and 30.5%, respectively.

Chart 2

#### Mortgage activity: number and amount of loans (annual accumulated)

	Number of loans (Thousands)			Amount of loan (Bill. Pesos)		
	Apr-10	Apr-11	% Annl. chng.	Apr-10	Apr-11	% Annl. chng.
Public	160.5	139.6	-13.0	45.4	37.3	-17.1
Infonavit	138.1	131.6	-4.7	32.7	33.8	4.3
Fovissste	22.4	7.9	-64.6	12.7	3.5	-72.3
Private	23.1	23.3	0.7	16.3	19.3	19.7
Banks	20.6	22.2	8.0	15.6	18.8	21.1
Sofoles	2.5	1.1	-58.5	0.6	0.5	-15.5
Sub-total	183.6	162.8	-11.3	61.7	56.7	-7.4
Co-financing*	9.9	4.7	-52.2	---	---	---
Total	173.7	158.1	-9.0	61.7	56.7	-7.4

Note: figures provided by Alejandro Morales. They do not fully coincide with ABM  
\*Co-financings (-)  
Source: BBVA Research

Chart 3

#### Mortgage loans by segment: number of loans (annual accumulated)

	Thousands of loans		% Change 2011 / 2010
	Apr-10	Apr-11	
Total	173.8	158.1	-9.0
"Economic + Popular (up to 350 thousand)"	97.3	90.7	-6.9
"Traditional (up to 610 thousand)"	51.5	44.4	-13.9
"Average Up to 1.3 million)"	19.6	17.1	-13.1
"Residential (up to 2.6 mill.)"	4.3	4.8	11.4
"Residential Plus (> 2.6 million.)"	0.9	1.2	30.6

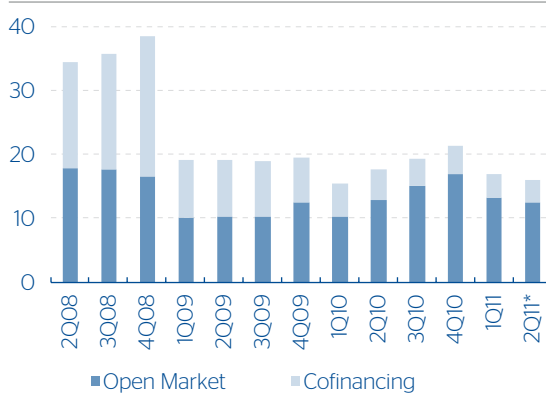
Source: BBVA Research

Reviewing the evolution of bank loans in recent years, it is interesting to note the changes in their structure. Through 2008, close to 50% of the loans corresponded to co-financings, although in 2009, in addition to the marked drop (over 30% in the number of loans), a trend began toward bank loans with their own resources, known also as "open market". In 2011, the participation of the latter in the total was 77%, with average growth in the January-April period of 30%, vs. a 31% drop in co-financing transactions.



Graph 12

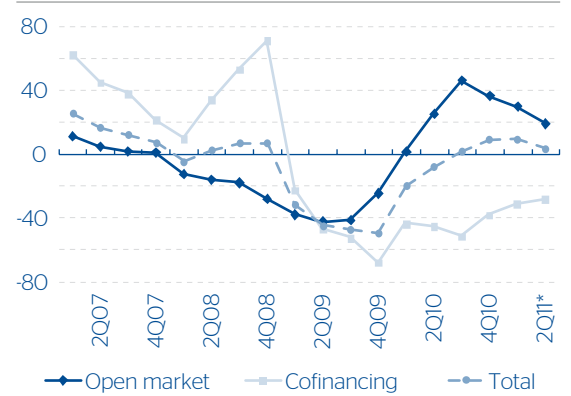
**Number of loans granted by commercial banks (Thousands in the quarter)**



\* Figures through April  
Source: BBVA Research

Graph 13

**Number of loans granted by commercial banks (Annual % change)**

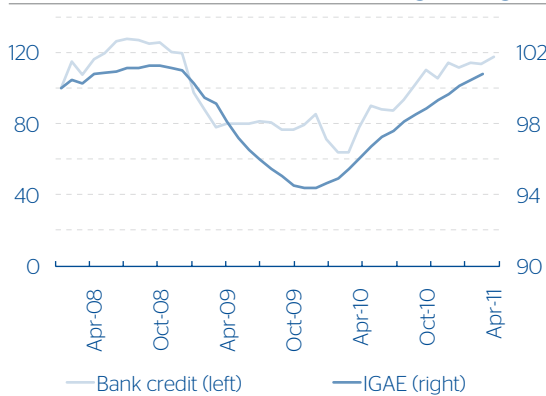


\* Figures through April  
Source: BBVA Research

As opposed to loans from the Infonavit and Fovisste, which depend on supply factors (credit goals, available subsidies), those granted by the private financial intermediaries reflect demand conditions more. That is, here, what has the most influence is economic activity and employment, financial conditions and consumer confidence. Thus, it is encouraging to observe that the reactivation of bank loans goes hand in hand with economic recovery (through the first quarter of 2011, GDP had accumulated seven quarters of growth and had already surpassed the maximum levels reached at the start of 2008) and consumer confidence (this indicator registered an 11% increase in the first five months of the year, compared to levels of the year before).

Graph 14

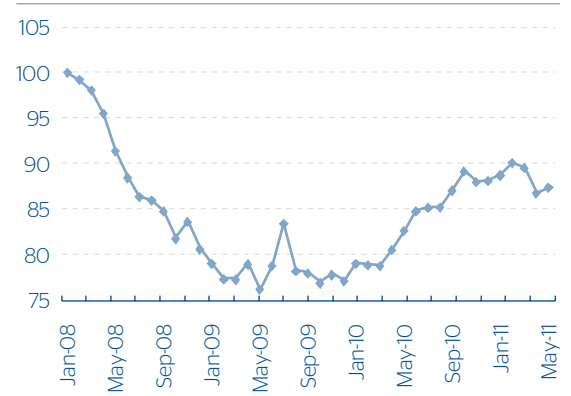
**Bank loans vs. economic activity (Jan-08 Index=100, 3-month moving average)**



Source: BBVA Research

Graph 15

**Consumer confidence (Jan-08 Index =100)**



Source: BBVA Research

**... while that of public institutions recovers gradually**

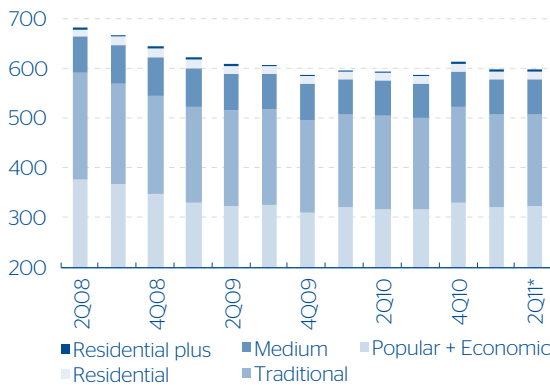
It is true that, for public institutions, the start of the year has been rather slow (13% in the number of loans in the January-April period), although this responded to temporary conditions not corresponding to the economic cycle. Having an influence, for example, were the changes in the operating rules of the subsidy programs of the federal government, as well as the placing in operation of the Infonavit Green Mortgage program at a national level. However, the conditions are beginning to be regularized and probably toward the start of the second half of the year, they will return to normal.

In the balance, the rate of progress in the industry in the January-April period of 2011 implies, in annualized terms, a placement on the order of 600,000 loans. It can be anticipated, however, that the second half of the year will be much more dynamic once both the Infonavit and the Fovisste fully regularize the granting of loans. It should be noted that despite the delay at the beginning of the year,

neither of the two organizations has modified its placement goals for the year (475,000 in the case of the Infonavit and 75,000 in the case of Fovissste)<sup>1</sup>. Our expectation is that, toward the end of the year, the growth rate in the industry (10% in the number of loans in 2011 vs. 2010) will come near the placement levels in 2008, prior to the start of the crisis.

Graph 16

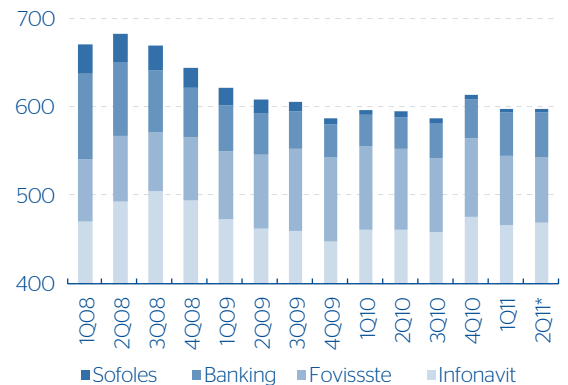
**Number of loans by segment  
(Thousands, annualized figures)**



\* Figures through April  
Source: BBVA Research

Graph 17

**Number of loans by organization  
(Thousands, annualized figures)**



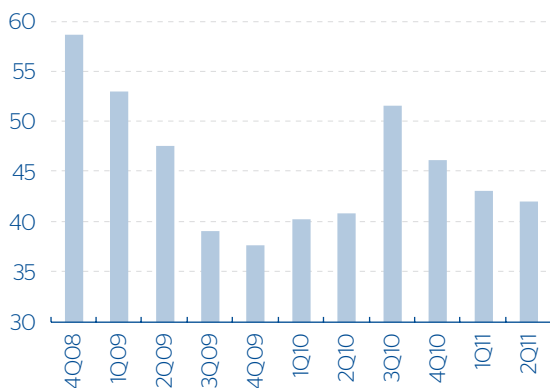
\* Figures through April  
Source: BBVA Research

**Supply starts to lag compared to demand**

On the supply side, after a marked boost in activity during the second half of 2010, at the start of 2011 the figures marked a more moderate rate. In the case of bridge loans, or those granted for the construction of homes, the growth rate went from levels of 15% in the second half of 2010 to 5% in the early months of 2011 (January-April).

Graph 18

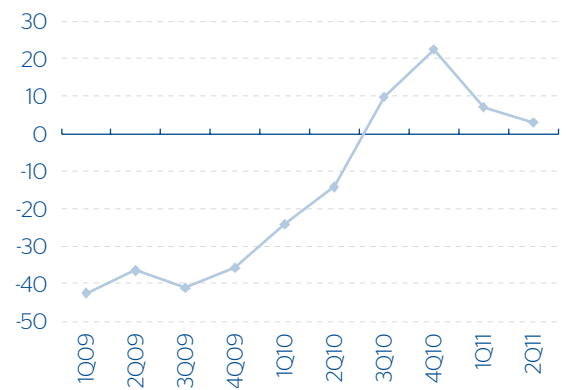
**Bridge Loans (Billions of Pesos, 2011 prices,  
annualized figures)**



Source: BBVA Research

Graph 19

**Bridge Loans  
(Real annual % change)**

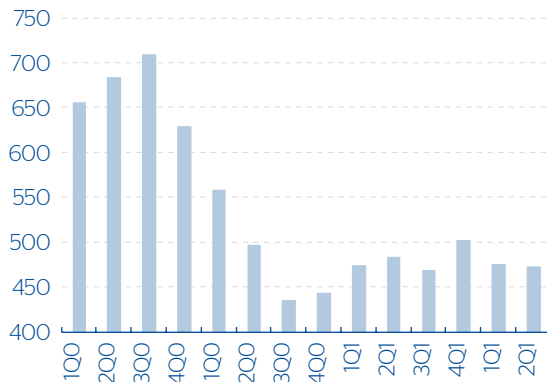


Source: BBVA Research

In turn, as refers to construction start ups measured through construction registries on the Sole Housing Registry (RUV for Registro Único de Vivienda) which incorporates all homes that are marketed with Infonavit loans (and which represent more than 90% of the loans placed at a national level), the rise in the January-April 2011 period was practically zero, whereas in 2010 it was close to 10%. In absolute numbers, the registry trend in the RUV points toward housing construction levels on the order of 475,000 annual units, certainly below what the mortgage loan trends indicate. When compared against the levels reached in 2008, the figures implicate a drop of close to 30% in the number of housing units built.

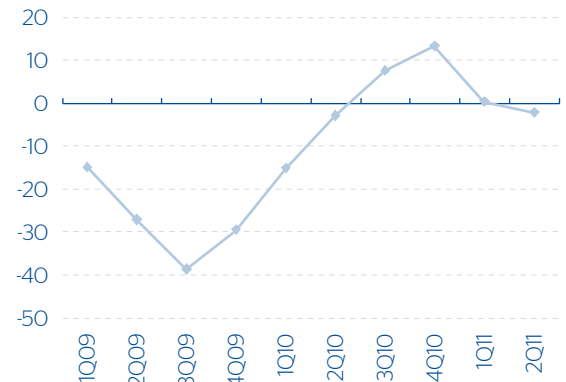
<sup>1</sup> These are the minimum levels because in terms of financing availability, they could be higher.

Graph 20  
**Construction start-ups: RUV (Thousands of housing units, annualized figures)**



Source: BBVA Research

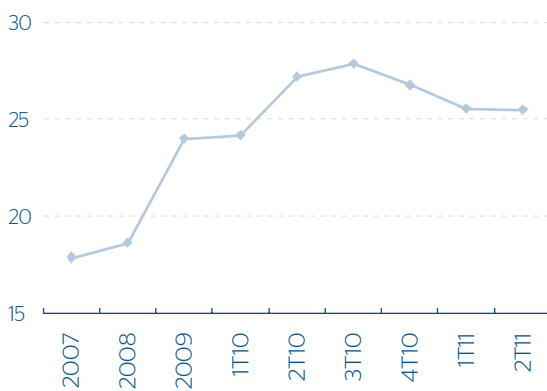
Graph 21  
**Construction start-ups: RUV (Annual % change)**



Source: BBVA Research

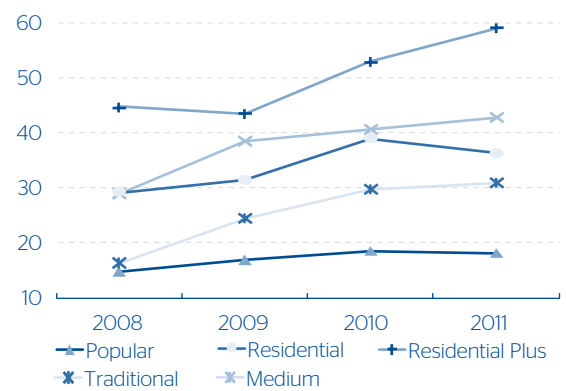
From a market standpoint, it would seem that it is a matter of time before the start-up of housing construction resumes its rate. The demand pressures should accelerate housing construction, but where they are needed and under the conditions that meet the needs of buyers (in terms of material and finishings). It is also true that already, in the past, it has occurred that supply reacts with a certain lag in meeting demand trends. A potential explanation could be found in the inventory levels both in the process of conclusion of construction and in available housing for sale) and the acquisition of a greater number of used homes, already existing on the market, which is not reflected in the data on construction activity. In this sense, builders should better identify (with more precision and more opportunely) the market signals both in demand volume and trend and its equilibrium with the supply that is being generated.

Graph 22  
**Used housing (% of the total, only Infonavit)**



Source: BBVA Research with Infonavit data

Graph 23  
**Used housing by segment 2011 (% of the total, only Infonavit)**



Source: BBVA Research with Infonavit data

**Used housing, very important in some segments (and regions)**

For the time being, part of the needs is being covered by used housing. In the case of the Infonavit, its share of total loans granted in the January-April 2007 period was 26%, similar to that registered in 2010 (26.5% on average during the whole year) and with a growing trend in recent years (in 2007, its share was 17%).

A detailed view also allows confirming that only in the segment known as Popular (homes in the range of P\$215,000 and P\$ 364,000) and which grants 66% of all the loans, the share of used housing is under 30%. In the rest of the cases, it surpasses this level and, in some segments, such as the Residential Plus (housing priced above P\$2.7 million) it comes to 60%.

At a state level, the used housing figures present much disparity. For example, in states such as Quintana Roo, Nuevo Leon, State of Mexico, Hidalgo and Queretaro, their share of total loans granted by the Infonavit is lower than 15%. In contrast, in Chihuahua, Tlaxcala, Oaxaca and the Federal District, it surpasses 40%; even in the case of this last state, the share comes to 79%. Even though the subject merits a detailed analysis, one interpretation of these figures could be that, in the first group, loan placement has been below that of home construction, that is, there is abundant inventory. For the second group, the figures would show that housing construction has been insufficient to meet the demand, such as the case of the Federal District could very well be.

The share of used housing in the states can be seen even by segments. Without going into details, it is notable that the lower proportion of used homes is located in the housing sections for the low-income population, and instead, it is becoming more important in the Traditional and Medium housing segments (that go from P\$365,000 to P\$1.4 million). This could indicate that these segments are practically unattended in general terms.

Graph 24

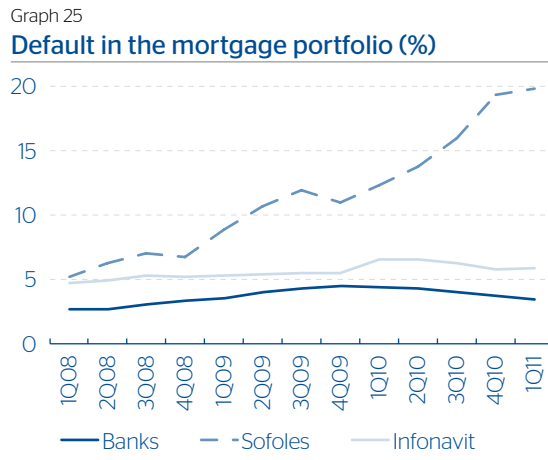
**Used housing % del total, only Infonavit, thousands of pesos**



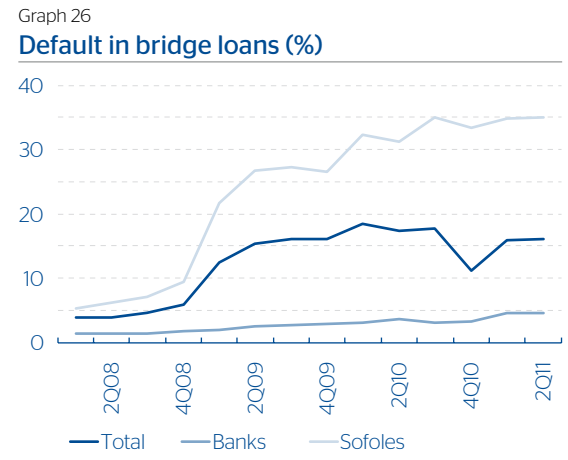
Source: BBVA Research,

**The mortgage portfolio is improving, unlike that of bridge loans**

The final topic is the past-due loan portfolio. Putting aside the sofoles and sofomes, whose business model and particular conditions place them in a complicated financial conditions, it should be pointed out that the improvement in economic activity has also translated into lower levels of past-due loans portfolio in the mortgage segment, which can be seen both in the case of the Infonavit and in the banks. In the case of the latter, default has decreased from levels of 4.5% in 2009 to 3.4% in 2011. These figures are already nearing the levels of 2008, along the order of 3%.



Source: BBVA Research



Source: BBVA Research

In contrast, in bridge loans, the past-due loans portfolio of the banks has increased. From levels of 3.2% in the second half of 2010, in 2011 (January-April period), it grew to 4.5%. In 2008, prior to the crisis, default in this portfolio averaged around 2%. Guaranteeing the stabilization of this indicator could be a condition for achieving stable growth rates in bridge loans in the medium term.<sup>2</sup>

### Conclusions

The economic environment for this year allows anticipating that mortgage activity will have a favorable performance. Demand so suggests it, as does the evolution of the public institutions, even though they have had a slow start this year. It also points to an important rally in the activity during the second half of the year. This permits us to maintain growth expectations in the number of mortgage loans at around 10% and in the order of 15% in the amount in nominal terms. In this scenario, toward the end of 2011, the mortgage market could be recovering the activity levels seen in 2008.

On the supply side, the rhythm in progress moderates in construction start-ups, which cannot be all that bad if it reflects the outflow of accrued inventory. In any case, builders must be attentive to the demand signals and to better synchronize with the economic cycle. Used housing is playing an important role by covering the gap between housing demand and supply, which in addition must be positive to provide versatility to the mortgage market and promote the development of a secondary housing market; it emphasizes the new niches that are emerging such as remodeling and expansion.

Finally, even though conditions in 2011 and 2012 are pointing toward growth, housing challenges continue to be important. In part, the adjustments throughout recent years are reflecting the lack of coordination and adequate public policies among the agents involved, which could reconcile interests, but, above all, support a vision toward the future. Housing needs are and will continue to be important, although, as it has been seen, this does not guarantee orderly growth in the industry. Growth, at least in the mortgage market, should be based on an adequate diagnosis regarding the needs and financial capacity of households, and it should also consider that housing should cover the expectations of the buyers, improve their standard of living and increase their assets. Those will be the challenges of the housing industry in the medium term.

<sup>2</sup> Behind the default figures, there could be some of the reasons that explain the moderation in the construction of new projects. If the past-due loan portfolio increases, it is possible that private intermediaries, particularly the banks, will maintain as a priority caring for the quality of the portfolio before expanding loans. Experience shows that the best strategy for maintaining growth in loans is to have prudent policies in granting them.

## Inset 1: State panorama of mortgage loans

The mortgage market has still not completely overcome the effects of the 2009 crisis. Using the year 2008 as a reference, the placement of mortgage loans for housing by Infonavit, Fovissste, and banks in the early months of 2011 was at 84% of the previous levels (using the January to April periods for both years). However, the results have their nuances, both regionally and by segment, and it is important to identify them. In this box in **Mexico Real Estate Outlook** we will present a general overview of the progress registered by the mortgage market in 2011 on the state level and by segments.

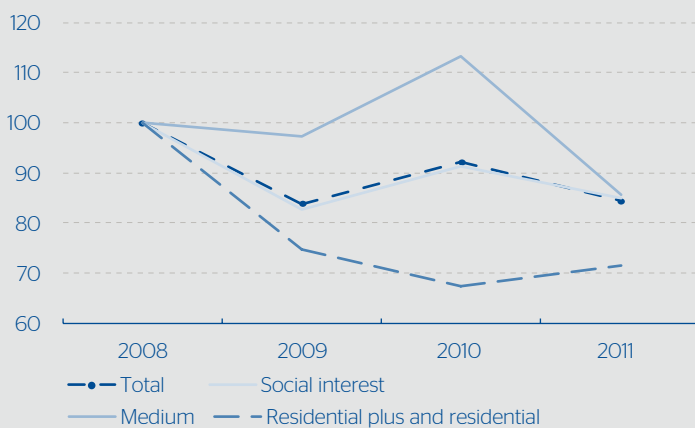
### Mid-range and low-income segments, close to overcoming the crisis; not so the high value segment

The low-income segment, also known as entry-level housing, is the most important in the country's mortgage market, accounting for around 85% of total home loans.

The current year, 2011, started slow for government housing agencies that mainly service the mid-range and low-income segments. Entry level or social interest housing, comprised of the economic, popular, and traditional segments (for which the price is up to 640,000 pesos), represents over 90% of the loans granted by the Infonavit, and about 70% of the Fovissste credits. Furthermore, in the case of Fovissste, close to 30% of the loans are for the mid-range segment (for homes with a price tag of less than 1.4 million pesos).

Graph 27

**Mortgage loans by segment: national total (2008 index = 100,)**



Source: BBVA Research

In 2010, the mid-range segment had already exceeded its 2008 levels, while the entry level segment enjoyed a better performance than for the current year. It can thus be argued that, once the credit conditions in both housing agencies return to normal, these segments could be fully recovered by the end of 2011.

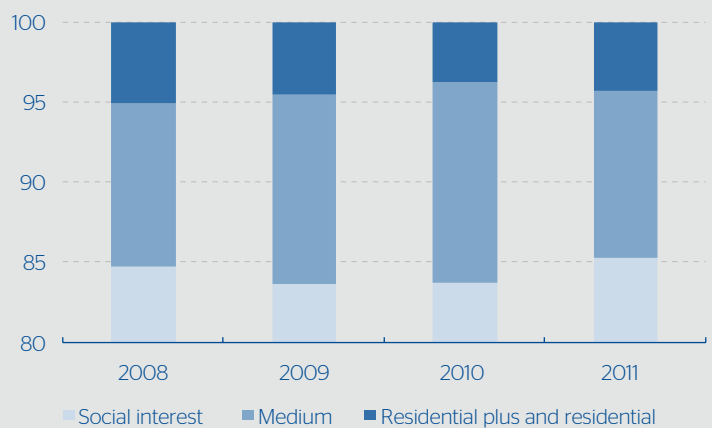
For the high income segment (Residential and Residential Plus, with home values starting from 1.4 million pesos), recovery will take some more time. It was clearly the segment most affected by the 2009 recession, and also felt repercussions from the real estate crisis in the United States, due to the investment by U.S. citizens in retirement homes or second homes (mostly beachfront). Thus, it could be around the second half of 2012 or early 2013 when this segment fully recovers to the levels observed in 2008.

### Significant differences at the regional level

It is clear that the evolution of the market is characterized by strong differences among the regions. Ten of the country's 32 states have already reached (or are very close to reaching) the levels of mortgage loan placements registered in 2008 for the entry level and mid-range housing segments. The states of Aguascalientes, Campeche, Hidalgo, Michoacán, Morelos, Queretaro, San Luis Potosí, Tabasco, Veracruz, and Zacatecas are in this category<sup>1</sup>. There is no common denominator in these states, and in any case what can be said is that the

Graph 28

**Mortgage loans by segment: Relative share (%)**



Source: BBVA Research

<sup>1</sup> The states that exceeded 2008 levels in either of the two segments should be added to the list. In this category are Baja California Sur, Chiapas, Jalisco, and Quintana Roo, in entry level housing, and the Federal District, Durango, and Tlaxcala in the mid-range housing segment.

numbers reflect the efforts of government housing agencies to move forward in promoting housing programs across the country. Where there is indeed a common element it is in the states that are most lagging behind, because three of them are located in the border region, with Coahuila, Chihuahua, and Tamaulipas being in this category.

In the high income, or Residential and Residential Plus segment, the decline is more generalized and only the state of Campeche surpassed its 2008 levels (nationally the percentage of loans placed with respect to that year is 71%). The states with the greatest lag again include some located on the border with the United States, such as Coahuila, Chihuahua, Sonora, and Tamaulipas, as well as some with beach coastline, where important investments have been made in second

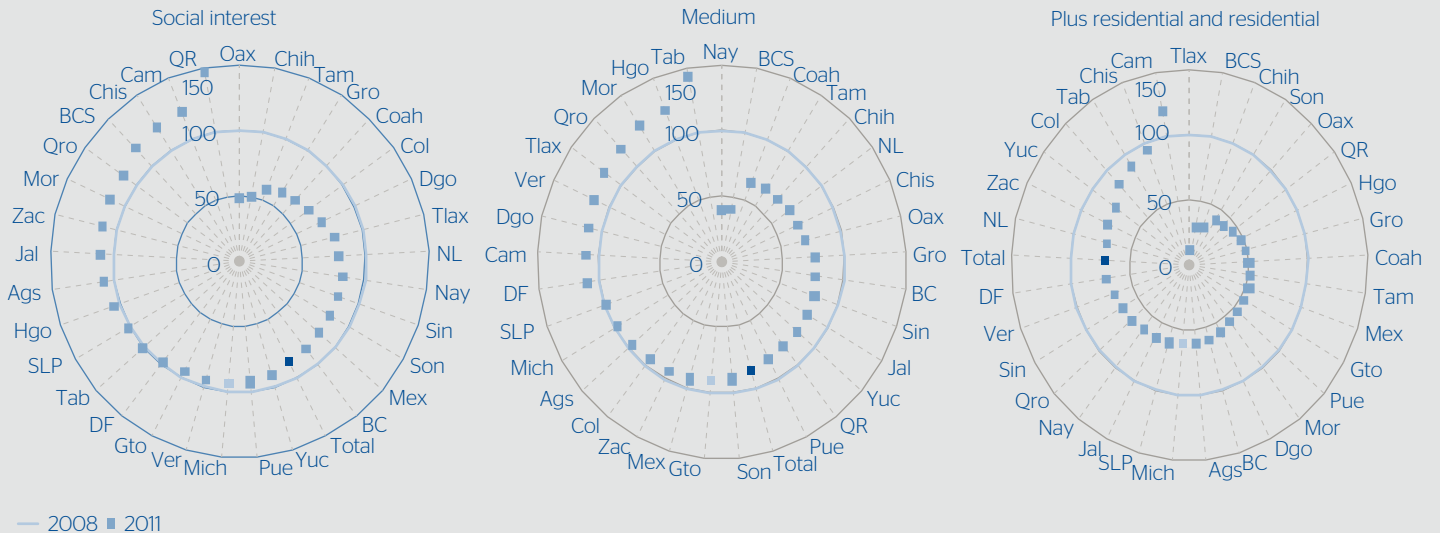
home developments and/or the market for foreign residents, such as Baja California Sur, Quintana Roo, Oaxaca (especially in Huatulco), and Guerrero (Acapulco and Ixtapa).

**Conclusions: differentiated recovery that will be consolidated around 2012**

Even though nationally the housing market has not recovered the levels registered prior to the start of the crisis, some states have done so, especially in the entry level and mid-range segments. Toward the end of 2011, recovery in these segments could be generalized. Meanwhile, the high-value housing market will have to wait until the end of 2012 or the beginning of 2013 to see a full recovery.

Graph 29

**Mortgage loans by segment and state: 2011 vs. 2008 (2008 index = 100)**



Source: BBVA Research

## 3a. Violence and the housing market in Mexico

### Introduction

This article of Mexico Real Estate Outlook offers an analysis of the effects of violence on the housing market. Based on the evolution of housing sales and of violence throughout the last decade, both at a national and a state level, an econometric model is constructed, with which simulations are made on the effects that reducing the levels of violence on this market could have.

Advancing the conclusions a little, this impact is lower than that which some could think; on the one hand, due to the fact that violence continues to be strongly concentrated regionally, and second, to the particularities of the housing market in the country, where the supply factors have relatively higher weight than those of demand. Finally, the economic cycle should also be considered because the rally of violence coincided with the recession, the impact of which had strong differences at a regional level.

### Violence in context

As such, violence has diverse manifestations and, to dimension it more accurately, quantitative and qualitative indicators are required that will help to identify the criminal incidence as the perception and the response that society has to it. There are few indicators that offer a complete vision of criminality, that are consistent and that, at the same time, cover sufficiently ample time periods. Among those that do comply with these characteristics is the number of homicides, for which there are figures by state and even municipality. They are updated with regularity and are published by the most trustworthy and direct source, the Public Security Ministry (SSP for *Secretaría de Seguridad Pública*).

It is known that violence in the country began to rally in an important manner as of 2008; however, the differences at a regional level should be stressed. Close to half (46%) of the homicides registered between 2008 and 2010 corresponded to only five states (Baja California, Chihuahua, Durango, Guerrero, and Sinaloa), which even in previous years registered levels of violence higher than the national average. If this group is excluded, the violence panorama changes significantly<sup>1</sup>. On the other hand, little is mentioned of it but there are also some states where violence has even been reduced, such as the Federal District, the State of Mexico, Oaxaca, Puebla, Queretaro and Yucatan.

### The evolution of housing sales

Through 2007, housing sales in the country showed a very similar performance. Independently of the type of state, growth accelerated to the point where in less than seven years (mid-2006), the size of the market had doubled.

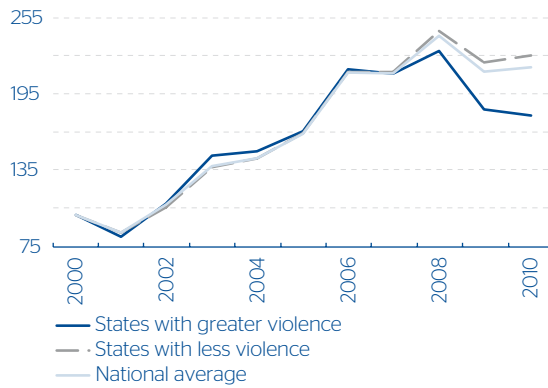
The differences began to be noticed as of 2008, which, although it was still of notable impulse for the national total, it was lower in the more violent group of states. The recession in 2009 also affected this group of states more and even the recovery did not come in 2010 as it had done in the rest of the country. But here, it is also important to qualify. Some of these States like Baja California and Chihuahua, have a greater link with the U.S. economic cycle than other regions of the country, therefore, the impact of the recession was more perceptible in them.

Prior to establishing a relationship between housing sales and violence, it is important to consider some aspects regarding the structure of the housing market in Mexico, which, by the way, serve to explain some of the results of the simulation exercises that are presented below.

<sup>1</sup> For the 2008-2010 period, the homicide rate for every 100,000 inhabitants changes from 10.5 to 17.9, depending on whether these five states are included or not.

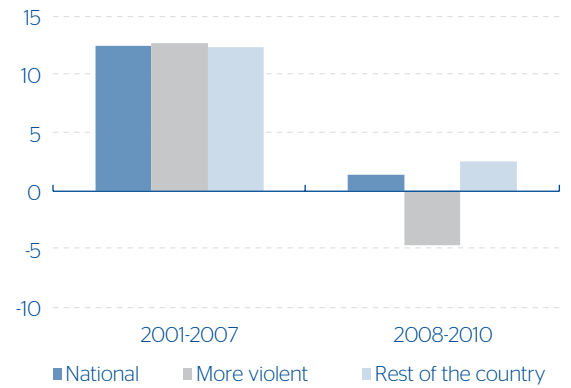


Graph 30  
**Housing sales: 2000-2010 most and least violent states (2000 index=100)**



Source: BBVA Research with Inegi data

Graph 31  
**Growth in housing sales: most and least violent states (% change)**

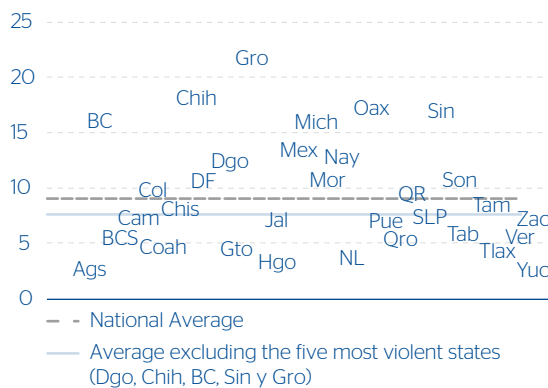


Source: BBVA Research with Inegi data

First, it is convenient to put in perspective the relative share of the group with relatively high violence levels in the total housing market. In the 2000-2007 period, this share was 17%, and, in 2008, it was 15%. That is, its share is relatively low and, in any case, it could be argued that the greater part of the effect of violence on sales should fall onto this portion of the market.

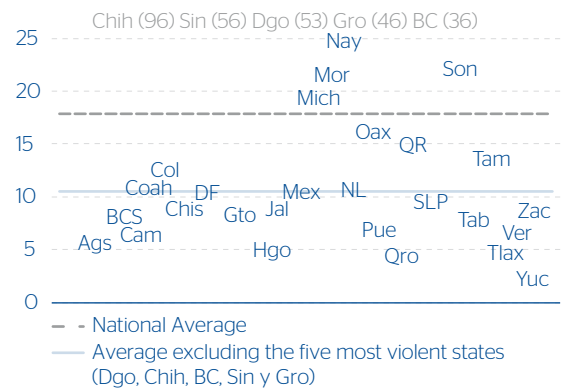
Secondly and of equal importance, the housing market has a clear differentiation between the high and low income segments. And not only is it about a difference in numbers where the share is 20% and 80%<sup>2</sup>, respectively, but also qualitative as to the dominant forces in each one. While in the high income segment, the demand factors are predominant, like family income, interest rate, employment and consumer confidence, in the low income segment, supply factors have greater weight, like the availability of subsidies, be it in interest rates or in the price of housing, or in both<sup>3</sup>. This has important implications, since it means that a high proportion of the housing market is relatively less vulnerable to changes in the cyclical conditions of the economy, which do affect the more mature markets.

Graph 32  
**Homicides by state: 2000-2007 (rate per 100,000 inhabitants, average)**



Source: BBVA Research with Inegi data

Graph 33  
**Homicides by state: 2008-2010 (rate per 100,000 inhabitants, average)**



Source: BBVA Research with Inegi data

<sup>2</sup> For the case of the Infonavit, up to 90% of the loans are assigned to housing with a value lower than 650,000 pesos; even in the case of the Fovissste, said segment is assigned around 75% of the loans. For loans granted at a national level, both institutes contribute over 90% of the total.

<sup>3</sup> The Infonavit makes it explicit in its annual placement goals that at least 60% of the mortgage loans that it grants go to the population with income below four minimum wages that are subject to receive both types of subsidies (in the interest rate and on the price of the housing).

## Results of simulation exercises

In order to quantify the impact of violence on the housing market, a panel model of fixed coefficients for housing sales was estimated (total number of loans placed) and the amount of the loan (the one granted by the commercial banks) using relative variables of activity at a state level (index of state economic activity and manufacturing production), of housing (value per square meter of construction and bridge loan) and of violence (homicides). Given that it was in 2008 when an increase in violence is seen, a dichotomic (dummy) variable was included to measure its effect prior to and as of this year (see details in Box 2. A quantitative approximation of the effect of violence on the housing market).

The model shows interesting results. First, it allows confirming a negative relationship between violence and housing sales, seeing that the coefficient of the dichotomic variable was significant and with the expected sign<sup>4</sup>. Second, the effects of economic growth are isolated from those of violence, both at a national level and by group of states, that is, those of higher violence and the rest.

The results of the model show the effects that the main indicators of real economic activity have on housing demand and the role of violence in the period. On the one hand, we find that income and loans have, as could be expected, a significant impact on housing sales; a one percentage point rise in said variables generates increases of 1.056 and 0.573 percentage points, respectively, on sales. In contrast, violence has a negative effect; for each percentage point that it increases, housing sales are reduced by 0.2 percentage points. That is, the income effect continues to be the most important variable in demand.

Chart 4

### Distribution of the income effect and the violence effect on housing sales\*

	Most violent states	Least violent states	National
Income effect	1.5	1.6	1.6
Violence effect	0.1	0.4	0.3
Total	1.6	2.0	1.9

\* Response to each percentage point of increase in income and of each percentage point of decrease in the homicide rate. Source: BBVA Bancomer. Significant parameters to 95% of confidence in a panel model with fixed effects.

The effect of reducing violence is higher in states where this phenomenon has a lower presence (0.4 points vs. 0.1 points in the states that are traditionally more violent); the income effect in both cases is similar, slightly lower for the states with greater violence). That is, where the levels of violence are high, there is less sensitivity both to income and to violence. In turn, for states where the phenomenon is less common, there would be a more notorious response of a greater disposition by consumers to acquire a home, if they perceive any progress in the fight against crime.

As a final note, it is important to take into account that the greater part of the increase forecast for the model in view of the eventual decrease in violence, it would mainly come on the part of the average and residential segments, which are where the relative aspects of consumer confidence have most influence.

## Conclusions

When speaking of violence in Mexico, the first thing that must be said is that, even though the national level has rallied, it continues to be a strongly concentrated phenomenon in a few regions, which historically have shown relatively high levels of violence, compared to the rest of the country. The statistical analysis allows confirming a negative relationship between violence and housing sales. However, it should be stated that this effect could be lower than some might think, given that violence, at least in the case of housing does not affect all the states or all the segments equally. Statistical analysis allows confirming a negative relationship between violence and housing sales and a decrease in violence would provide an impulse to the mortgage market. However, it should be mentioned that this impulse could be lower than some might think, given that violence, at least in the case of housing, does not affect all the states or all the segments equally. In any case, it is concentrated in those of medium and high income, which is where the factors associated with demand and particularly consumer confidence, have greater weight. For the low income population segments, which are the majority of the market, housing sales depend to a great extent on the availability of subsidies, and, in this sense, they are less vulnerable in relative terms to violence levels.

<sup>4</sup> The sign of this variable is negative which implies that violence tends to reduce the level of housing sales.

## Inset 2: A quantitative approximation of the effect of violence on the housing market

In this inset of **Mexico Real Estate Outlook**, we make use of the econometric analysis in order to estimate the sensitivity of housing sales to economic conditions or to factors of supply and demand, as well as to the social environment, particularly, violence.

As an approximation, we use housing sales, the placing of mortgage loans and based on this, we construct a panel model with numbers per federal state from 2003 to 2010. This is a model of simultaneous equations that allow estimating, on the one hand, the balance of the mortgage portfolio in terms of economic activity (measured by the indicator of state industrial activity) and of violence (measured by the rate of homicides for every 100,000 inhabitants). In turn, said portfolio estimate is used as an explanatory variable of housing sales, together with the housing supply and the price of housing (measured by the value per square meter of construction).

This approximation takes as reference Gimenez G. (2007), with a panel methodology with fixed effects, which groups the factors of each state and are invariant over time. This reference also served as a basis for the BBVA Research estimate on the impact of violence on economic activity in Mexico, published in the fourth quarter of 2010 of **Mexico Real Estate Outlook**.

### Equations of the panel model to determine the effect of violence on housing demand <sup>1</sup>

#### 1) Housing sales

$$\Delta VIV_{it} = \beta_1 * \Delta Y_{it} + \beta_2 * \Delta CRV_{it} - \Delta Vm^2 + \Delta OV_{it} + \varepsilon_t$$

#### 2) Housing loans

$$\Delta CRV_{it} = \varphi_1 * \Delta YM_{it} + \varphi_2 * \Delta VL_{it} + z_t$$

Where: VIVit = the housing sales in the state; Yit = the state economic activity index; CVRit = housing loans granted by the commercial banks; Vm2 = value per square meter of construction; YMit = Industrial activity; OVit = Housing supply; VLit = violence (registered homicides in the attorney general's offices for every 100K inhabitants); Dit= Dummy variable to characterize the violence effect<sup>2</sup>.

The results of the model are placed within those expected, even though the estimate that it offers is not an exact calculation of the degree to which violence affects industry. Beginning with which the latter has a greater dimension than only the homicides, which is useful due to its reliability and coverage that, in the best of cases, is a partial dimension. As much or more important than the violence per se is the perception that economic agents have regarding this because it determines, to a great extent, their purchasing decisions, especially when they are durable consumer goods, like housing.

### References

Bejarano, J. A. (2003). "Violence, security and economic growth in Colombia, 1985-1995" Colombian Economic Journal, vol. 1, no 1 p.p. 36-57

Giménez G. (2007). "Violence and growth in Latin America". Universidad de Zaragoza. Economic Analysis Working Papers., vol. 6 p.p. 1-34

Instituto Nacional de Estadística y Geografía (Inegi) [www.inegi.org.mx](http://www.inegi.org.mx)

Secretaría de Seguridad Pública [www.ssp.gob.mx](http://www.ssp.gob.mx)

<sup>1</sup> The sub-index it indicates the state i for in the period t.

<sup>2</sup> Fictitious variable which attempts to capture the incidence of violence on the housing market for the period estimated. In particular, as of 2008 when the homicide rate shot up two digits in some regions of the country.

## 3b. Results of the 2010 Population and Housing Census

### Introduction

The 2010 census yielded interesting although surprising results as to the country's population, its growth and its regional distribution. The figures imply changes in the general trends that have been registered and will have important implications in the medium term. In this article of **Mexico Real Estate Outlook**, these changes and the new perspectives that they generate are analyzed. It begins with a comparison between the expected figures and those observed as to the population and the reasons explaining the differences. Based on that and going forward regarding the official projections that the National Population Council (Conapo for its Spanish initials) will make known toward the end of 2011, foreseeable scenarios are constructed for the following decades as to population growth and its structure. Further on, regarding the matter of housing, the review of the census figures confirms the advances that have been achieved and some challenges that should be faced in the coming years.

### Results with regard to population

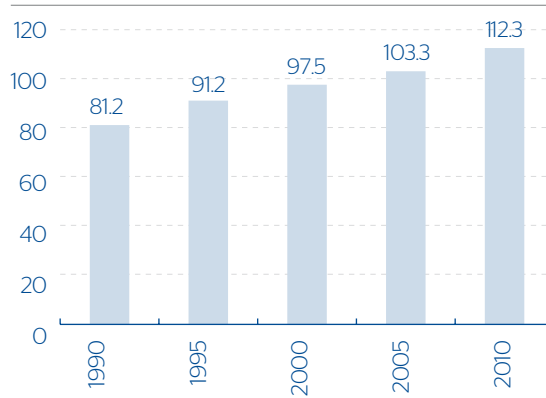
The results of the General Population and Housing Census of 2010 show that the population in Mexico is of 112.3 million inhabitants. This figure implies a surprisingly marked upward trend since the projections held by the Conapo and the Inegi were pointing to 108.4 million inhabitants; that is, almost four million more than what was projected.

From the standpoint of Conapo, there were reasons that supported a modest growth in population in the 2005-2010 period. The average annual growth rate (TMAC for tasa media anual de crecimiento) had been decreasing from 2% in the eighties to 1.8% in the nineties and to 1.2% between 2000 and 2005. At least two factors had contributed to this. First, birth control policies had managed to control population growth in rural and impoverished areas, and among adolescent women; and second, the flows of emigrants and immigrants had remained relatively stable in recent years.

However, the reality was that conditions had changed and some assumptions stopped being valid: the birth rate reverted its drop, the same as the migratory flows<sup>1</sup>. Some factors could have been temporary, although others seem to reflect changes in the trends that either had not been detected or had not been adequately measured.

Graph 34

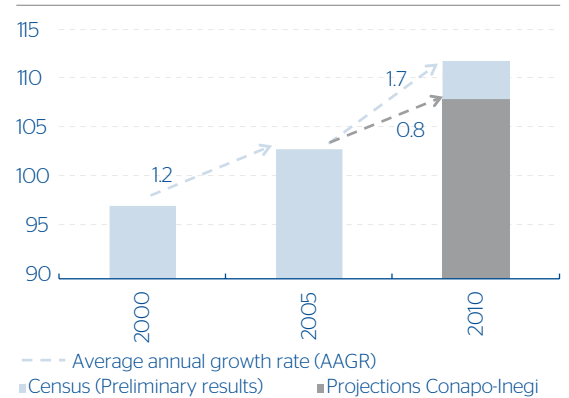
**Population in Mexico: 1990-2010 (Millions and AAGR)**



Source: BBVA Research, INEGI and Conapo data

Graph 35

**Expected vs. Observed Population: (Millions and AAGR)**



Average annual growth rate (AAGR)  
Source: BBVA Research, INEGI and Conapo data

<sup>1</sup> In the projections of population growth, four elements are taken into account: the fertility rate and children's survival rate, the net international migratory balance (emigration and immigration); life expectancy and probabilities of death by age groups. The last two have little changes throughout time, due to which, in any case, the changes in the population growth trends reflect either the differences in the birth rates (which are also present gradually) and/or the migratory flows.

Starting with the birth rate, it contributes 1.1 million of the 3.9 million (28%) of the error between projections of the 2005 count and what resulted in the census. Moreover, if the differences are analyzed between estimated and observed population by age groups, it is seen that the 5 to 9 year-old population contributes another 1.1 million to the error. What does this mean? Simply that in the 2005 count, this number of births was not registered<sup>2</sup>. That is, the birth rate did not change surprisingly, but in any case, the defects in the measurement of the newly born in 2005, were transferred to the projections of 2010 (and the following years)<sup>3</sup>. It will be necessary to wait until Conapo offers explanations of this error, even though a possible factor could have something to do with a lower emphasis on the birth prevention policies and of reproductive health education that the federal government carries out.

The second element, migration, is also quite interesting and merits a detailed discussion. It is a fact that the net international migration or the difference between international emigrants and immigrants turned out to be less negative than expected. According to the Inegi, the international emigration rate decreased by 31% in the 2005-2010 period compared to the previous five years.

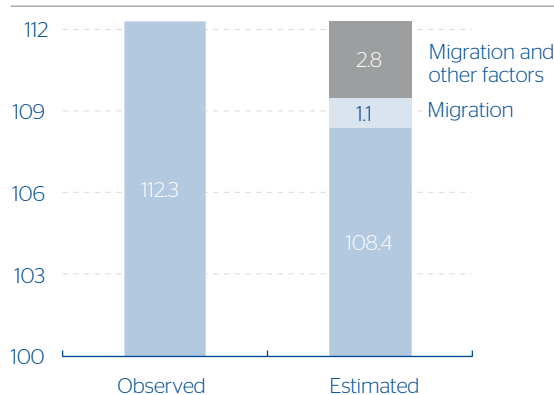
Some of the reasons could be of a temporary nature and others deeper. Among the former, the economic and political context should be mentioned that the United States (the destination of nine of every ten Mexican emigrants) was undergoing in recent years and which included the economic recession, the change in administration and the Arizona bill against undocumented immigrants, which has have been extending into other states. It is clear that these factors made access difficult into the U.S. and even led some Mexican workers who were in that country to return. The question, however, is what impact will the return to economic stability and a less hostile environment toward immigration in the U.S. have on migration flows.

But it has not been just the lower emigration. There have also been important flows of immigration to Mexico not previously seen. In 2005, the population born abroad and residing in Mexico was around 500,000 inhabitants, while for 2010, the figure had increased to 961,000, that is, the number of foreigners had practically doubled in those five years.

Finally, there is the matter of return migration. Going back to the comparison between the expected and the observed population for 2010, it is seen that in the age 65 and over group, the difference or the size of the error is of one million inhabitants. Instead, for the working a population of between the ages 15 and 65, the difference is of only 700,000 inhabitants. That is, and even if this shall have to be explored more in depth, we could be looking at a flow of foreigners who come to retire to Mexico, or rather, Mexican workers who left in their working age and returned in their retirement age. Both phenomena had been anticipated and analyzed by BBVA Research, as described in the September 2007 issue of **Mexico Real Estate Outlook**.

Graph 36

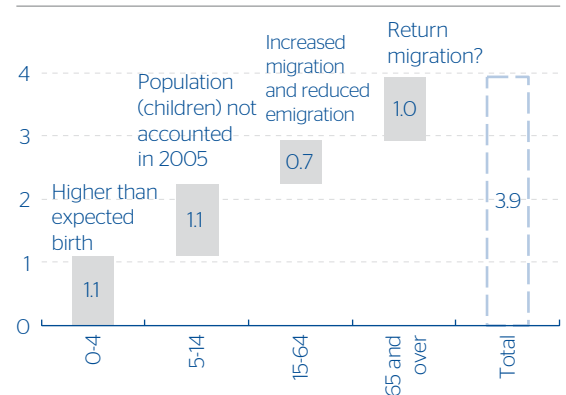
**Population 2010: estimated vs. observed (Millions)**



\*Measurement errors in the 2005 count, population with no registry of age and differences between estimates by Conapo and Inegi for 2005. Source: BBVA Research, with INEGI and Conapo data

Graph 37

**Population by age groups: expected vs. observed (millions)**



Source: BBVA Research, with Inegi data

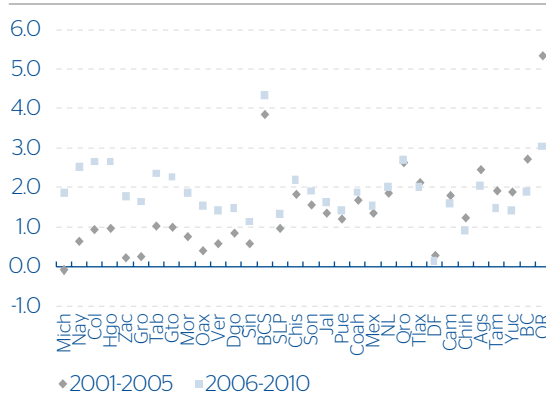
<sup>2</sup> In 2005, this group was placed in the range of 0 to 4 years.

<sup>3</sup> Although it is surprising that this was not detected previously, there being multiple mechanisms for verification to corroborate the birth figures on the side of the administrative registries, there are birth certificates, health certificates and age four students enrolled in pre-school education; and also, there is the National Survey of Demographic Dynamics (Enadid for its Spanish initials) that is applied regularly (the last being in 2006 and 2009).

Be it as it may, the change in the migratory flows generated important differences in the population trends at a state level. States that traditionally send off labor, like Nayarit, Hidalgo, Guanajuato, Michoacan, Durango and Zacatecas significantly increased their population growth rate. Of note is the case of Michoacan, which went from a 0.1% annual rate between 2000 and 2005, to 1.9% between 2005 and 2010; that is, even higher than the national average. In fact, the greater differences between the growth rates registered in 2005-2010 compared to the previous five years correspond to states that traditionally export labor.

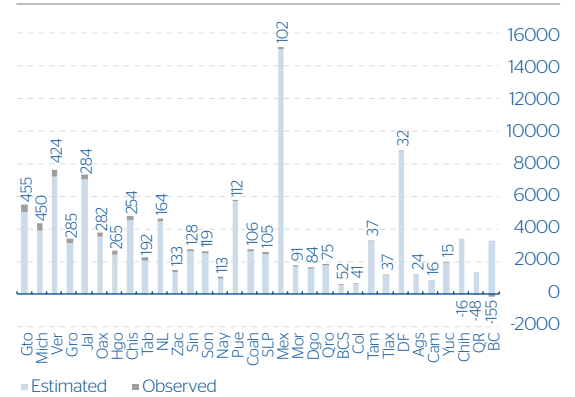
In contrast, in states where the population expansion rate moderated include Quintana Roo, Baja California, Aguascalientes, Tlaxcala, Tamaulipas and Chihuahua. The common denominator in all of these is the strong impact on the market from the economic crisis in the U.S., be it from the side of in-bond manufacturing plants, the automobile industry or tourism.

Graph 38  
**Population by state: 2005 vs. 2010 (TMAC)**



TMAC: Average Annual Growth Rate in percentageSource: BBVA Research, with INEGI and Conapo data

Graph 39  
**Population by state: expected vs. observed (thousands of inhabitants)**



Source: BBVA Research, with Inegi data

**Medium-term implications**

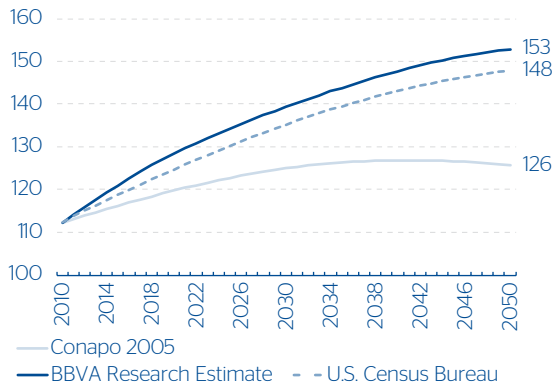
It will be up to Conapo to explain in detail the causes of the differences between the expected population and the one that was registered in the census. In order to discern to what extent the figures reflect the temporary conditions that must be reverted in the coming years will be subject for debate, and quite relevant, so as to exactly define the medium term trends.

It will be until the end of 2011 when Conapo announces the results of their new population projections<sup>4</sup>, although from the outset it can be anticipated that they will be very different from those realized after the 2005 count. Some elements allow anticipating new trends. One approximation is to use the observed growth rate between 2005 and 2010 (1.7% annual average) and to project toward the future following the path that the national population showed from the last year that this rate was recorded (1994). This is equivalent to moving back the growth rates 17 years. With this method, it is obtained that by 2050, Mexico's population will rise to 153 million. In that year, the population growth rate will be 0.2%, when according to the projections in force, the figure will be reached in 2033. A similar method is used by the Census Bureau of the United States, which estimates a practically identical growth rate, and reaches a population for that year of 148 million.

<sup>4</sup> It can be said in passing that it would be worthwhile for them to appear within a framework of transparency and incorporating the opinion of academics and researchers. The topic should not be ignored. Not only did the population estimates fail considerably but the discrepancy in the population figures for 2005 of Conapo and Inegi was also known. In addition, given that many of the policy planning exercises have to do with the correct estimate of population projections, it is advisable and even quite necessary to incorporate the opinion of experts in the matter.

Graph 40

**Population scenarios through 2050  
(Millions of inhabitants)**



Note: In the Conapo 2005 scenario, which is based on the population registered in 2010 and the Conapo growth rates in force are applied. The BBVA Research estimate takes as a reference the last year in which the population grew at the rate observed in the 2005-2010 period and, from there, the growth rates registered in the country as of then are taken.  
Source: BBVA Research, with Inegi, Conapo and the US Credit Bureau

Chart 5

**Population growth as per scenarios (% TMAC)**

	Conapo 2005	BBVA Research Estimate	U.S. Census Bureau
2020/2010	0.6	1.4	1.0
2030/2020	0.4	0.8	0.8
2040/2030	0.2	0.6	0.6
2050/2040	-0.1	0.3	0.3

TMAC: Annual Average Growth Rate in percentage  
Source: BBVA Research, with Inegi, Conapo and US Credit Bureau data

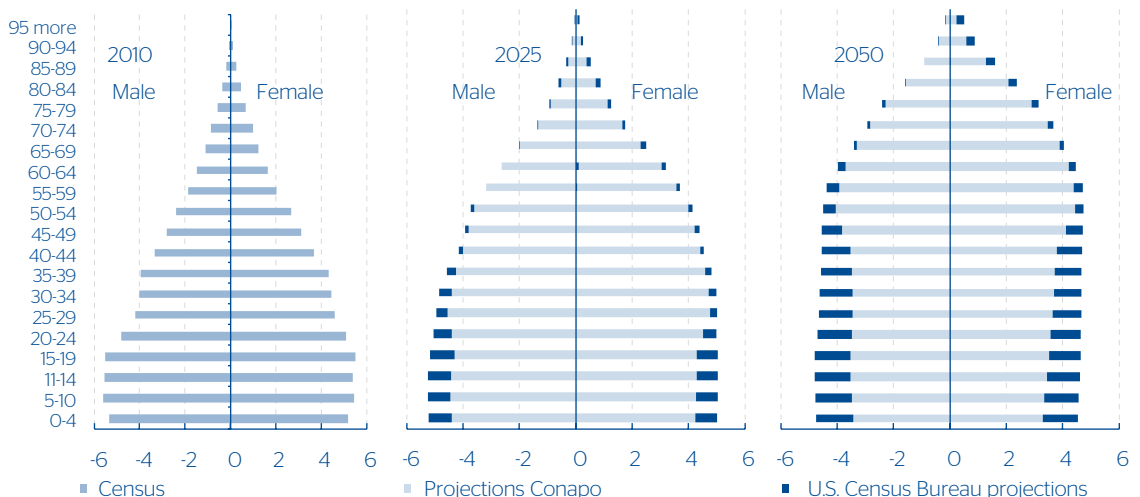
Both exercises mark a considerable difference, from 22 million to 27 million inhabitants (17% to 21% greater) compared to the projections in force, which mark a population of 126 million for that year.

Something can also be said in terms of the structure of the population in the coming years. According to current projections, the population pyramid will increase notably in its middle part toward 2030 (which implies that around those years the fullness of the demographic bond, or the population of working age, reaches its highest level) and toward 2050 it will do it in its medium high part, reflecting the aging process of the population then.

The new figures present a different panorama. According to the projections by age groups conducted by the Census Bureau, there will be a wider pyramid base, both in 2025 and in 2050, which means that the population of working age will continue to grow importantly even in that year and with no clear reduction trend in the birth rates, as the current projections indicate.

Graph 41

**Population scenarios through 2050, (Millions of inhabitants)**



Source: BBVA Research, with INEGI, Conapo and US Census Bureau data



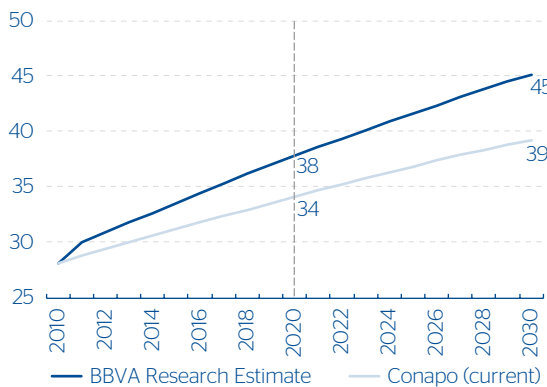
**Implications on future housing needs**

What implications will the changes in the population figures have for housing needs in the coming years? To a great extent these needs are linked to the formation of households, something that Conapo must also update in its new projections. Contrary to the population, the estimate regarding the number of households in the country was practically in line with what Conapo expected (28.2 million vs. a forecast of 28.1 million). Using as a reference for future projections the proportion of households compared to the total population, it happens that in 2020, the number of households will be 38 million and by 2030 they will reach 45 million. This implies an increase of four and six million, respectively, over the current projections of Conapo.

Not all the households will require complete housing, but the nuclear ones will (families with parents and children) and the unipersonal ones. Furthermore, it is necessary to add the household replacement needs in a lagging condition due to deterioration or materials, and which can be quantified in an amount of 1.5 million<sup>5</sup>. Therefore, the total annual complete household needs for the next decade could stand within a range of between 750,000 and 800,000, and a decade later they could be around 550,000. In contrast, the current forecasts point to flows on the order of 600,000 and 400,000, respectively.

Graph 42

**Formation of Households (Millions)**



Source: BBVA Research with INEGI and Conapo data

Chart 6

**Housing needs\* (Thousands, annual flow)**

**Housing needs\*: 2011-2030  
(Annual flows, thousands)**

	2011-2020**	2021-2030
Conapo 2005	588	378
BBVA Research Estimate	764	543

\*Homes formed by families of parents and children (nuclear and unipersonal homes)

\*\*It includes 150,000 homes annually that require substitution due to habitational lag

Source: BBVA Research with INEGI data.

The 2010 census also offers interesting results regarding housing. In this section, inhabited households are analyzed and one complete article is dedicated to the topic of uninhabited housing units (see section 3b. Uninhabited Housing in Mexico).

The results of the 2010 census show a total of 28.6 million inhabited homes, compared to 24.7 million registered in the 2005 count. This implies cumulative growth in the period of 16%, or a TMAC of 3%, a rate significantly higher than that registered in the previous five years of 1.9%.

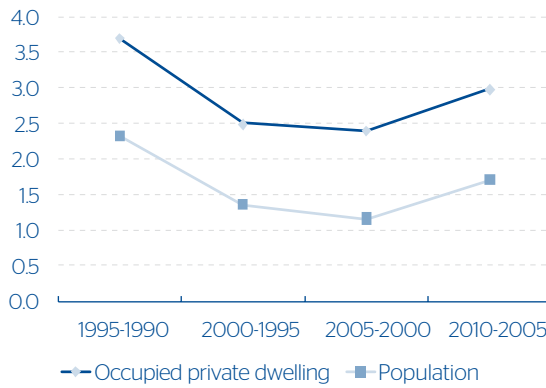
This growth reflects the sharp increase in housing construction in the period thanks to the availability of loans; between the middle of 2005 and the middle of 2010, close to three million mortgages were granted by public and private organizations. Taking into account that somewhere between 20% and 30% of these loans were for used homes, the result is that mortgage loans helped to finance somewhere between 40% and 45% of all the increase in total housing stock during the five years (5.1 million), when considering inhabited and uninhabited housing and that of temporary use.

The rhythm of the increase in inhabited housing units, allows the country to advance in an important manner in attending the cumulative lags in previous years with regard to housing. As was documented in the July 2010 issue of **Mexico Real Estate Outlook**, the housing lag was reduced significantly in the last decade and, from the results of the census, it is seen that much of it was achieved in the last five years.

<sup>5</sup> See the July 2010 issue of **Mexico Real Estate Outlook** for details on the quantification of these housing units.

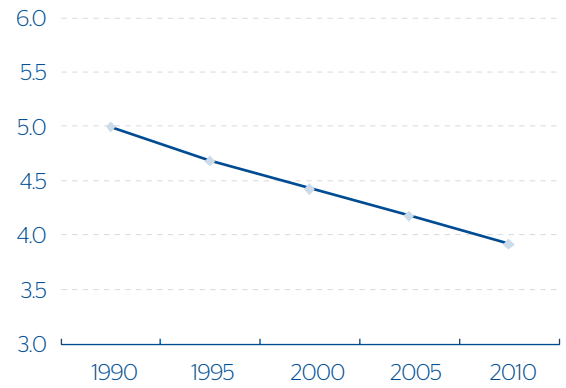


Graph 43  
**Population growth vs. households (TMAC, %)**



TMAC: Average Annual Growth Rate in percentage  
Source: BBVA Research, with INEGI, data.

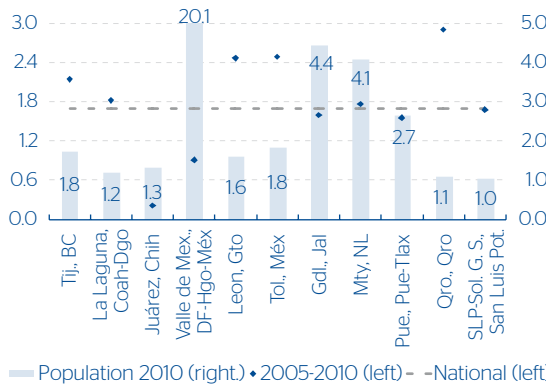
Graph 44  
**Occupants per household (inhabitants)**



Source: BBVA Research, with Inegi data

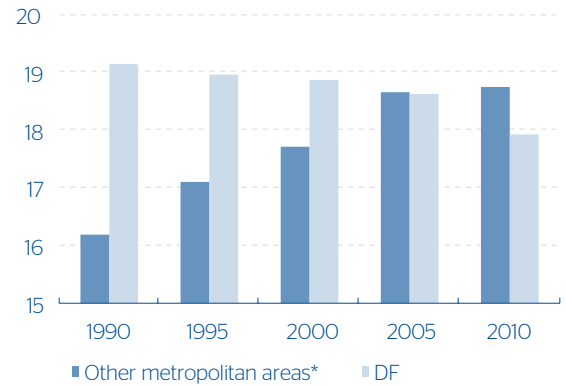
Among the needs attended is not only offering housing to the population that is lacking it, but also improving habitability conditions among those who already have housing. A measurement of this is the over-crowding or the proportion of households with more than two occupants per bedroom, although the census offers just one indirect measurement of this (it measures occupants per room), it is possible to appreciate that the number of occupants has been decreasing in the last decades and did so with greater force in the last five years.<sup>6</sup>

Graph 45  
**Metropolitan areas and their population: 1990-2010 (Mill.inhab., and AAGR, %)**



TMAC: Average Annual Growth Rate in percentage  
Source: BBVA Research, with Inegi data.

Graph 46  
**Metropolitan areas of over 1 million inhabitants (% share in national total)**



\*Tij., BC; La Laguna, Coah-Dgo; Juárez, Chih; Leon, Gto; Tol., MZx; Gdl., Jal; Mty, NL; Pue., Pue-Tlax; Qro, Qro; SLP-S.G.S, SLP  
Source: BBVA Research, with Inegi data

### Other results of the census: the metropolitan areas

Another important topic with regard to housing is also that of the growth of the metropolitan areas. According to the Inegi, there are 56 metropolitan areas in the country<sup>7</sup> (Inegi, 2008), which in 2010 concentrated 55% (62.6 million) of the national population. Eleven of these areas have a population of at least one million inhabitants, nine of which nine grew in the five years at a rate similar or higher than that of the national average<sup>8</sup>. If the Federal District is excluded, it can be seen that the share of the larger metropolitan areas in the total population rose from 18% in 1990 to close to 19% in 2010. That is, a good

<sup>6</sup> Although this is not only a reflection of the housing policy but also of the changes in the dynamics of households: smaller families, unipersonal homes, etc.

<sup>7</sup> These zones have very diverse population ranges, from the 113,000 in Acayucan, Veracruz, up to 20 million in the Valley of Mexico.

<sup>8</sup> The exceptions are the Federal District (Mexico City), and Juárez, Chihuahua, with annual rates of 0.8% and 0.2% respectively.

part of the population growth is appearing in the metropolitan areas and particularly in the medium-sized ones. It should be noted, for example, that the metropolitan zones of between 1.1 and 2 million inhabitants, the population grew 4% on average.<sup>9</sup>

There are multiple reasons for the accelerated growth of the metropolitan areas. On the one hand, there is the marked penetration of economic activity where the share of the cities of greater weight in the GDP (Federal District, Guadalajara and Monterrey) represents 37% of the national total and explains why one of every four inhabitants of the country live near them. A second element is the growing trend toward the concentration of the population in urban centers more than in rural ones, a phenomenon that occurs in Mexico and in other developing countries. There is also the model of housing construction that has been adopted, based on horizontal complexes instead of vertical housing. Also, the lack of adequate regulation should be mentioned both as to the land and urban development.<sup>10</sup>

For the time being, the appropriate development of the metropolitan areas will give room for new challenges in the coming years. New forms of institutional coordination should be taken into account, not only in terms of budget management, as now occurs, but also in the planning and implementation of programs and even mechanisms for the solution of controversies.

## Conclusions

The 2010 census shows surprising results as to the population of the country: its growth rate and its regional distribution. In part, the figures reflect situational conditions that were present prior to the preparation of the census, such as the reinforcement of the measures to put a brake on the undocumented immigration in the U.S. (associated, in turn, with the electoral processes both federal and local), the global recession and the influenza. However, some other elements also reflect changes in the demographic trends (more births, international immigration and return migration).

In any case, the medium term implications will be important. From the start, a new scenario is appearing for population growth in the coming decades, very distant from the forecasts that had been made barely five years ago. Although it would correspond to Conapo to make new projections, everything points to the fact that population growth will continue to advance importantly in the coming decades, with a more balanced population structure among young people and a population that will be integrated into the labor force, and therefore, a demographic bond that will be extended beyond 2050. These are good news for those who participate in the housing industry, since it means that the needs in this matter will continue to be important and will not run out as had been speculated not in this decade nor in the coming one.

The census also offers a perspective of the progress that has been made with regard to urban development, by having reduced the cumulative housing needs or the housing deficit, and improving the habitability conditions of households. However, on the other side, new challenges are discovered in order to achieve a more orderly growth of cities, in particular the medium-sized, which evolve quickly to the metropolitan areas.

## References

Inegi (2010). Comunicado 389/10. In Mexico we are 112 million 322 mil 757 inhabitants. Results of the Census. November.

Sedesol, Conapo e Inegi (2008). Delimitation of the metropolitan areas of Mexico 2005.

## Internet web pages:

[www.census.gov](http://www.census.gov)

[www.inegi.org.mx](http://www.inegi.org.mx)

[www.conapo.gob.mx](http://www.conapo.gob.mx)

<sup>9</sup> To the extent that the figures are published for the metropolitan areas of less than one million inhabitants, it will be possible to appreciate that the higher rates appear in the medium cities of from 500,000 to one million inhabitants.

<sup>10</sup> Not only is there one procedure that is lacking that will effectively coordinate the government agencies participating in the industry, but the attributions must also be set forth again that the different government levels have regarding policy design and planning. The municipalities should not be responsible for urban development policy; in any case, this should be a state attribution, subject to the supervision of some official action of the federal government.

## 3c. Uninhabited housing in Mexico according to the 2010 Census

### Introduction

Measured as a proportion of the total number of housing units, uninhabited housing and that of temporary use posted important growth in Mexico during the past decade. This coincides with the strong growth in housing construction in the country during the same period, although other factors are also important, such as the economic cycle, international migration, the trend toward a greater concentration of the population in urban areas, as well as the availability of mortgage loans for a second home. In any case, uninhabited housing has been acquiring an important dimension; the INEGI (National Institute of Statistics) started to record it since the 2005 count, and with greater precision in the 2010 census. The results derived from the comparison of both periods should be taken into account in designing housing policies and also for decision making of those that participate in this industry, such as housing developers and financial intermediaries.

This article of *Mexico Real Estate Outlook* contributes to the discussion on the matter. It not only quantifies and describes the characteristics of uninhabited housing, but also places in context some of the factors that explain it. We begin with the regulatory framework and international references, which help explain why not all the housing stock is inhabited at all times. Later, there is a detailed review of uninhabited housing in the 2005-2010 period, locating it geographically and characterizing the municipalities where it is present with greater intensity. Further on, by means of econometric models, we estimate the probability of finding uninhabited housing in view of determined socio-economic conditions of the population and housing characteristics. Finally, we identify the zones in the country where there is currently a greater concentration of housing and how this is related to the level of uninhabited housing in those particular areas.

### Up to a certain level, uninhabited housing is necessary

The first thing that should be said about uninhabited housing is that, up to a certain point, it is inevitable and even necessary. Factors such as the mobility of labor, the economic cycle, the life cycle of families, income and even the time required from the time that housing is put up for sale and when it is occupied, have a bearing on the fact that at all times, there is a proportion of the housing stock that is uninhabited.

Thus, for example, in periods of economic expansion or of an increase in housing prices, demand could grow faster than supply and reduce the housing that is available in the market. Also, when there is greater flexibility in the labor market, especially in terms of geographic mobility, the greater the need to have an available stock of housing to be occupied at any moment. Finally, as families' needs change due to their life cycle and as they are reinforced due to better economic conditions, new housing is required that responds to the change in needs, without this implying necessarily that the original housing has to be sold.

We would have to differentiate also between uninhabited housing for rent and for sale. The case of the United States is relevant in this aspect, since it shows how there are important differences in one case and the other. For example, in the case of housing for rent, the proportion of uninhabited housing compared to the total available has averaged around 7% during the last 50 years, although this grew to nearly 10% during the last recession. In housing ownership, the historic proportion is 1.5%, which grew to around 2.5% in 2010.

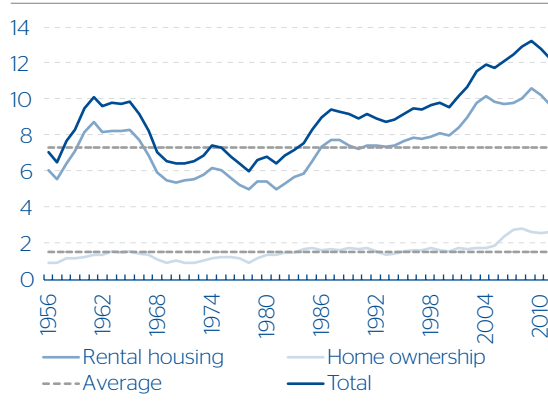
In economic literature, the existence of a threshold for uninhabited housing is set forth, or a "Natural Rate of Uninhabited Housing", which depends on factors such as supply and demand, interest rates and transaction costs, among others. This rate could also change in terms of structural changes in the economy. However, its application has been directed mainly toward housing for rent. In the

case of the U.S., some estimates are in the range of 6.5% (Hagen and Hanser, 2010); that is, this is the level at which, under conditions of economic stability (with the economy growing at its potential), uninhabited housing does not generate imbalances in the real estate market.

To conclude with this section, it should be said that, although it is an important phenomenon, the information on uninhabited housing is very limited. For example, figures from the World Bank set forth some estimates for uninhabited housing, in which both the lack of information as well as disparity in the figures is evident. Rates fluctuate from 3% in the case of Peru, up to 16% in Argentina. On the other hand, only 24 countries are reported on of 156 countries in terms of housing figures, and in most cases, the information is from the nineteen eighties and the nineteen nineties. This situation displays two circumstances; on one hand, in view of the lack and quality of the information, it is difficult to establish parameters in order to make solid international comparisons of uninhabited housing among the various markets. On the other hand, it also shows the difficulty in compiling figures for uninhabited housing in a periodic and systematized manner.

Graph 47

**Uninhabited housing in the U.S. (%)**



Source: BBVA Research with data from the U.S. Census Bureau

Chart 7

**Uninhabited housing in selected countries (%)**

Country*	Uninhabited housing ** (%)
Uruguay (1986)	13
El Salvador (1992)	11
Guatemala (2002)	11
Chile (2002)	10
Costa Rica (2000)	6
Paraguay (1992)	6
Bolivia (2001)	4
Peru (1993)	3

\*Figures in parenthesis denote the year the information refers to  
 \*\*Includes rental and owned housing  
 Source: BBVA Research with World Bank data

**The evolution of uninhabited housing in Mexico**

To make an evaluation of uninhabited housing, it is important to measure its evolution over time. However, in Mexico, this concept began to be recorded in censuses and population counts only as of 1995, and in the beginning, it was not a rigorous measurement, but was obtained as a residual effect of the census count.<sup>1</sup>

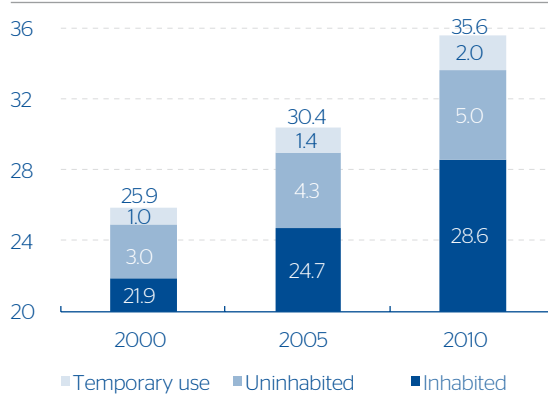
Between 1995 and 2000, the levels of uninhabited housing and that of temporary use were practically at the same level. Considered jointly (given that in those years they were not identified individually, they represented almost 16% of the total housing stock. For 2010, with a more accurate measurement, uninhabited housing was 14% and that of temporary use was 5.6%.

Considered from this standpoint, it is clear that uninhabited housing has shown an important increase over the last fifteen years. However, some clarifying points should be mentioned. First, there are some restrictions regarding the information, which only allow making comparisons at an aggregate level. Second, part of the increase can be associated with the development of the real estate market. It was in the past decade and especially in the second half, when housing construction

<sup>1</sup> The recording of uninhabited housing in Mexico began in 1995. However, in the beginning this was only for verification purposes of the census count and not specifically for identification. Up to the 2000 census, there is no distinction between uninhabited housing and that of temporary use, and the figures only have representation at the national level (not at the state or municipality level). It was as of the 2005 count when its measurement began, and in a more formal manner as of the 2010 census. For this last year, the measurement was done with a methodological process that included a total of five visits to the homestead, which included pollsters and a supervisor.

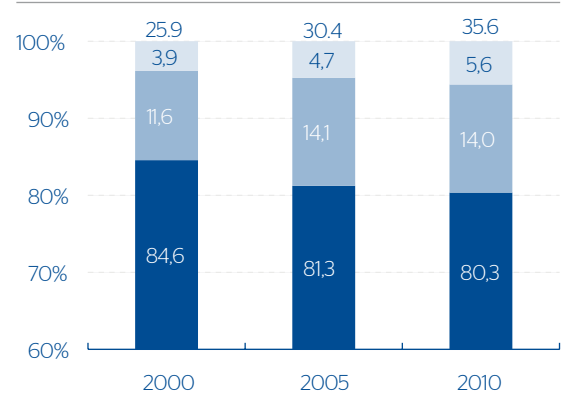
acquired a strong momentum and more intermediaries and new mortgage-financing plans emerged. Among these is second-home mortgage financing for the middle-income population, something that had not been developed previously.

Graph 48  
**Housing stock 2000-2010**  
(Millions of housing units)



Note: for 2000, the breakdown corresponds to estimated figures  
Source: BBVA Research with Inegi data

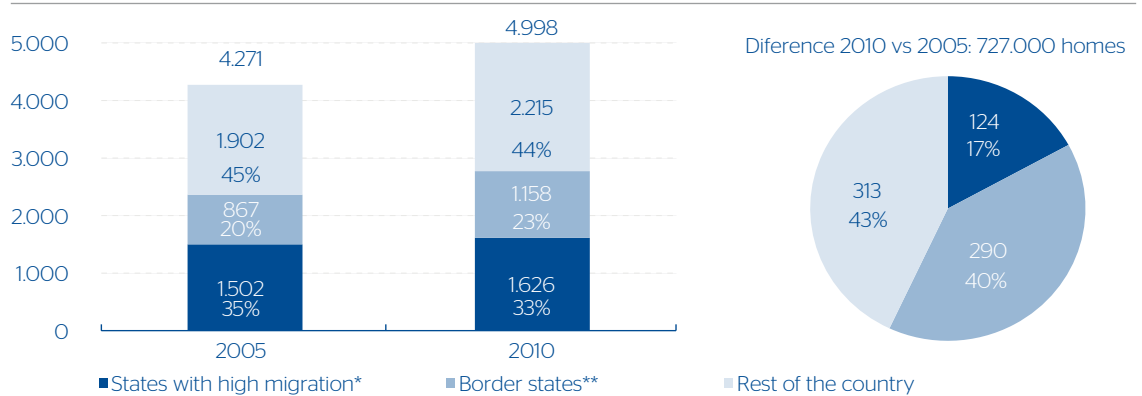
Graph 49  
**Housing stock 2000-2010**  
(% distribution)



Source: BBVA Research with Inegi data

For a more accurate measurement of the changes in the evolution of uninhabited housing, the analysis should be based on the 2005-2010 period, for which there is more detailed and reliable information. The analysis presented here only considers those years and focuses specifically on uninhabited housing, leaving housing for temporary use to be analyzed in a later study.

Graph 50  
**Uninhabited housing: 2005 vs. 2010 (% of housing stock)**



\*Durango, Guerrero, Guanajuato, Hidalgo, Michoacan, Nayarit, Oaxaca, San Luis Potosi, Veracruz and Zacatecas  
\*\*Baja California, Coahuila, Chihuahua, Nuevo Leon, Sonora y Tamaulipas  
Source: BBVA Research with Inegi data

Between 2005 and 2010 uninhabited housing remained practically without any change, at around 14%. In absolute figures, these rose from 4.3 million to 5 million housing units, a difference of 721,000. This proves that the subject of uninhabited housing is not new, and growth in recent years has not been as dramatic as could be presumed. This does not mean that it is not a problem, but that in any case, it has been around for some time and in the past, there had been very little attention given to it.

## Characterization of uninhabited housing

### 1. State overview

For purposes of regional characterization, three groups of states can be identified according to the level of uninhabited housing that these register; those states that traditionally export labor or with a predominantly negative net annual migratory balance; those located along the border areas and of

which the economic dynamism, especially in the last decade, has shown greater volatility than in the interior of the country and; the rest of the states.

The first group includes the ten states with a greater share in terms of international emigration (Durango, Guerrero, Guanajuato, Hidalgo, Michoacán, Nayarit, Oaxaca, San Luis Potosí, Veracruz and Zacatecas) and accounted for 35% of the total of uninhabited housing in 2005, and in 2010 their share was reduced, although moderately, to 33%. In turn, the group of states located along the border with the United States (Baja California, Sonora, Coahuila, Chihuahua, Nuevo León and Tamaulipas) increased their share, from 20% to 23%. This implies that at 56 % of uninhabited housing is located among these two groups of states, and that, taken jointly, their share has not changed in recent years, although significant changes have been registered within them.

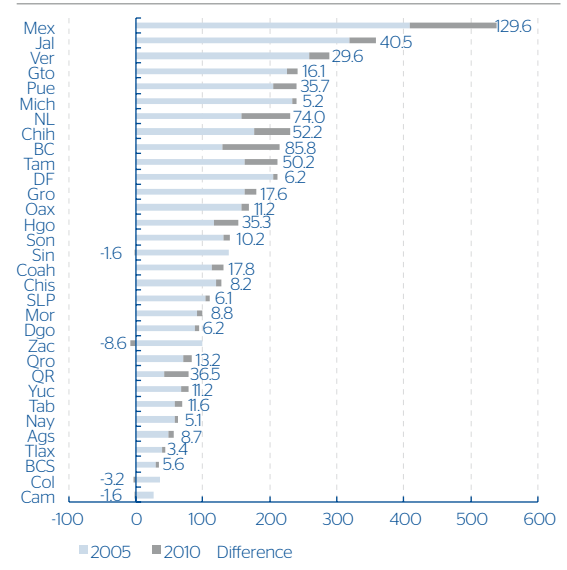
For example, when reviewing the figures at the state level, we confirmed that the states with the greater levels of uninhabited housing are located in these two groups, although for the border states, especially Baja California, Chihuahua and Tamaulipas there was a significant increase in the proportion of uninhabited housing, while for those with a high emigration level such as Zacatecas, Durango, Michoacan and Nayarit, there is a reduction in the uninhabited housing levels.

Graph 51  
**Uninhabited housing 2005 vs. 2010 by state (% of housing stock)**



Source: BBVA Research with Inegi data

Graph 52  
**Uninhabited housing 2005 vs. 2010 by state (thousands)**



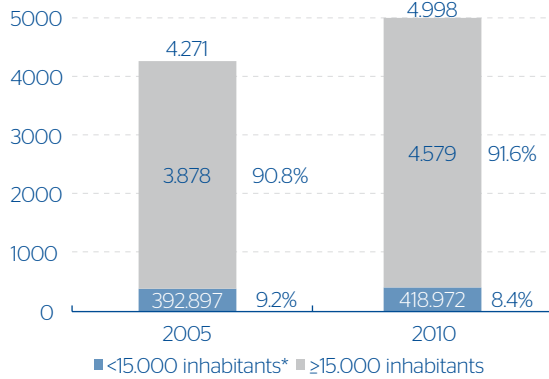
Source: BBVA Research with Inegi data

When the figures are considered in absolute terms, the State of Mexico is the one with the highest level of uninhabited housing, and also where there is the greatest increase, although as a proportion of housing construction, it is below the national average. This reflects the strong contribution that this state has had in housing construction at the national level in recent years, which will be discussed further on.

**2. Urban vs. rural municipalities**

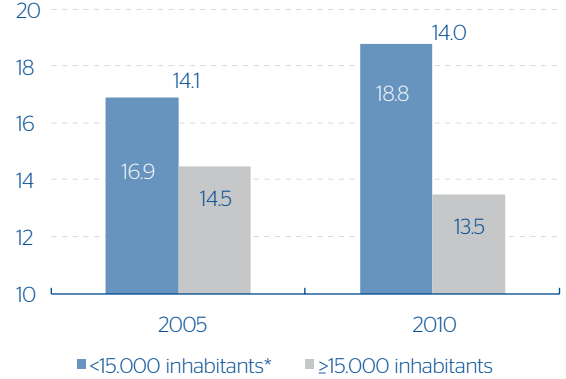
The aggregate figures at the state level offer initial information, although to see the dynamics within each state, it is necessary to focus the analysis at the municipal level. The first is to identify these in terms of whether they correspond to the rural or urban areas. The basic criterion is to consider among the former, those with a population under 15,000 inhabitants, and among the latter those with a population above that level. There are important differences between the two, because while in the rural municipalities, the proportion of uninhabited housing is close to 19% (in 2005 and 2010), in the urban communities it is only 13.5%. It is necessary to focus attention on this second group, which represents close to 92% of uninhabited housing (4.6 million), and where around 98% of housing construction at the national level was concentrated between 2005 and 2010, and also where 700,000 of the additional, 721,000 uninhabited housing.

Graph 53  
**Uninhabited housing 2005 vs. 2010 by type of municipality (thousands)**



\*Includes places with 1 and 2 housing units  
Source: BBVA Research with Inegi data

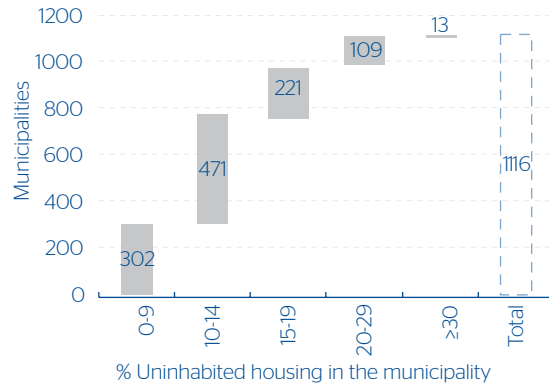
Graph 54  
**Uninhabited housing 2005 vs. 2010 by type of municipality (% of the total housing stock)**



\*Includes places with 1 and 2 housing units  
Source: BBVA Research with Inegi data

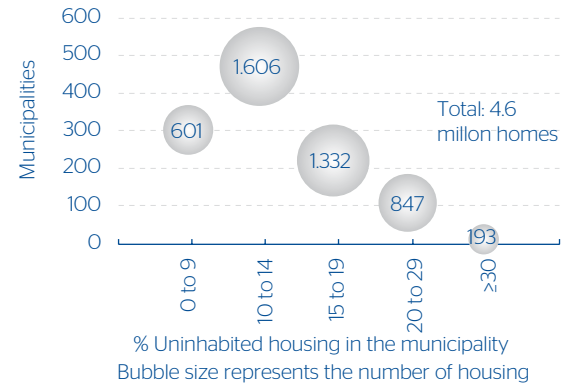
Among the urban municipalities, a total of 1,116, there are 302 with relatively low levels of uninhabited housing, less than 10% of the housing stock. A second group, of 471 municipalities, have uninhabited housing levels that range from 10% to 14%. Then there is a total of 343 municipalities with uninhabited housing levels that go from 15% and up to 45% in some cases.

Graph 55  
**Uninhabited housing rates in urban municipalities (%)**



Source: BBVA Research with Inegi data

Graph 56  
**Number of uninhabited housing units in urban municipalities (thousands of housing units)**



Source: BBVA Research with Inegi data

### 3. Growth in 2010 vs. 2005

In addition to identifying the municipalities where the phenomenon of uninhabited housing has a greater presence, its evolution should be measured in terms of the levels of 2005.

Comparing the figures for uninhabited housing in 2005 and 2010 among urban municipalities, four groups can be distinguished: the first, called Group A, where the proportion was relatively low in 2005 and rose above the national average (for urban municipalities) in 2010. The second, Group B, includes those municipalities where the proportion of uninhabited housing was high in both periods. A third group, Group C, comprises those municipalities where the proportion of uninhabited housing in both periods remained at low levels. And finally, Group D, which includes those municipalities where uninhabited housing was high in 2005 and was lower in 2010.

It can be said that uninhabited housing requires more attention in groups A and B, which is where uninhabited housing levels are above the national average. In the first group there are 89 municipalities, with a total of 584,000 uninhabited housing units (230,000 more than in 2005) and which represent

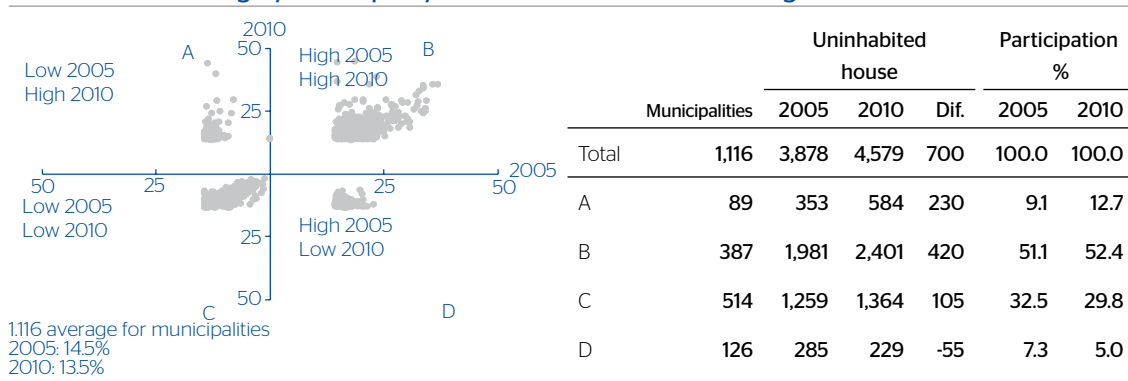
almost 13% of the total. In Group B there are 387 municipalities, with 2.4 million uninhabited housing units, 52% of the total. In addition, Groups A and B account for 650,000 of the 700,000 uninhabited housing units which were added to those observed in 2005 in urban municipalities.

Group C represents those municipalities where uninhabited housing is not cause for concern, and Group D includes those municipalities where the population has grown. In this last group, measured in absolute terms, there were fewer housing units in 2010 than in 2005: 229,000 vs. 285,000.

Although due to lack of space, the names of the municipalities in each group are not included, their location and level of uninhabited housing can be consulted in [www.bbva-research.com](http://www.bbva-research.com).

Graph 57

**Uninhabited housing by municipality\*: 2005 vs 2010\*\* (% of housing stock)**



\*Municipalities with at least 15 thousand inhabitants in 2010 \*\*Comparison vs national average in each year: 14.5% in 2005 and 13.5% in 2010  
Source: BBVA Research with Inegi data

**4. Municipalities according to type of state**

As regards the characteristics of each group, in the first place the type of state to which they correspond can be seen. In Group B, for example, the share of these state is 37% (893,000 among 2.4 million). This strengthens the hypothesis that a great part of uninhabited housing is due to migration<sup>2</sup> and a growing trend toward concentration of the population in medium and large cities, leaving the smaller towns with relatively high levels of uninhabited housing. In the aggregate, 30.4% of uninhabited housing (and 44.5% of total municipalities) corresponds to states with high emigration levels.

Chart 8

**Urban municipalities according to type of state and uninhabited housing group**

	Total	High emigration	Border area	Rest of the country
Total	1,116	497	114	505
A	89	40	11	38
B	387	200	51	136
C	514	204	38	272
D	126	53	14	59
<b>% share</b>				
Total	100.0	44.5	10.2	45.3
A	8.0	3.6	1.0	3.4
B	34.7	17.9	4.6	12.2
C	46.1	18.3	3.4	24.4
D	11.3	4.7	1.3	5.3

Source: BBVA Research with Inegi data

Chart 9

**Uninhabited housing according to group and type of state (thousands)**

	Total	High emigration	Border area	Rest of the country
Total	4,579	1,392	1,095	2,092
A	584	117	157	310
B	2,401	893	721	788
C	1,364	289	190	886
D	229	94	28	107
<b>% share</b>				
Total	100.0	30.4	23.9	45.7
A	12.7	2.5	3.4	6.8
B	52.4	19.5	15.7	17.2
C	29.8	6.3	4.1	19.4
D	5.0	2.1	0.6	2.3

Source: BBVA Research with Inegi data

<sup>2</sup> Although the subject of return migration should also be mentioned. As seen at the beginning of this document, in relative terms, and in some cases also in absolute terms, uninhabited housing has diminished in state of high emigrations. Also, in Group D, with the municipalities where the population has grown, 40% correspond to states with high emigration. This indicates that, although it has been reduced, uninhabited housing continues to be relatively persistent and high in those states where labor traditionally emigrates.



In Group A, in turn, states with high emigration account for only 20% of the total (117,000 of 584,000 uninhabited housing units), while the greater part of these are in the other states within the country (53%) and along the border (27%). It should also be noted that despite the fact that this is the group of greater concern, it can be said that the problem is focused: these are only 89 municipalities, of which 40 are in border states, 11 on the border and 38 in the rest of the country.

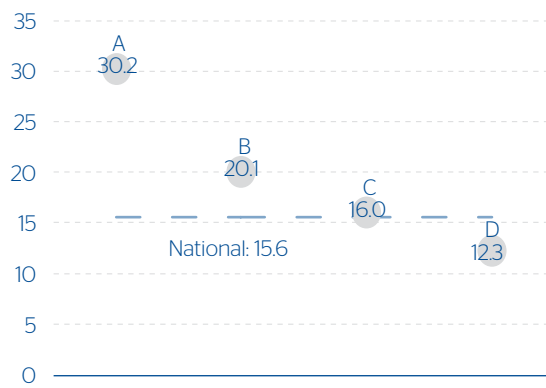
Taken jointly, uninhabited housing units in Groups A and B, almost three million, are located as follows: 34% in border areas, 29% on the border and 37% in the rest of the country. However, in terms of the municipalities where they are located, 50% (240 of 476) correspond to states with high emigration, 13% (62 municipalities) are along the border and the remainder, 37% (174 municipalities) in the rest of the country.

**5. Growth in the housing stock and mortgage loans**

It has already been mentioned that the urban municipalities of more than 15,000 inhabitants accounted for 98% of the growth in housing construction in the country between 2005 and 2010. The question should be asked regarding the distribution of this housing among the municipalities according to the level of uninhabited housing that these present.

Graph 58

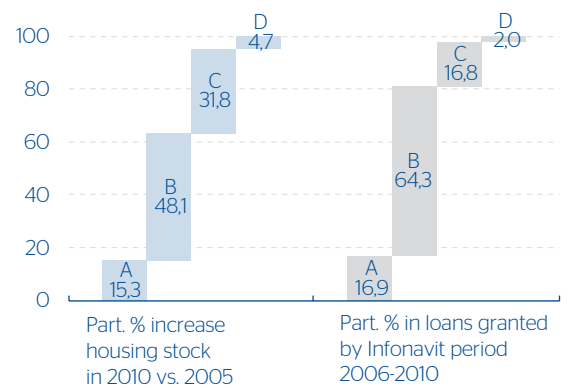
**Increase in the housing stock\*: 2005 vs. 2010 (%)**



\*Inhabited private housing units; uninhabited and of temporary use  
Source: BBVA Research with Inegi data

Graph 59

**Increase in the housing stock\* and share in Infonavit loans\*\* (%)**



\*2010 vs. 2005  
\*\*2006-2010  
Source: BBVA Research with Inegi data

It is interesting to note that, while at the national level, the housing stock grew 15.6% between 2005 and 2010 (from 23.2 million to 35.6 million private housing units), in Group A growth was 30.2% and in Group B it rose by 20.1%. Group C increased 16%, while Group D grew 12.3%. Together, Groups A and B accounted for 63% of total housing construction, and 81% of the loans granted by the Infonavit in the period.

That is, in the municipalities where there is a higher level of uninhabited housing, whether it was present since 2005 (Group B) or it became manifest in an important manner in the following years (Group A), it is also where there has been a greater concentration of housing construction and mortgage loans granted by the public housing institutions. In the Infonavit (the National Workers' Housing Fund Institution), there is full awareness of this situation, and in fact, in the 2011 - 2015 Financial Plan there is a diagnosis of uninhabited housing among those receiving credit from the Institution, and up to 26% of total loans granted between 2006 and 2009 could be in this situation. Among the reasons for this, the greater part (up to 90%) has to do with the housing attributes (considering location, materials and services).<sup>3</sup>

<sup>3</sup> In fact, considering that in urban municipalities there are 700 thousand additional abandoned homes as compared to 2005, and that over this five year period the financial system (Infonavit, Fovissste, commercial banks and sofoles) allocated a total of 3.2 million mortgages, it's a straightforward result that up to 22% of these mortgages have resulted in abandoned homes. This ratio is even lower than the one reported by Infonavit in its 2011-2015 Financial Plan.

This, which should be recognized openly, should also give rise to changes in the processes for the granting of mortgage loans. The initiatives taken by the Infonavit (the National Workers' Housing Fund Institute) are timely and correct in order to mitigate the risk of having uninhabited housing, through tools for a better orientation of the decisions of potential buyers in accordance with their needs and expectations.<sup>4</sup>

### 6. Socio-economic conditions and housing attributes

Based on the census information, it is possible to infer some of the conditions that prevail in those places where there is a greater presence of uninhabited housing. The exercise consists in associating characteristics common to the localities of municipalities where there is a strong presence of uninhabited housing in order to delineate a profile of its inhabitants.<sup>5</sup>

From the basic questionnaire of the census for the 25,520 locations in groups A and B of municipalities (which present high levels of uninhabited housing), a series of variables associated with socio-economic conditions were extracted, including: education, age, health services coverage and availability of goods in the housing unit.

Chart 10

#### Uninhabited housing and socio-economic conditions

**¿How probable is it to find a locality with high uninhabited housing in urban municipalities if, compared with the national average ...?**

1. The proportion of population over 60 is high ?
2. The educational level is low?
3. The coverage of health services is low?
4. The proportion of housing that lacks any good is high?

Probability: 68%

Source: BBVA Research

Chart 11

#### Uninhabited housing and housing attributes

**¿How probable is it to find an urban municipality with high uninhabited housing if, compared with the national average ...?**

1. The proportion of population that has a job in another municipality is high?
2. The proportion of the population that bought its own housing is high?
3. The proportion of the population that inhabits its own housing is high?

Probability: 58%

Fuente: BBVA Research

Moreover, from the expanded questionnaire, a sample was obtained of 323 municipalities (where 80% of uninhabited housing in the country is located), from which some variables relative to the attributes and ownership of housing were extracted: in particular, the question of whether employment is located in another municipality (which gives an idea of one of the most important attributes of housing, location), if the housing unit is owned (separating it from that which could be rented), and if it was bought (to control the possibility of self-construction by the inhabitant).

Through a probable model, commonly known as Probit, the probability was estimated of finding a municipality with a percentage of uninhabited housing surpassing the national average in light of a series of conditions; if it is a municipality of over 15,000 inhabitants; if, compared with the national average, the proportion of inhabitants over 60 years of age compared with total population in the location is high<sup>6</sup>; if the educational level is relatively low<sup>7</sup>; if the proportion of the population that lacks health services (IMSS, ISSSTE, state ISSSTE, Defense, Navy, Subsidized Insurance or another program) is high; and finally, if the proportion of housing in the location that lacks any asset (washing machine, refrigerator, TV, automobile, computer, internet, telephone or cellular phone) is also high.

<sup>4</sup> In particular, three tools have been developed to better guide the decisions of potential credit holders: the Qualitative Evaluation of Housing and its Environment (Evaluación Cualitativa de la Vivienda y su Entorno (ECUVE), the Index of Quality of Life Linked to Housing (Índice de Calidad de Vida Vinculado a la Vivienda (ICVV), and the Index of Equity Value (Índice de Valor Patrimonial (IVP). In Mexico Real Estate Outlook of January 2011, these initiatives are described in detail.

<sup>5</sup> It should be emphasized that this exercise has some limitations, since it is an inference. By definition, in the matter of uninhabited housing, the census does not offer information on the causes or characteristics of the households that have decided not to inhabit their housing units; through reference by the neighbors, it is known that these could be housing units for temporary use or that they are permanently uninhabited, but that is all the information.

<sup>6</sup> This, due to the fact that, in states with high emigration, it is known that people who emigrate are predominantly young and in the communities a greater proportion of people over 60 years of age remain.

<sup>7</sup> Several variables were tested, relative to the educational environment, including average years of schooling, population with secondary and post-basic education completed. Only one of the variables was included in the model, although all were significant.

Given these conditions, the model yielded a probability of 68% of finding levels of uninhabited housing above the national average. This is significant, since it indicates that uninhabited housing is present mainly in high poverty areas, where the population has low educational and income levels. This brings us back to the subject of migration, since the results indicate that the population that abandons its housing units, at least in some percentage, does it to find better living conditions elsewhere, which could be outside the country or in larger cities.

As for the attributes of housing, the model also provides interesting results. If a high percentage of the population in a municipality has employment in another municipality (that is, it must invest a considerable amount of time in traveling); if a high proportion of housing is purchased (as in the case of housing developments) and if, also in a high proportion, the owners are those that live in the housing units, the probability of finding a municipality where the proportion of uninhabited housing surpasses the national average, is 58%. This confirms that although people buy housing with the intention of living in it, with the passing of time, factors such as location play a very important role in deciding whether to remain in the housing unit or not.

Chart 12

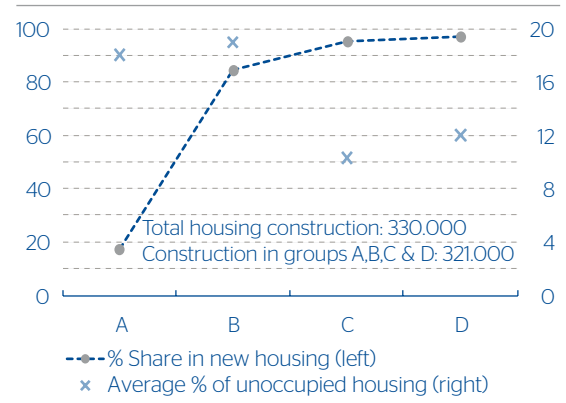
**Uninhabited housing vs. Housing under construction\* by group and quintile (% and % share)**

		Quintiles				
		I	II	III	IV	V
A	Uninhabited housing**	23.4	16.9	16.7	17.4	15.7
	New housing***	12.9	3.0	1.1	0.5	0.1
B	Uninhabited housing**	21.7	20.6	18.4	17.2	17.1
	New housing***	46.3	15.6	4.0	0.9	0.2
C	Uninhabited housing**	11.1	10.5	10.0	10.0	10.0
	New housing***	7.5	2.3	0.9	0.0	0.1
D	Uninhabited housing**	12.5	11.8	11.9	12.4	11.5
	New housing***	1.4	0.3	0.1	0.1	0.0

\*According to records in RUV through March 1 of 2011  
 \*\* % of the housing stock, average  
 \*\*\*Share of the national total  
 Source: BBVA Research with Inegi and RUV data

Graph 60

**Uninhabited housing under construction\* (% and % share)**



\*According to RUV records through March 1 of 2011  
 Source: BBVA Research with Inegi and RUV data

**Uninhabited housing and construction of new housing**

We know that the cities where more housing was constructed between 2005 and 2010 were also those that recorded the highest indices of uninhabited housing. It should be questioned whether this trend continues.

Crossing the figures of the RUV (Spanish initials for Registro Unico de Vivienda, or Sole Housing Registry) at the municipal level over housing construction, with those of uninhabited housing, it is seen that Groups A and B, where the average for uninhabited housing is above 18%, contribute with 87% of all housing planned for construction in 2011 and 2012. Moreover, if each group is separated into quintiles, it is seen that in the first quintile, or the most important 20% in terms of the number of housing units built in Groups A and B, which jointly represent almost 60% of total housing construction, according to the RUV, shows uninhabited housing levels between 22% and 23%. In contrast, Groups C and D together account for only 13% of housing construction, despite the fact that in these groups, the level of uninhabited housing ranges between 11% and 12%.

From this analysis, it is clear that Groups A and B concentrate a great part of economic activity and presumably also, a significant proportion of land reserves of most important housing construction companies in the country. However, great care should be taken so that the rate of housing construction advances in line with demand; and also, that because of its attributes, of design, urban

environment or location, this does not increase the levels of uninhabited housing. But the subject must not only appeal, on its own, to the good judgment of the construction companies, because the cost of uninhabited housing affects all society. The government, the public housing institutions, and even the financial intermediaries must use the best tools to mitigate the risk of building housing that in a short while, ends up uninhabited.

### Conclusions

In 2010, in the country, a total of five million uninhabited housing units were recorded, 14.2% of the housing stock. Undoubtedly an important figure, although to evaluate it, various considerations must be taken into account. First, this is not a new issue: in relative terms, the level reached in 2010 is equal to that of 2005. Second, that in a great part of the cases, uninhabited housing is due to socio-economic and demographic factors<sup>8</sup> (international migration, and a growing trend toward the concentration of population in medium and large cities), as well as temporary conditions at the local level, both at an economic<sup>9</sup> and social level. Third, seen in perspective, the problem of uninhabited housing is relatively limited, since its most significant growth is registered in only 89 cities (8% of the total urban municipalities).

Given the above, we must also stress that there is a component of urban planning and coordination among the different agents that participate in the industry that has not been fully attended. To reduce the high levels of uninhabited housing in cities that have had strong growth in recent years, those programs that direct buyers on the criteria to be considered in selecting housing, must be promoted more strongly. Also, interlocution with builders must be strengthened in order to bolster construction where there is a greater provision of services and where the perspectives for economic growth are more promising. Moreover, greater information must be generated on the preferences and needs of potential buyers, so that housing meets their expectations. In the end, all of this contributes to a better design of public policies, the planning of the housing developments and the attributes of the housing units, not only in terms of materials but also of location and provision of services.

### References

Banco Mundial (World Bank)(2007). World Development Indicators.

Follain, James R. (2010). A Study of Real Estate Markets in Declining Cities. Research Institute for Housing America. December.

Hagen and Hansen (2010). Hagen, Daniel A. and Hansen, Julia L. R. Housing Market and the Natural Vacancy Rate. Journal of Real Estate Research. Oct-Dec

Stuart A., Gabriel and Nothaft, Frank E. (1988) Rental Housing Markets and the Natural Vacancy Rate. Journal of Real Estate Economics. Vol. 16-4, December.

### For figures and data bases:

[www.census.gov](http://www.census.gov)

[www.Infonavit.org.mx](http://www.Infonavit.org.mx)

[www.Inegi.org.mx](http://www.Inegi.org.mx)

<sup>8</sup> For example, along the border and in cities with strong international tourism, where cyclical conditions in the U.S. are very important for the local economies.

<sup>9</sup> The figures show a greater presence of uninhabited housing in rural municipalities over urban, and in municipalities with high poverty levels. This indicates that part of the phenomenon is attributable to conditions of a housing lag and the need to replace housing in precarious conditions. As for the demographic aspect, uninhabited housing also reflects international migration, as well as migration from the country to the city, or the trend toward greater population concentration in urban centers.

## 3d. The BBVA housing price index

Information on the evolution of housing prices constitutes a fundamental tool for decision making by the different agents that participate in this industry, be they buyers, builders or financial intermediaries. In this article of **Mexico Real Estate Outlook**, a contribution is made as to the available information on the topic, through the structuring of a price index based on BBVA Bancomer's own activity.

This begins with a description of the index, its structure and comparison with respect to that of the Federal Mortgage Association (SHF for Sociedad Hipotecaria Federal). Later, an analysis is presented of the participation of the different attributes in determining housing sale prices and how these have changed throughout time. Finally, the results of an econometric model are presented, which breaks down housing prices at a national level and by segments, according to the impact that economic activity, housing supply and housing attributes has had on them.

### The BBVA housing price index

In housing, as in any other market, prices play an important fundamental role in guiding the decision of economic agents. Even more, when constituting an asset, its current price is as important as the evolution that it has had over time and expectations going forward. In reality, this would be trivial and there would be no need to insist on the topic if it were not because available information with regard to housing prices and their evolution over time is still limited.

Mexico's Federal Mortgage Association (SHF) made great progress when it structured a price index based on a hedonic model (that is, based on the housing attributes) and that have been expanded in terms of coverage, even at municipal level (for 37 cities)<sup>1</sup>. **Nevertheless, more indicators are required that complement this effort, so that it will include, for example, the different housing segments, their type of construction (house or apartment) or its condition of use (new or used). Also, and to the extent that the housing market advances in its development, a secondary market begins to emerge, where the information on the resale value of the properties increasingly acquires greater relevance.**

With the aim of contributing toward enriching the number of indicators relative to housing prices, the BBVA Index has been structured based on the appraisal operations that the BBVA Bancomer Financial Group<sup>2</sup> has conducted. The structuring of the BBVA Index has as a basis, the same as that of the SHF, the attributes of the housing units (materials, finishings, surface, bedrooms, location, type of unit and condition). In fact, they represent a sub-complex of the appraised real estate universe that the SHF uses to structure its own index<sup>3</sup>.

Thus, what can first be said when comparing both indexes is that they show a similar trend, although not identical. Taking as a start the first quarter of 2008, the BBVA Index shows an appreciation level consistently superior to that of the SHF and also slightly higher than headline inflation<sup>4</sup>. In a cumulative manner, at the close of the first quarter of 2011 (that is, in a little over three years), the BBVA Index points to a housing appreciation on the order of 20% vs. 15% for the SHF index and also of headline inflation<sup>5</sup>.

<sup>1</sup> The January 2010 issue of **Mexico Real Estate Outlook**, analyzes in depth the methodology used by the SHF and compares it with the indexes used in other countries.

<sup>2</sup> As such, the BBVA Index was prepared by the Commercial Banks Risk area.

<sup>3</sup> The appraisals made by BBVA Bancomer are included in the National Appraisal Base that the SHF administers and based on which it builds its index. The main differences between both could also be, in addition to the size and structure of the sample, the coverage and the attributes considered. In the appraisals done by BBVA Bancomer, the medium and high-income segments have a slightly higher share than the national total (although in both cases it is lower than 20% of the total). In turn, the SHF index incorporates more information in terms of the geographic location compared to the BBVA Index, specifically as to what refers to geographic location (urban proximity degree of state and municipal development and population density).

<sup>4</sup> Once the component of housing services is eliminated.

<sup>5</sup> One way to interpret it would be that as an investment instrument, housing would have rendered a yield of around 1.5 percentage points in real terms. This figure should be compared with the yield of some long-term instrument

Graph 61

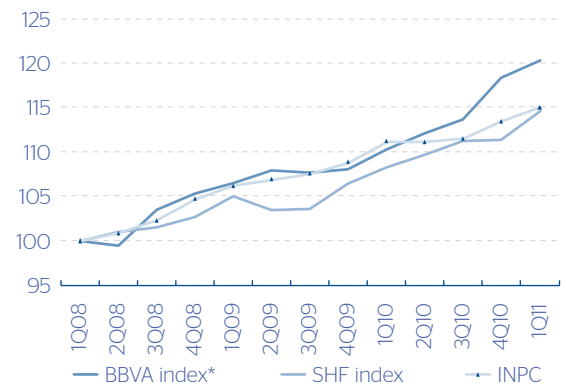
**BBVA price index: composition by segment (Participation %)**



Source: BBVA Research

Graph 62

**Housing prices in Mexico: SHF VS. BBVA (Index 1Q08=100)**



\*12-month moving average

Source: BBVA Research, SHF and Banxico (the central bank)

### Housing prices under different perspectives

Among the contributions of the BBVA Index is that of presenting the changes in housing prices according to their attributes. If the 2006-2008 period is considered and compared with the 2009-2011<sup>6</sup> (through the first quarter), the change in housing prices according to the BBVA Index is of 11%. However, there are important differences according to the type of attribute that is considered. For example, new housing has the least appreciation, and within it, housing in the high value segment is the one with the least appreciation. This is consistent with the fact that this segment was the one most affected by the crisis and where there may be a high degree of substitution between new and used housing.

In any case, housing location is an attribute that is as, or more, valued than the condition of use. Housing with a lower level of urban equipping (with services nearby, located on avenues and with access to public transportation routes) show an appreciation level slightly higher than the national average (11.4%). In the period of reference, it is also interesting that this level of appreciation is observed for housing both of high and low value.<sup>7</sup>

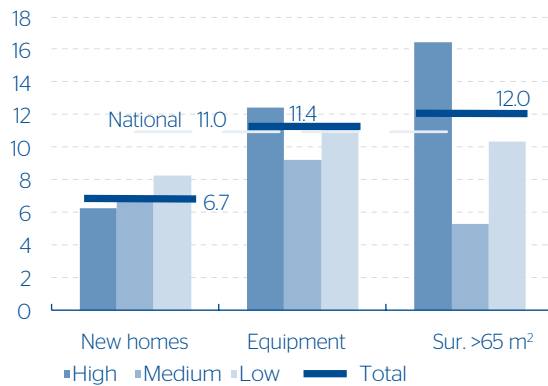
In the period of reference, the constructed surface is the attribute with the highest level of appreciation (12%). Here, housing of at least 65 sq. mts. is considered being that below that level, they mostly correspond (in more than 95% of the cases) to housing for the low-income segment. Even though there is an ample gap in the appreciation for this attribute among the high- and low-income segments, in both cases, the appreciation is higher than for new housing. From this, another important consideration is derived, and it is that housing space is more important (or at least it has gained importance) than the fact that it be new.

And then, there is housing appreciation according to type of construction, those of higher appreciation are, not surprisingly, apartments (10%), especially in the high-income segment. It simply reflects the scarcity of supply (and strong demand) in the large urban centers, particularly in the Federal District, part of the State of Mexico, and to a lower extent, Monterrey (which is where most vertical housing is constructed for the residential segment), where urban infrastructure (roads and services) constitute sharp bottlenecks. In contrast, horizontal condominiums present a relatively low appreciation compared to the national average (9.1%). Here the housing developments of thousands of units for the low-income segments are located, for which, by the way, the appreciation level in the periods considered was of only 7.4%.

<sup>6</sup> There is a reason for this comparison due to diverse causes: simplification, comparison before and after the crisis, as well as for also avoiding volatility risks in the variation rates that make comparison difficult.

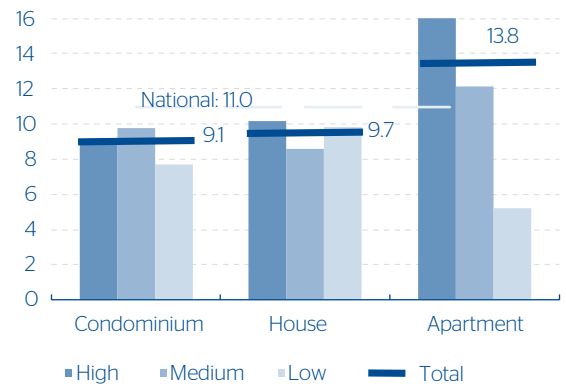
<sup>7</sup> Or, the low-income families are beginning to be more selective or the builders of this segment have sustained in this attribute a good part of the increases in housing prices

Graph 63  
**Housing appreciation by attributes: use, location and surface**  
(% change 2009-2011 vs. 2006-2008)



Source: BBVA Bancomer (Commercial Banks Risk)

Graph 64  
**Housing appreciation by attributes: type of construction**  
(% change 2009-2011 vs. 2006-2008)



Source: BBVA Bancomer (Commercial Banks Risk)

### Determinant factors of housing prices

It should be mentioned that the changes in housing prices do not respond exclusively to housing attributes, but also to economic conditions. Employment, financial stability, the availability of loans and even the housing supply are important variables that also have an influence on price determination. However, it is important to comment on some of the particularities of the Mexican mortgage market which contribute to understanding their relationship with the economic cycle.

In a high proportion (over 90% in the case of Infonavit (Workers' Housing Fund) and over 70% in the case of the Fovissste (Government Federal Workers' Housing Fund), the Mexican mortgage market is focused on the low-income segment for which the placement of loans is partially supported by the availability of subsidies granted by the federal government, (and the public institutions themselves through the interest rate). Thus, it is not surprising that in the last recession, mortgage loans granted by the public institutions and those of the commercial banks followed quite different courses; while the former simply halted their growth rate during the crisis, the latter registered an abrupt decline of over 40%. That is, the relationship between mortgage loans and economic activity is evident only for one part of the market, that of the medium- and high-income segments.

If the impact of the economic cycle is modest as regards the placement of loans, it would also be expected that it were also with regard to housing prices. As opposed to the mature markets such as that of the United States, where housing prices had an important influence on the evolution of the economic cycle, in Mexico prices did not halt their ascending course, even during the recession.

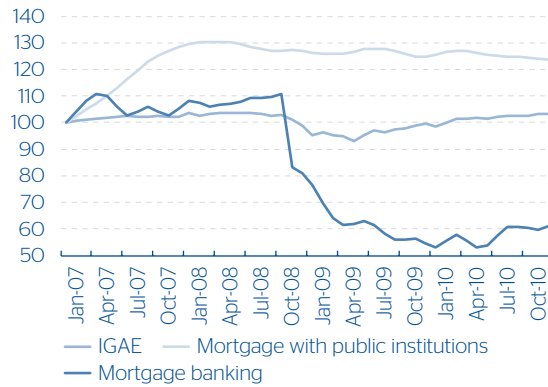
This should not be interpreted as the absence of a relationship between economic activity and the mortgage market, but that this does not manage to be evident in its entire dimension due to the development level of the Mexican market and to the effect of subsidies.

With the aim of obtaining a more precise measurement of the weight of economic conditions on housing prices, an econometric model was structured that incorporates as explanatory variables for demand and housing price variables like economic activity, housing supply as well as the availability of mortgage loans (see details in Chart 4. The dynamics of housing prices and their long-term equilibrium). Estimates were obtained both for the total of the sample (total of the appraisals made between January 2006 and March 2011) and as a sub-series of it, comprised of recently constructed and well-located housing (with access to roads, transportation, nearby services, etc.). Estimates were also obtained for the different housing segments.



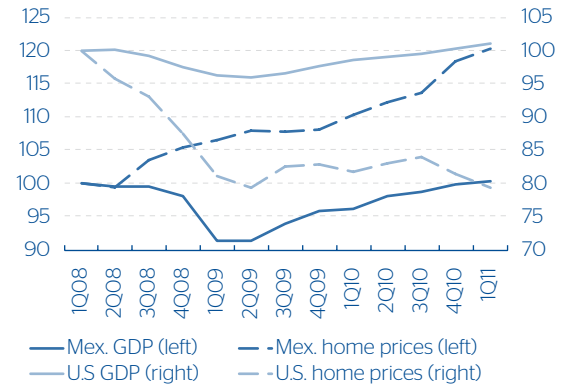
As anticipated, the long-term<sup>8</sup> relationship between income and housing price, also known as income elasticity, is positive although relatively low (0.04), although it rises considerably (0.44) when housing is new and is well located. However, the variable with the greatest relevance in price is credit availability. The interpretation is that, for housing appreciation throughout time, available financing is required for obtaining it<sup>9</sup>.

Graph 65  
**Mortgage loans and the economic cycle (Index Jan-07=100)**



Source: BBVA Research with ABM, AHM and Inegi data.

Graph 66  
**Housing prices and the economic cycle: Mexico vs.U.S. (Index 1Q08=100)**



Source: BBVA Research, Inegi, BEA and S&P data.

Finally, an interesting result is that the supply of housing does not seem to have a significant effect on the evolution of prices in general, but it does when it is about housing with specific attributes. It makes sense since it means that housing tends to appreciate, if throughout time, housing with similar characteristics is built; that is, that the neighborhood improves whether it is because new housing developments begin to be built, which replace old housing units or because there are better services in the neighborhoods (shopping centers, hospitals, schools, or other services are built or new access roads are made available).<sup>10</sup>

Chart 13  
**Variables of the economic cycle that influence sales and housing prices\***

Explanatory variables (a)	General model	Housing model with attributes (a)
	Housing price $PV_t$	Housing price $PV_t$
Income	0.0407	0.4387
Housing supply	0.0081	0.0788
Loans	0.5927	0.8897

\* Considers the value per sq. mt. of construction  
Note: All the coefficients turned out to be significant at 95% of confidence, except for those of the low segment in the model that incorporates attributes, for which said coefficients are not included  
Source: BBVA Research.

Chart 14  
**Variables of the economic cycle that influence sales and housing prices by segment\***

Explanatory variables	Housing segments			Model with attributes(a)		
	Low	Med.	High	Low	Med.	High
Income	0.0063	0.0671	0.1192	----	0.3025	0.3753
Housing Supply	0.0013	0.0135	0.0238	----	0.0543	0.0674
Loans	0.5949	0.5922	0.6222	----	0.8984	0.9432

\* Considers the value per sq. mt. of construction  
Note: All of the coefficients turned out to be significant at 95% of confidence, except for those of the low segment in the model that incorporates attributes, due to which said coefficients were not included.  
Source: BBVA Research.

<sup>8</sup> The model provides coefficients both of short and long terms, although here only the latter are commented on.  
<sup>9</sup> Although in depth, this could reinforce the income transmission channel: higher income (via employment or economic activity) stimulates the supply and demand of mortgage loans.  
<sup>10</sup> As an additional comment, this could be the alternative for the solution in those municipalities with high levels of uninhabited housing; that is to offer increased value in housing by improving the conditions of the urban environment.



The analysis by segment also provides interesting results. The message is the same as for the general case, except that the argument is reinforced regarding the income effect: this is not too significant in the lower segments (O.01) but gains strength in the higher ones (O.12). When new and well-located housing attributes are included, the coefficients rise in all the cases.

## Conclusions

The BBVA Housing Price Index coincides with that of the SHF in showing a growth trend in housing prices throughout recent years (even slightly higher than the general price level of the economy) despite the economic crisis. In principle, this is good news, although it also reflects some of the particularities of the Mexican mortgage market, as does its strong orientation toward the low-income segment (and the conditions that prevail in it). An important aspect of the evolution of housing prices is the change in the evaluation of housing attributes in recent years: the location or the level of urban equipping as regards housing has become a key variable regarding its appreciation over time. The priority due to location is clearly seen in the large urban centers, that is, the prices and the type of housing that is built. Lastly, the evidence confirms the important role that income, the availability of financing and housing attributes have in the potential appreciation that these have throughout time.

## ReChart 3: The dynamics of housing prices and their equilibrium in the long term

In this inset of **Mexico Real Estate Outlook** we did a time series exercise to know the dynamics of housing prices in the economic cycle. Given that the indicators on housing prices are relatively new and their determination is based on various appraisal samples, these could be marginally different, both due to the regional coverage as to the housing segments they include.

The series of data employed in this analysis are: the Global Index of Economic Activity (GIEA), housing supply, credit granted by the commercial banks to the housing sector, the number of mortgage loans granted and the value per square meter of construction<sup>1</sup>. The time series methodology for this case in particular is based on estimating on one hand, an equation that explains the role of housing demand in the economic cycle; while, on the second hand, how this effect is transferred to prices.

According to Tsatsaronis and Zhu (2004), housing prices are more sensitive in the short term and are related with the availability of financing resources. Egert and Mihaljek (2007), in turn, found that in some emerging countries in Europe housing prices could be determined by transitory factors such as investment in housing and financing. With this evidence, we designed the following model of equations<sup>2</sup>:

### 1) Housing sales

$$DV_t = \alpha_1 * DV_{t-1} + \beta_1 * Y_t + \beta_2 * OV_t + \varepsilon_t$$

### 2) Housing prices

$$PV_t = \gamma_1 * PV_{t-1} + \varphi_1 * CV_t + \varphi_2 * DV_t + z_t$$

Where:  $DV_t$  = Mortgage loans placed;  $Y_t$  = Global index of economic activity (GIEA);  $OV_t$  = Housing supply, measured by the current bridge loan portfolio;  $PV_t$  = Price per square meter of housing;  $CV_t$  = housing credit granted by the commercial banks. The period of the sample covered from January 2006 to December 2010.

The model assumes that housing demand has an inertial component  $DV_{t-1}$ , and also depends on income (measured through economic activity) and housing supply. In turn, housing prices depend on demand, as well as on credit availability.

## References

Égert and Mihaljek (2007). Determinants of house prices in central and eastern Europe. BIS working paper. No. 236.  
Tsatsaronis and Zhu (2004). "What drives housing Price dynamics: cross-country evidence". BIS Quarterly Review. March.  
Socieda Hipotecaria Federal (2009). Índice SHF (SHF housing price Index in Mexico) de precios de la vivienda en México. September.

<sup>1</sup> The number of loans granted include new and used housing and reduction due to co-financings; while the value per square meter is based on appraisals by Hipotecaria Nacional (the National Mortgage Association).

<sup>2</sup> The following assumptions are considered based on the information generating process on the errors of each equation: normalcy, serial correlation, homocedasticity, structural change and lineality

## 4. Annual macroeconomic indicators

Chart 15

### Annual macroeconomic indicators

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011p	2012
<b>Real GDP<sup>1</sup> (annual % change)</b>	0.8	1.3	4.0	3.2	5.1	3.2	1.2	-6.2	5.4	4.7	3.8
Private consumption, real (annual % change)	1.5	2.2	5.6	4.8	5.7	4.0	1.8	-7.1	5.0	3.6	3.4
Government consumption, real (annual % change)	-0.2	0.8	-2.8	2.5	1.9	3.1	1.1	3.5	2.8	2.5	3.6
Investment in construction, real (annual % change)	3.5	3.2	5.1	4.1	7.9	4.9	4.2	-5.2	1.2	4.9	5.6
Residential			3.7	2.5	8.9	3.5	0.5	-16.1	-0.5	4.8	5.7
Non-residential			6.1	5.2	7.2	5.9	6.8	2.0	2.1	4.9	5.5
Formal private empl. (IMSS) <sup>2</sup> , total	12,437	12,370	12,505	12,892	13,483	14,044	14,324	13,886	14,404	15,097	15,612
Annual % changel	-0.8	-0.5	1.1	3.1	4.6	4.2	2.0	-3.1	3.7	4.8	3.4
Avg. salary of cont. (IMSS, nominal pesos per day, avge.)	158.0	168.4	178.6	188.9	198.5	209.2	220.3	229.6	236.6	245.8	
Annual % changel	2.9	1.9	1.3	1.7	1.4	3.8	0.2	-1.0	-1.1	1.0	
Real total wages (IMSS, annual % change)	2.0	1.4	2.4	4.8	6.1	8.1	2.2	-4.0	2.5	5.9	
Minimum general salary (daily, nominal pesos)	39.74	41.53	43.30	45.24	47.05	48.88	50.84	53.19	55.77	58.06	
% real annual change	0.7	0.0	-0.4	0.5	0.4	-0.1	-1.3	-0.4	0.6	1.0	
Consumer prices (end of period, annual % change)	5.0	4.5	4.7	4.0	3.6	4.0	5.1	5.3	4.2	3.9	3.6
TIIE 28 average (%)	8.2	6.8	7.1	9.2	7.1	7.3	7.9	5.1	4.5	4.6	5.2
10 year interest rate, 10 year Govt bond (MIO)	10.1	9.0	9.5	9.4	8.4	7.8	8.3	8.1	6.6	7.7	8.1

p. Forecast from the date indicated.

<sup>1</sup> INEGI modified its registry methodology base 2003=100. Previous data are being revised by INEGI, that is why data is in 1993=100 base. Seasonally adjusted series.

Seasonally adjusted series.

<sup>2</sup> Thousands promethium. Seasonally adjusted series.

Source: BBVA Research with Banco de México, Conasami, Inegi and IMSS data.

Chart 16

### Annual construction and housing indicators

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011p	2012
<b>Real GDP<sup>1</sup> (annual % change)</b>	2.0	3.3	5.2	3.8	7.8	4.3	3.0	-6.4	0.0	5.4	6.7
Building	2.6	3.3	3.5	0.7	9.5	3.5	0.0	-13.1	-0.5	5.0	6.7
Civil engineering and major works	1.0	3.3	7.7	12.2	5.5	6.1	10.3	7.0	-0.1	5.7	6.4
Specialist construction work	0.7	3.3	10.4	-0.6	2.6	4.1	-0.5	-10.5	4.6	7.2	8.0
<b>Construc. employmt (IMSS, thousands people, avge.)</b>	930.2	945.8	969.5	1,019.7	1,132.3	1,203.4	1,209.4	1,103.9	1,145.5	1,210.7	
Annual % change	-0.5	1.7	2.5	5.2	11.0	6.3	0.5	-8.7	3.8	5.7	
<b>Hydraulic cement production (tons, ann. % change)</b>	2.4	0.8	4.0	11.1	7.7	1.2	-3.0	-3.1	-2.6		
<b>Dom. cement consumption (tons, ann. % change)</b>	1.2	-0.3	2.9	10.1	6.7	0.3	-3.9	1.5	-12.1		
<b>Construc. comp.<sup>2</sup> (real prod. value, ann. % change)</b>			1.7	4.2	87.8	2.2	-2.2	-8.6	3.2		
Building			16.2	9.0	98.1	7.2	-3.1	-18.5	-4.7		
Public works			-6.0	0.2	92.9	-2.1	-1.5	8.0	9.7		
Water, irrigation and sanitation			31.2	-1.3	53.2	-21.8	4.1	6.3	0.1		
Electricity and communications			-15.3	-28.4	85.4	-12.6	15.4	8.2	26.8		
Transportation			-16.8	6.9	120.5	6.9	7.5	10.5	8.2		
Oil and petrochemicals			-0.2	5.7	79.3	-4.2	-27.1	1.7	11.6		
Other			-16.4	-0.8	17.3	-10.3	0.7	-35.2	19.9		
<b>Resid. construc. prices, general (ann. % change)</b>	5.1	7.3	14.5	0.6	11.8	2.9	13.1	-1.0	4.8		
Construction materials (annual % change)	2.7	7.2	17.7	-0.2	14.1	2.6	15.5	-1.8	5.2		
Labor (annual % change)	7.6	5.4	4.5	3.8	3.8	4.4	3.5	3.1	3.3		
<b>Mortgages granted (thousands)<sup>3</sup></b>	295.8	381.8	472.8	529.4	597.1	646.5	643.9	586.8	610	669	

p. Forecast from the date indicated.

<sup>1</sup> Seasonally adjusted series.

<sup>2</sup> Considered to affiliates and nonaffiliated to the Mexican Chamber of Construction Industry.

<sup>3</sup> Includes new and used home: INFONAVIT, FOVISSSTE, Banking and Sofoles (considers reduction for co-financing).

Source: BBVA Research with Banco de México, Conasami, Inegi, IMSS and AHM data.

Chart 17

**Annual housing finance indicators**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
<b>Number of loans granted (thousands)</b>											
Total	274.5	235.4	295.8	381.8	476.0	567.5	670.8	725.7	747.4	678.2	643.9
Infonavit	250.1	205.3	275.0	297.7	306.0	376.4	421.7	458.7	494.1	447.5	475.0
Fovissste	23.3	26.4	11.1	66.4	59.4	48.7	76.6	68.4	86.9	100.3	90.0
Banca comercial y Sofoles	1.1	3.7	9.7	17.6	110.6	142.4	172.5	198.6	166.4	130.5	45.0
Reduction*						-38.1	-73.7	-79.2	103.5	91.5	33.9
Equivalent purchases	274.5	235.4	295.8	381.8	472.8	529.4	597.1	646.5	643.9	586.8	610.0
<b>Financing flow (billions of pesos, April prices)</b>											
Total	70.0	63.3	81.9	108.6	153.9	192.6	242.6	259.3	246.9	209.1	211.5
Infonavit	63.9	52.8	68.9	71.9	73.0	93.1	105.7	98.6	113.3	99.9	111.4
Fovissste	5.2	7.1	4.9	22.5	21.0	18.1	28.5	24.7	32.7	48.3	42.4
Banca comercial y Sofoles	1.0	3.4	8.1	14.3	60.0	81.3	108.5	135.9	100.9	60.9	57.7
<b>Commercial banks current loan portfolio</b>											
Balance end of period (billion pesos)	87.0	82.5	211.3	179.4	165.8	226.1	275.8	319.9	362.7	366.4	366.3
Past-due loans index (%)	13.7	12.6	11.2	8.4	6.1	3.2	2.7	3.1	3.6	4.6	4.6

\* Refers to finance (loans and subsidies) counted in two or more institutions.

Source: BBVA Research with Banco de México, CNBV, Conavi, Asociación Hipotecaria Mexicana (AHM) and ABM data.

Chart 18

**Quarterly House Price Index (annual % change)**

	08'I	II	III	IV	09'I	II	III	IV	10'I	II	III	IV	11'I
<b>National</b>	<b>4.5</b>	<b>4.7</b>	<b>5.3</b>	<b>5.7</b>	<b>4.9</b>	<b>2.4</b>	<b>2.0</b>	<b>3.6</b>	<b>3.1</b>	<b>6.1</b>	<b>7.4</b>	<b>4.6</b>	<b>6.0</b>
Aguascalientes	3.9	2.8	4.0	4.5	5.1	4.4	3.3	4.8	1.8	3.2	4.3	1.3	5.2
Baja California	1.9	2.4	3.0	3.3	5.5	-1.4	-1.6	0.2	-1.7	4.9	6.6	4.1	5.8
Baja California Sur	2.3	1.5	2.4	3.1	3.7	1.2	1.6	1.4	2.4	7.9	9.2	8.3	8.2
Campeche	9.0	7.0	8.4	9.3	0.1	2.9	2.7	2.7	10.4	9.6	10.7	8.4	7.6
Chiapas	6.3	4.5	5.7	6.8	4.4	6.2	8.0	8.8	15.4	13.6	12.2	9.4	5.8
Chihuahua	2.4	0.9	2.0	3.0	5.4	1.0	1.8	0.9	2.4	8.6	10.3	9.2	8.2
Coahuila	3.9	2.1	3.4	4.4	4.5	4.8	4.3	3.5	2.2	3.9	5.8	5.1	8.4
Colima	5.2	4.2	5.2	6.0	6.5	4.5	5.5	6.4	4.9	9.1	9.1	6.2	3.6
Distrito Federal	3.6	5.7	5.2	5.5	6.0	4.5	4.4	7.7	5.5	5.9	6.4	3.0	2.8
Durango	3.3	1.7	2.9	3.9	7.7	7.3	6.7	5.8	1.9	5.1	6.6	5.4	5.5
Guanajuato	3.3	2.8	3.8	4.0	6.9	4.6	3.2	4.4	0.9	3.9	6.0	3.6	6.0
Guerrero	8.8	11.5	11.7	10.7	8.7	3.3	2.2	7.9	5.5	6.6	6.3	-0.5	1.5
Hidalgo	9.0	8.0	9.1	9.7	3.5	2.6	3.3	2.7	8.1	10.1	10.9	10.0	7.4
Jalisco	3.5	4.7	5.2	4.8	4.2	0.6	-0.4	2.3	0.7	1.8	2.5	-1.0	3.6
Mexico	6.3	9.6	9.3	8.7	4.0	-1.9	-2.9	2.1	3.1	8.6	9.7	4.6	5.8
Michoacán	5.3	5.3	6.1	6.4	7.2	4.2	3.0	4.3	-0.1	3.3	5.6	3.4	7.6
Morelos	6.7	9.2	9.2	8.8	3.7	-0.2	-0.6	3.8	2.7	6.6	7.6	3.1	8.5
Nayarit	5.7	4.8	5.8	6.7	5.7	5.4	5.9	5.5	4.2	6.7	7.4	6.1	5.3
Nuevo Leon	4.4	3.2	4.2	5.2	4.6	4.7	4.3	3.2	1.1	2.5	3.9	3.7	6.5
Oaxaca	6.3	6.0	6.9	7.2	5.7	7.2	8.1	7.8	11.4	9.6	9.8	9.1	6.2
Puebla	6.1	8.6	8.6	8.2	5.6	1.9	0.5	4.5	5.6	7.2	9.2	4.8	7.5
Queretaro	2.3	3.1	3.7	3.7	3.5	-0.8	-1.1	2.0	3.7	8.6	9.9	6.2	6.0
Quintana Roo	5.9	7.4	7.7	7.7	5.7	-1.9	-2.4	3.3	4.0	12.2	13.0	6.6	3.7
Sinaloa	4.6	3.0	4.2	5.1	5.5	5.4	5.2	5.5	4.4	6.7	7.7	5.0	3.3
San Luis Potosi	7.7	6.8	7.8	8.6	2.9	2.9	2.6	2.3	7.2	8.0	9.8	8.2	7.7
Sonora	3.3	2.1	3.0	4.2	4.1	3.2	3.1	3.0	1.7	5.5	7.1	5.6	8.2
Tabasco	10.0	8.0	9.4	10.3	0.4	4.4	4.3	4.2	11.2	8.6	10.1	8.0	8.8
Tamaulipas	2.2	1.3	2.3	3.1	5.6	3.7	4.1	3.5	1.1	5.5	7.8	7.0	10.2
Tlaxcala	4.5	5.1	5.6	6.0	7.8	4.1	3.5	4.9	-0.5	4.2	5.5	3.4	7.4
Veracruz	8.6	7.0	8.2	9.2	2.1	4.6	3.8	4.5	9.0	7.7	9.4	6.3	6.5
Yucatan	4.2	1.7	3.2	4.1	5.1	6.3	7.4	6.5	7.9	8.9	9.5	7.9	4.3
Zacatecas	1.7	-0.2	1.2	1.9	7.1	7.0	6.7	6.7	1.2	4.6	5.8	3.7	5.7

Source: BBVA Research with Sociedad Hipotecaria Federal (SHF) data

Chart 19

**Quarterly macroeconomic indicators**

	08'I	II	III	IV	09'I	II	III	IV	10'I	II	III	IV	11'I
<b>Real GDP (annual % change)<sup>1</sup></b>	3.6	1.4	1.1	-1.2	-8.5	-8.2	-5.6	-2.3	5.1	7.3	5.1	4.2	4.4
Private consumption, real (annual % change)	2.9	3.4	1.7	-0.9	-8.9	-10.9	-5.6	-3.0	4.2	7.0	4.4	4.5	4.9
Government consumption, real (ann. % change)	1.5	1.6	0.2	1.0	5.6	2.1	3.7	2.7	1.2	5.3	2.6	2.1	0.5
Const. investment, real (annual % change)	4.9	7.2	4.9	0.0	-3.3	-5.8	-5.1	-6.6	-1.7	-0.2	2.1	4.8	5.0
Residential	3.6	5.5	0.1	-6.9	-13.8	-17.9	-16.9	-15.6	-7.3	-2.7	2.1	6.8	6.2
Non-residential	5.9	8.3	8.2	4.8	3.9	2.5	2.6	-1.0	1.5	1.1	2.1	3.7	4.4

Source: BBVA Research with INEGI, and Banxico data

Chart 20

**Quarterly construction and housing indicators**

	08'I	II	III	IV	09'I	II	III	IV	10'I	II	III	IV	11'I
<b>Construction GDP, real. (annual % change)<sup>1</sup></b>	7.3	3.1	3.0	-1.2	-8.5	-5.7	-7.3	-7.5	-3.6	-1.6	0.9	4.5	4.9
Building	5.8	1.4	-0.5	-6.7	-14.9	-13.5	-15.0	-13.6	-6.4	-2.6	1.6	5.9	4.6
Construction engineering and major works	10.6	7.5	11.7	11.4	5.8	10.6	7.0	2.6	0.0	-1.4	-0.9	1.7	5.0
Specialist const. work	6.7	0.1	-2.3	-6.7	-15.6	-10.8	-8.3	-6.4	0.5	4.1	5.3	8.8	7.0
Construction companies <sup>2</sup> (annual % change)	-1.4	1.5	-3.0	-5.6	-6.7	-6.8	-6.2	-5.8	-4.7	-2.0	2.2	6.9	2.5
Building	1.1	2.9	-6.1	-9.1	-18.4	-18.2	-14.3	-10.1	-6.9	-11.7	-9.0	-5.9	0.3
Public works	-4.0	-0.1	0.8	-2.6	10.5	12.6	7.3	2.5	-2.5	7.5	13.5	19.8	4.3
Water, irrigation and sanitation	3.5	19.4	8.9	-10.6	-0.8	10.8	4.0	14.2	9.0	-5.7	-2.1	-3.1	5.7
Electricity & communications	2.7	24.5	9.5	24.7	20.6	6.9	24.4	19.8	29.6	38.4	-2.3	4.9	15.0
Transportation	8.0	7.4	9.3	5.6	18.1	15.1	5.2	-5.5	-9.5	9.9	16.8	28.2	3.1
Oil and petrochemicals	-29.8	-28.4	-25.0	-25.0	-7.4	9.5	7.7	10.3	-4.1	-7.3	21.5	20.8	-1.0
Other	-5.3	0.7	0.8	5.3	-17.9	-36.0	-26.4	-24.0	-5.4	-0.3	7.1	14.5	5.4

Source: BBVA Research with INEGI, and Banxico data

Chart 21

**Quarterly housing market indicators**

	08'I	II	III	IV	09'I	II	III	IV	10'I	II	III	IV	11'I
<b>Home sales by segment (quarterly flows, thousands of units)<sup>3</sup></b>													
Segment A	80.0	89.1	72.4	106.2	63.1	81.6	73.9	91.7	73.5	77.1	73.9	105.5	64.7
Segment B	41.2	45.4	46.2	64.6	36.8	44.7	47.3	57.9	36.4	46.7	42.5	66.4	31.3
Segment C	14.8	19.8	20.0	22.0	14.5	16.6	17.4	23.0	14.0	16.9	15.5	26.1	11.9
Segment D	3.4	5.2	5.6	4.4	3.0	3.8	4.2	4.3	3.2	3.6	3.6	5.0	3.4
Segment E	0.6	1.0	1.2	0.9	0.6	0.7	0.8	1.0	0.6	0.8	0.8	1.1	0.8
Total	140.0	160.5	145.4	198.1	118.0	147.4	143.6	177.9	127.7	145.2	136.3	204.1	112.1
<b>Home sales by agency (quarterly flows, billions pesos, April prices)</b>													
Infonavit	111.0	125.6	112.6	144.9	89.2	115.1	110.4	132.8	103.3	113.9	108.1	149.7	93.9
Fovissste	11.5	14.6	13.2	32.4	17.1	21.3	22.6	34.8	14.9	19.5	15.2	39.9	4.1
Banca	12.6	14.8	14.6	14.0	9.2	9.4	9.0	10.0	7.5	10.3	12.0	13.4	13.3
Sofoles	5.7	6.1	5.5	5.3	2.4	1.6	1.4	0.9	2.0	1.5	1.0	1.1	0.8
Total	140.0	160.5	145.4	198.1	118.0	147.4	143.6	177.9	127.7	145.2	136.3	204.1	112.1
<b>SHF index of housing prices in Mexico</b>													
Annual % change	4.5	4.7	5.3	5.7	4.9	2.4	2.0	3.6	3.1	6.1	7.4	4.6	6.0

Source: BBVA Research with Banco de México, Conavi, Asociación Hipotecaria Mexicana (AHM) and ABM data

Chart 22

**Quarterly housing finance indicators**

<b>Commercial banks current loan portfolio</b>													
Past-due loans index (%)	2.9	3.1	3.3	3.6	3.8	4.3	4.6	4.6	4.6	4.3	4.2	3.6	3.5

<sup>1</sup> Seasonally adjusted series.

<sup>2</sup> Consider the value of production of companies which are affiliated and not affiliated to the Mexican Chamber of Construction Industry

Note: Price ranges expressed in multiples of minimum monthly wage (mmwt); "A" (118-200); "B" (201-350); "C" (351-750); "D" (751-1500) and "E" (1500 and over) SMM=1,819 pesos in 2011 in zone "A".

<sup>3</sup> Includes new and used home: INFONAVIT, FOVISSSTE, Banking and Sofoles (considers reduction for co-financing).

Source: BBVA Research with INEGI, and Banxico data

Chart 23

**Monthly macroeconomic indicators**

	F.10	M	A	M	J	J	A	S	O	N	D	J.11	F	M	A	M
<b>IGAE (annual % change)</b>	4.0	6.3	6.9	9.1	6.5	5.2	6.4	5.2	4.7	4.5	4.0	6.0	4.5	3.0		
<b>Construction vol. real (annual % change)<sup>1</sup></b>	-4.2	-0.3	-2.2	0.3	-4.5	-2.4	1.7	4.6	3.7	5.2	5.1	8.5	4.4	0.3	3.5	
Building	-7.1	-2.5	-3.7	-0.6	-5.0	-2.5	2.4	6.2	5.0	6.9	6.6	9.1	3.3	-0.4	2.6	
Civil engineering and major works	-0.6	1.7	-1.1	0.8	-4.9	-3.7	-0.2	2.1	1.1	1.9	2.4	8.5	4.8	0.5	3.6	
Specialist construction work	0.7	1.7	6.0	4.1	1.5	2.6	7.1	8.1	9.7	8.6	7.9	7.8	8.2	5.7	5.2	
<b>Formal private employment (IMSS, mills)<sup>2</sup></b>	14,128	14,206	14,281	14,350	14,396	14,439	14,493	14,538	14,594	14,657	14,723	14,765	14,818	14,874	14,905	14,961
Annual % change	1.2	2.0	2.9	3.9	4.3	4.6	4.9	5.1	5.4	5.4	5.3	5.1	4.9	4.7	4.4	4.3
<b>Average salary quote<sup>3</sup></b>	237.7	234.3	234.0	237.6	237.1	239.0	238.2	236.1	235.2	236.0	236.1	245.5	246.9	245.1	245.7	
Real annual % change	-2.2	-2.4	-1.8	-1.1	-0.9	-0.4	-0.5	-0.7	-0.8	-0.4	-0.5	-0.3	0.3	1.6	1.6	
<b>Real wage income (IMSS, annual % change)</b>	-4.7	-3.4	-2.2	-1.2	-0.6	0.4	8.2	8.2	8.8	9.5	9.4	8.8	8.9	9.6	9.6	
<b>Minimum general salary (daily, nom. pesos)</b>	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	55.8	58.1	58.1	58.1	58.1	
<b>CPI (end of period, annual % change)</b>	4.8	5.0	4.3	3.9	3.7	3.6	3.7	3.7	4.0	4.3	4.4	3.8	3.6	3.0	3.4	
<b>TIIE 28 average (%)</b>	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.8	4.8	4.9	
<b>10-year Gov. bond interest rate (M10)</b>	7.7	7.7	7.4	7.4	6.9	6.7	6.3	6.3	6.1	6.1	7.2	7.2	7.2	7.2	7.3	

<sup>1</sup> Industrial production index

<sup>2</sup> Millions of people

<sup>3</sup> Nominal Pesos per day for the number of members of the Instituto Mexicano del Seguro Social

Source: BBVA Research with Banco de México, INEGI and IMSS data

Chart 24

**Monthly construction and housing indicators**

	F.10	M	A	M	J	J	A	S	O	N	D	J.11	F	M	A	M
<b>Construction emp. (IMSS, thousands)</b>	1,115	1,121	1,136	1,141	1,145	1,132	1,147	1,160	1,168	1,180	1,190	1,189	1,184	1,189	1,172	
Annual % change	-0.7	0.0	2.3	3.7	4.0	3.2	5.0	7.2	7.9	8.1	8.1	7.6	6.2	6.1	3.1	
<b>Cement sales (tons, annual % change)</b>	-6.7	-7.4	-3.0	-4.9	-7.4	-7.8	1.8	3.3	5.7	4.7	4.7	7.2	2.0	2.4		
<b>Cement consum. per inhab. (annual % change)<sup>3</sup></b>	-11.1	-11.5	-7.3	-9.1	-8.1	-8.6	0.9	2.4	4.8	3.9	3.8	6.3	1.2	1.5		
<b>Construction prices (annual % change)</b>	2.3	2.7	3.1	4.1	5.3	5.2	4.5	4.0	4.7	5.4	4.8	4.8	5.0	4.9	4.9	4.8
Materials (annual % change)	2.0	2.5	3.1	4.3	5.7	5.6	4.8	4.2	5.1	5.9	5.2	5.3	5.4	5.4	5.3	5.2
Labor (annual % change)	4.2	3.8	3.5	3.5	3.5	3.4	3.4	3.3	3.3	3.3	3.3	3.1	3.3	3.4	3.4	3.4
Rent of machiner (annual % change)	1.0	-0.2	1.0	1.8	1.8	2.6	3.4	3.2	2.9	3.0	3.2	2.4	1.9	2.6	2.9	2.3

<sup>3</sup> The volume of cement production is used as a proxy for consumption

Source: BBVA Research with Banco de México, INEGI, and IMSS data

Chart 25

**Monthly housing finance indicators**

	F.10	M	A	M	J	J	A	S	O	N	D	j.11	F	M	A	M
<b>Comm. banks current loan portfolio (balances, billions of pesos*)</b>	346.8	346.7	350.2	354.9	357.9	360.9	361.6	362.1	362.7	366.4	366.3	360.8	361.5	365.0	367.2	
Annual % change	9.2	8.3	9.4	9.6	10.0	10.3	12.6	11.8	11.3	7.4	5.9	4.1	4.3	5.3	4.8	
<b>Mortgage Sofoles loan portfolio (balances, billions of pesos*)</b>	20.2	20.1	20.2	20.0	20.0	19.7	19.6	19.4	19.3	19.1	19.0	18.8	18.7	18.6	18.5	
Annual % change	-65.0	-65.0	-64.9	-64.5	-64.4	-64.4	-64.4	-64.3	-64.3	-64.5	-6.9	-6.7	-7.3	-7.2	-8.1	
<b>Total annual cost (CAT)</b>	14.75	14.75	14.73	14.22	14.17	14.11	14.11	14.14	14.05	14.09	14.05	13.99	14.21	14.23	14.31	

\* April 2010 pesos

Source: BBVA Research with Banco de México, INEGI, and CNBV data

## 5. Special topics included in previous issues

### January 2011

The impact of subsidies on the housing market  
The implications for the housing industry from the Infonavit Financial Plan 2011-2015  
Land property policies: the property tax as an instrument for urban development

### July 2010

Ten years of housing policy: the large numbers  
Has the lag in housing been overcome?  
The impact of housing policy on the cities

### January 2010

Construction loans in 2010: A bottleneck for the housing industry once more?  
What has determined the behavior of housing prices in Mexico?

### October 2009

Constitution of urban land in Mexico  
Long-term finance: covered bonds

### January 2009

Major urban and sustainable social housing developers  
The carbon bond market

### September 2008

Government subsidies for housing  
Indirect costs of purchases

### January 2008

Insurance for housing credit  
Excess housing supply? Is that all it is?

### September 2007

The real-estate market for baby boomers  
The national housing law

### January 2007

Housing demand  
Infrastructure and real-estate investment trusts (REITs)

### August 2006

An overview of the 2nd population and housing survey 2005  
The habitat index

### January 2006

Mortgage sofoles: development and importance  
Housing and finance in Mexico

### July 2005

Real-estate valuation. Taking advantage of a valuation  
Housing developers in Mexico

Available in [www.bbva.com](http://www.bbva.com) in Spanish and English

**DISCLAIMER**

This document and the information, opinions, estimates and recommendations expressed herein, have been prepared by Banco Bilbao Vizcaya Argentaria, S.A. (hereinafter called "BBVA") to provide its customers with general information regarding the date of issue of the report and are subject to changes without prior notice. BBVA is not liable for giving notice of such changes or for updating the contents hereof.

This document and its contents do not constitute an offer, invitation or solicitation to purchase or subscribe to any securities or other instruments, or to undertake or divest investments. Neither shall this document nor its contents form the basis of any contract, commitment or decision of any kind.

**Investors who have access to this document should be aware that the securities, instruments or investments to which it refers may not be appropriate for them due to their specific investment goals, financial positions or risk profiles, as these have not been taken into account to prepare this report.** Therefore, investors should make their own investment decisions considering the said circumstances and obtaining such specialized advice as may be necessary. The contents of this document is based upon information available to the public that has been obtained from sources considered to be reliable. However, such information has not been independently verified by BBVA and therefore no warranty, either express or implicit, is given regarding its accuracy, integrity or correctness. BBVA accepts no liability of any type for any direct or indirect losses arising from the use of the document or its contents. Investors should note that the past performance of securities or instruments or the historical results of investments do not guarantee future performance.

**The market prices of securities or instruments or the results of investments could fluctuate against the interests of investors. Investors should be aware that they could even face a loss of their investment. Transactions in futures, options and securities or high-yield securities can involve high risks and are not appropriate for every investor. Indeed, in the case of some investments, the potential losses may exceed the amount of initial investment and, in such circumstances, investors may be required to pay more money to support those losses. Thus, before undertaking any transaction with these instruments, investors should be aware of their operation, as well as the rights, liabilities and risks implied by the same and the underlying stocks. Investors should also be aware that secondary markets for the said instruments may be limited or even not exist.**

BBVA or any of its affiliates, as well as their respective executives and employees, may have a position in any of the securities or instruments referred to, directly or indirectly, in this document, or in any other related thereto; they may trade for their own account or for third-party account in those securities, provide consulting or other services to the issuer of the aforementioned securities or instruments or to companies related thereto or to their shareholders, executives or employees, or may have interests or perform transactions in those securities or instruments or related investments before or after the publication of this report, to the extent permitted by the applicable law.

BBVA or any of its affiliates' salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to its clients that reflect opinions that are contrary to the opinions expressed herein. Furthermore, BBVA or any of its affiliates' proprietary trading and investing businesses may make investment decisions that are inconsistent with the recommendations expressed herein. No part of this document may be (i) copied, photocopied or duplicated by any other form or means (ii) redistributed or (iii) quoted, without the prior written consent of BBVA. No part of this report may be copied, conveyed, distributed or furnished to any person or entity in any country (or persons or entities in the same) in which its distribution is prohibited by law. Failure to comply with these restrictions may breach the laws of the relevant jurisdiction.

This document is provided in the United Kingdom solely to those persons to whom it may be addressed according to the Financial Services and Markets Act 2000 (Financial Promotion) Order 2001 and it is not to be directly or indirectly delivered to or distributed among any other type of persons or entities. In particular, this document is only aimed at and can be delivered to the following persons or entities (i) those outside the United Kingdom (ii) those with expertise regarding investments as mentioned under Section 19(5) of Order 2001, (iii) high net worth entities and any other person or entity under Section 49(1) of Order 2001 to whom the contents hereof can be legally revealed.

The remuneration system concerning the analyst/s author/s of this report is based on multiple criteria, including the revenues obtained by BBVA and, indirectly, the results of BBVA Group in the fiscal year, which, in turn, include the results generated by the investment banking business; nevertheless, they do not receive any remuneration based on revenues from any specific transaction in investment banking.

BBVA and the rest of entities in the BBVA Group which are not members of the New York Stock Exchange or the National Association of Securities Dealers, Inc., are not subject to the rules of disclosure affecting such members.

**"BBVA is subject to the BBVA Group Code of Conduct for Security Market Operations which, among other regulations, includes rules to prevent and avoid conflicts of interests with the ratings given, including information barriers. The BBVA Group Code of Conduct for Security Market Operations is available for reference at the following web site: [www.bbva.com](http://www.bbva.com) / Corporate Governance".**

### Editorial Board

Adolfo Albo      Eduardo Osuna      Isidoro Sánchez      Jorge Sicilia

### This report has been produced by

Editor

**Adolfo Albo**  
a.albo@bbva.bancomer.com

**Eduardo Torres**  
e.torres@bbva.bancomer.com

**Fernando Balbuena**  
fernando.balbuena@bbva.bancomer.com

### BBVA Research

Group Chief Economist  
**Jorge Sicilia**

Chief Economists & Chief Strategists:

*Financial System and Regulation*  
**Santiago Fernández de Lis**  
sfernandezdelis@grupobbva.com

*Pensions*  
**David Tuesta**  
david.tuesta@grupobbva.com

*Financial Systems*  
**Ana Rubio**  
arubiog@grupobbva.com

*Regulatory Affairs*  
**María Abascal**  
maria.abascal@grupobbva.com

*Market & Client Strategy*  
**Antonio Pulido**  
ant.pulido@grupobbva.com

*Equity and Credit*  
**Ana Munera**  
ana.munera@grupobbva.com

*Interest Rates, Currencies and Commodities*  
**Luis Enrique Rodríguez**  
luisen.rodriquez@grupobbva.com

*Asset Management*  
**Henrik Lumholdt**  
henrik.lumholdt@grupobbva.com

*Developed Economies:*  
**Rafael Doménech**  
r.domenech@grupobbva.com

*Spain*  
**Miguel Cardoso**  
miguel.cardoso@grupobbva.com

*Europe*  
**Miguel Jiménez**  
mjimenezg@grupobbva.com

*United States*  
**Nathaniel Karp**  
nathaniel.karp@bbvacompass.com

*Financial Scenarios*  
**Sonsoles Castillo**  
s.castillo@grupobbva.com

*Economic Scenarios*  
**Juan Ruiz**  
juan.ruiz@grupobbva.com

*Emerging Economies:*  
**Alicia García-Herrero**  
aliciagarcia-herrero@bbva.com.hk

*Cross-Country Emerging Markets Analysis*  
**Álvaro Ortiz-Avarca**

*Mexico*  
**Adolfo Albo**  
a.albo@bbva.bancomer.com

*Macro Analysis Mexico*  
**Julián Cubero**  
juan.cubero@bbva.bancomer.com

*Asia*  
**Stephen Schwartz**  
stephen.schwartz@bbva.com.hk

*South America*  
**Joaquín Vial**  
jvial@bbvaprovinda.cl

*Argentina*  
**Gloria Sorensen**  
gsorensen@bancofrances.com.ar

*Chile*  
**Alejandro Puente**  
apuente@grupobbva.cl

*Colombia*  
**Juana Téllez**  
juana.tellez@bbva.com.co

*Peru*  
**Hugo Perea**  
hperea@grupobbva.com.pe

*Venezuela*  
**Oswaldo López**  
oswaldolopez@provincial.com

BBVA Research Mexico  
Av. Universidad 1200  
Colonia Xoco  
C.P. 03339 México D.F.  
Publications:  
E-mail: [researchmexico@bbva.bancomer.com](mailto:researchmexico@bbva.bancomer.com)

These and other BBVA Research publications  
are available in English and in Spanish at: [www.bbva.com/research](http://www.bbva.com/research)

### Other publications:

