



# Sectorial Observatory

September 1, 2009

## Motor vehicle industry

### The current situation...recovery calling at the door

**Signs that the beginning of the recovery of the motor vehicle industry in Mexico is near: a change in the trend of vehicle production, creation of employment and expansion of industry DFI, among others. A more optimistic outlook for 2009 and 2010 is feasible.**

- Although the trend in vehicle production figures in Mexico is still not encouraging, the speed of the decline has already stabilized and may soon reverse its tendency due to the positive influence of the "Cash for Clunkers" program put into place by the US government.

- The sales of lightweight cars in the USA for July and August show annual rates of -12.2 and 4.9%, respectively, encouraging numbers given the 35.1% drop in the annual average over the previous six months. This change in trend indicates that the lowest point of the decline may be behind us and that there are sustainable elements in view that may show improvement in the second half of the year.

- In July, Mexico's vehicle production volume dropped by an annual rate of 13%, compared to the average of the first half year of 40% (See graph). The employment figures are also encouraging. As an example, after 17 months of continuous loss of jobs, July shows a monthly increase in the number of jobs in the motor vehicle industry (See graph). The latter is also significant because new jobs are not hired without the clear understanding that demand will begin to recover at a steady pace.

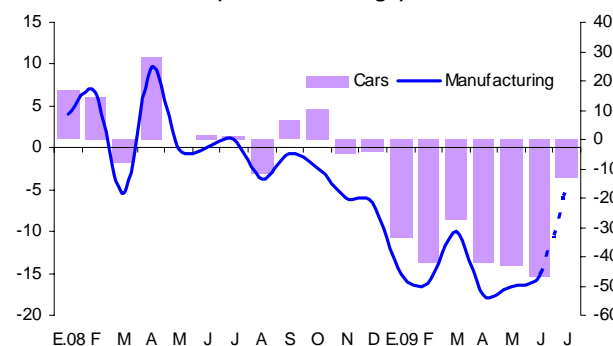
- Two factors are influencing this change in trend – the economic incentives offered by all the car manufacturing companies and the "Cash for Clunkers" program set up by the US government. This program began in July and consisted in a premium of between 3,500 and 4,500 dollars for the purchase of fuel-efficient vehicles. This measure became very popular among consumers in the US, as shown by the fact that the resources allotted during the first stage (1 billion dollars) ran out in a single week. At the beginning of August, a further 2 billion dollars were approved, which took about 700 thousand vehicles off the roads over the two month period.

- The plan for vehicle renewal in the US has begun to have a positive effect on Mexico's motor vehicle industry. In August, Nissan Aguascalientes doubled its production of the Sentra and Versa, both of which meet the conditions of the program. The same is happening at GMC. In its plant at Caohuila it increased production per hour of Chevy models from 12 to 22; the assembly line for Chevrolet HHR and Captiva and Cadillac SRX went from 34 to 49 vehicles per hour.

- Another encouraging sign that has favored the consolidation of the motor vehicle industry in the US and Mexico is the speed with which they have come out of bankruptcy. The old GM has been reborn under the name of the General Motors Company, consisting of 4 brands: Chevrolet, Buick, Cadillac and GMC, all of which are getting ready to launch their new models

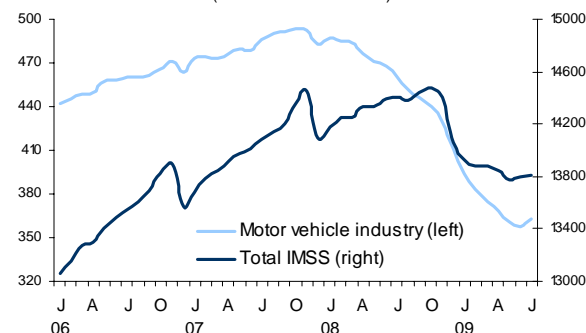
Alma Martínez  
alma.martinez@bbva.bancomer.com

Manufacturing and vehicle production in Mexico  
(% annual change)



Source: BBVA Bancomer with INEGI and Wards data

Motor vehicle employment vs. Total employment  
(thousands of workers)



Source: BBVA Bancomer with IMSS data

and fight for their place in the market. As for Chrysler, although it came out of bankruptcy quickly (last June), it has not offered specific information regarding its new models or models that will allow it to reactivate sales.

- Pressured by the need to increase profitability and the need to sell efficient products, new investments continue to flow into Mexico, attracted by the depreciation of the peso versus other world currencies and cost, as well as the relatively high productivity of respected, qualified and inexpensive labor. The most significant investments are those of Daimler, GM and VW, which jointly account for 1.6 billion dollars of DFI, not counting the renewal projects at Ford Cuautitlán, which should be completed by the beginning of 2010. Given the global situation, the increase in DFI in Mexico means eliminating excess capacity.

**Vehicle production in 2009 may not be as negative as calculated during the first half of the year, whereupon growth in 2010 may be stronger.**

Our estimate of a 50% drop in motor vehicle production in Mexico for 2009 may be less, around -40%. This is due to the positive impact of the "Cash for Clunkers" program on exports in July and August. Also, if car manufacturer discounts are extended and consumer confidence in the US continues to grow, the estimated drop in Mexican exports may not be as severe in the last quarter of 2009. This would be very favorable, as we could be looking at a growth rate in results over 20% for 2010, not only as regards arithmetics by comparison with extremely low production levels, but also as regards recovery, although still modest, of domestic and foreign demand.

**As for long-term plans...emission controls reconfigure the industry**

**Regulations on energy efficiency, subsidies for research and development, higher taxes on fuel and smaller consumer budgets will trigger the changes in the world's motor vehicle industry**

After recognition by the Environmental Protection Agency (EPA) of the USA that the emission of greenhouse gases to the atmosphere endangers public health and impels climate change, the current administration of the US has announced new federal regulations for motor vehicles, since these contribute largely due to their high gasoline consumption. The plan contemplates an increase in the CAFE standard<sup>1</sup> of 27.4 miles per gallon (mpg) of the Bush administration to 35.5 mpg in 2016, and efficiency increase of 30%. It is estimated that the vehicles that meet this standard will have a price increase of approximately 1,300 dollars per vehicle, which would be compensated by less fuel consumption. Other governments, such as the Japanese government, have imposed two regulations in order to promote the production of energy-efficient vehicles. A battery will be developed by 2015 with 50% more capacity and 85% more inexpensive than current batteries. Secondly, by 2020 half of the new vehicles sold will have to be electric.

In addition, there is a consensus that vehicle efficiency regulations must be accompanied by higher taxes to dissuade consumers from purchasing non-efficient vehicles. In fact, taxes on traditional fuels are high in countries like Germany, France and Japan: 5.16, 5.02 and 4.83 dollars per gallon, respectively, compared to Canada or the US, where it is 1.19 and 0.4 dollars, respectively<sup>2</sup>.

## New motor vehicle facilities 2009

### Daimler Trucks Saltillo (modelling)

Investment involved (millions of dollars)	300
Capacity (thousands of trucks)	30
Direct jobs created	1,600
Indirect jobs	1,100
In operation since February 2009	

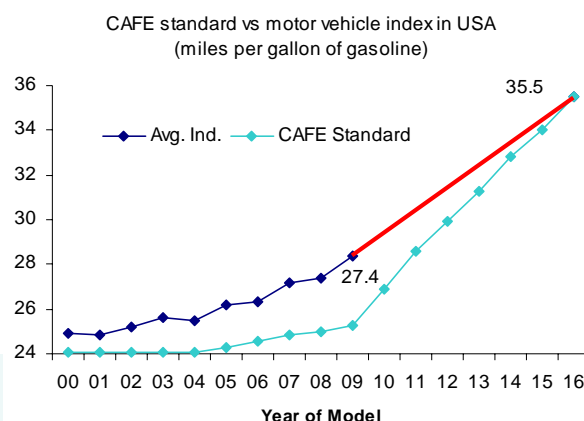
### GM San Luis Potosi (Transmissions plant)

Investment involved (millions of dollars)	300
Capacity (thousands of units)	300
Direct jobs created	600
Indirect jobs	
In operation since August 2009	

### VW Puebla (expansion)

Investment involved (millions of dollars)	1,000
Capacity (thousands of cars)	100
Direct jobs created	2,000
Indirect jobs	6,000
In operation in April 2010	

Source: BBVA Bancomer with VW web, GM web and Daimler web data



Source: BBVA Bancomer with US Department of Transportation data

<sup>1</sup> Corporate Average Fuel Economy (CAFE). Efficiency standard for fuel consumption measured in miles per gallon. It takes into consideration the differences between cars and light trucks, which have lower standards than cars.

<sup>2</sup> PriceWarehouseCooper Average tax per gallon of gasoline, march 2009

The technological trends in the industry will be determined by environmental standards, among which will be smaller engines, direct injection, electric and hybrid vehicles, among others. Hybrid vehicles are expected to make the most progress (See graph), as they are quickly being introduced for sale, although fuel combustion vehicles will continue to be predominant, 95.8% of the total in 2015.

**Hybrid:** This technology operates on a battery when zero emissions are required (such as in a city) or with a parallel internal combustion engine for greater speeds and/or longer distances. This mode allows the battery to be recharged for the next time battery use is required. It can use both power sources for higher acceleration, so the internal combustion engine can be relatively small, with less power. The main disadvantage is the price as it is not equipped with low fuel consumption, a situation that will not change in the short term. It is calculated that the price premium in 2015 for a hybrid with a 40-mile battery (before requiring recharging) will be 11,800 dollars, compared to a traditional vehicle.

**Electrical:** The battery to store electricity and its cost continue to be the two main obstacles that need to be overcome, although progress has been made. For example, the cost of batteries has dropped by between 6 and 8% per year, a reduction that is expected to continue during the next 10 years as production volume increases. Currently, the average cost of the battery package is between 750 dollars in a low cost scenario and 2,000 in a high cost scenario. But from 2015 onwards, the three scenarios will tend to converge to a single model of approximately 420 kw/h in 2020<sup>3</sup> (see chart). Despite this, it is feasible that the price premium in 2015 for electric vehicles that can reach speeds of 100 miles per hour will still be very high (24,100 dollars), when compared to the price of vehicles running on internal combustion engines, due to the design costs to be able to go long distances without recharging and the cost of the battery.

The difference between the total cost of a traditional vehicle and an electric vehicle will depend, for some time, on the difference between the price of gasoline and the cost of the battery or the cost of renting the battery and the electricity service provider. It is calculated that between 2012 and 2015, due to tax incentives, the total operating costs of an electric vehicle in the European Union will be 12.5% lower than an advanced internal combustion vehicle (AIC)<sup>4</sup>; in contrast, in the US, the operating cost of an electric car could be 14% more expensive (see chart).

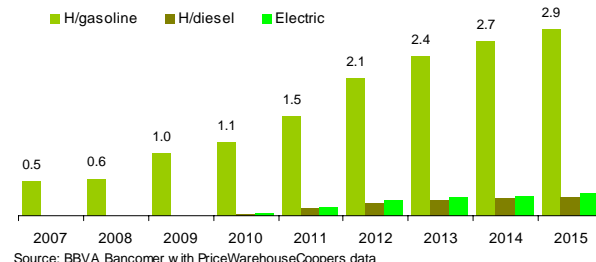
To reduce the gap in the price of efficient vehicles versus traditional vehicles, active government intervention is required to generate incentives, subsidies and investment. In fact, the 2.4 billion dollars authorized by the US government in subsidies to companies that develop the next generation of batteries and parts are oriented in this direction.

## Bibliographical References

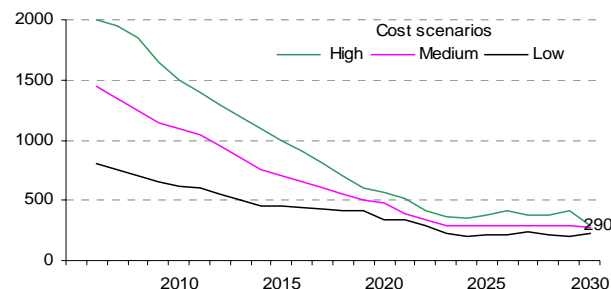
McKinsey&Company (June 2009) *"Electrifying cars: How three industries will evolve"*

*PriceWarehouseCoopers Web"*

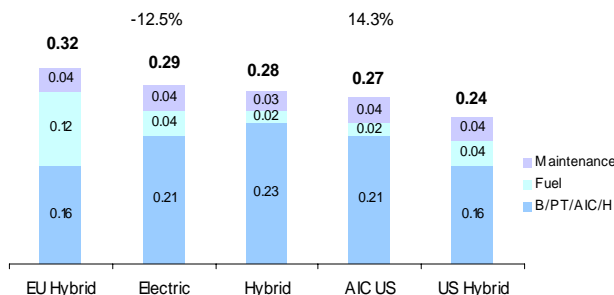
Worldwide trends of efficient vehicle production (millions of units)



Cost of Lithium-ion battery in electric cars (dollars kw/h)



Operating costs for different technologies 2012-15\* (Km per dollar)



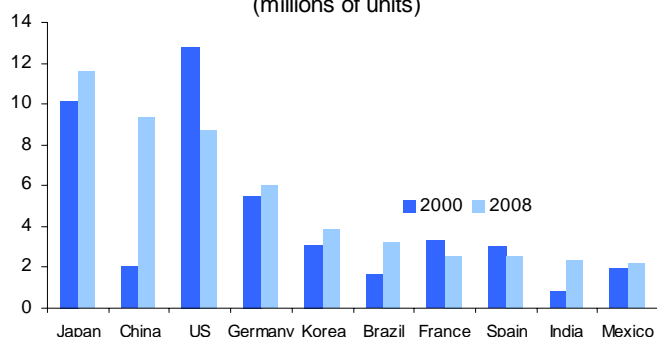
<sup>3</sup> Electrifying Cars: How three industries will evolve. McKinsey&Company. Jun 2009

<sup>4</sup> Taking into account the strong fluctuation in oil prices, advanced internal combustion vehicles (ICE), i.e., a VW Golf 2010 is 30% more efficient than a 2008 model

## Trends in the world's motor vehicle industry

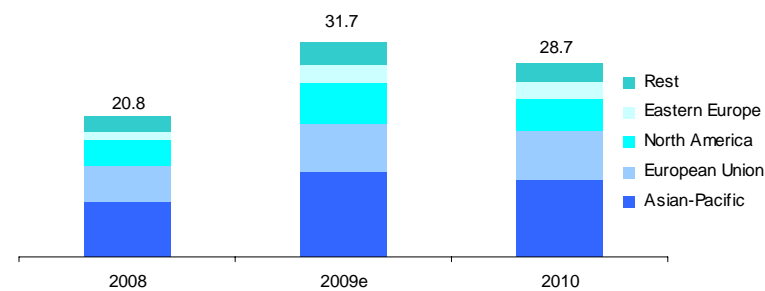
Significant restructuring, not only in the US and Western Europe, but also in Asia and the Pacific (China and South Korea) to counter excess capacity in worldwide production

**The 10 largest vehicle manufacturers in the world**  
(millions of units)



Source: BBVA Bancomer with OICA International Organization of Motor Vehicle Manufacturers data

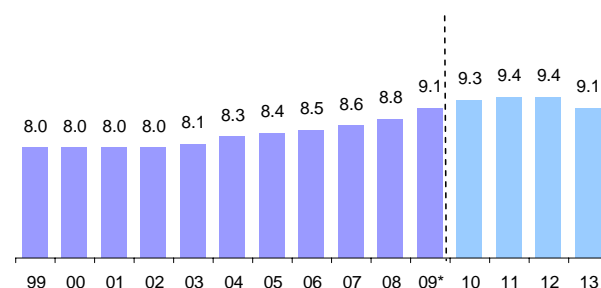
**Excess\* of world vehicle production capacity per economic zone**  
(Millions of units)



Source: Prepared internally with PriceWarehouseCoopers data  
\*Difference between capacity and production

Consumers will tend to keep their vehicles longer, due to lower budgets

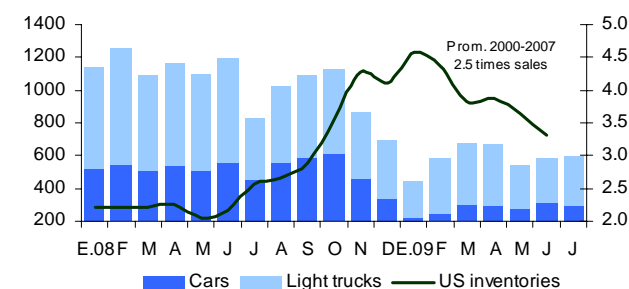
**New vehicle renewal rates in US**  
(years)



Source: BBVA Bancomer with R.L. Polk & Co. data March 18, 2009

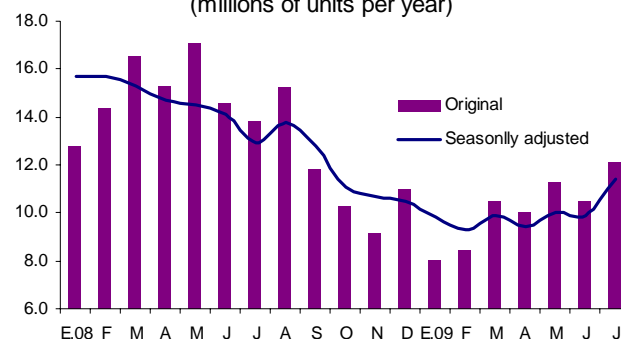
U.S.: the market was reduced from 16.4 million units in the last 10 years by nearly 40% in less than a year

**Vehicle production in TLCAN Zone and Inventories in US**  
(thousands of units and no. of times sales)



Source: BBVA Bancomer Ward's web and BEA

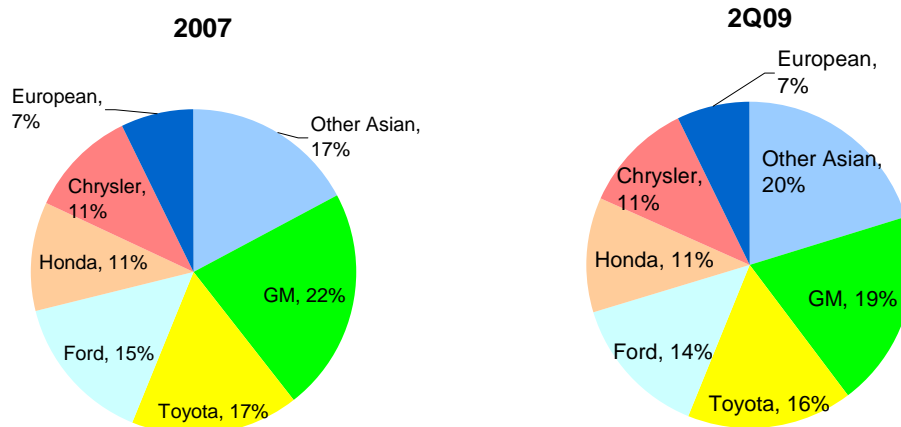
**Vehicle sales: US**  
(millions of units per year)



Source: BBVA Bancomer with BEA data

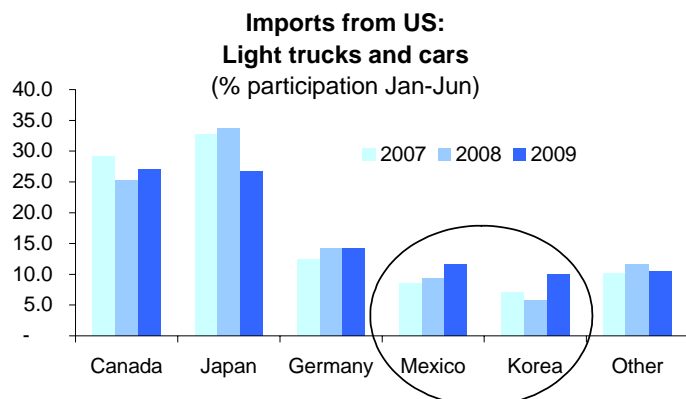
The manufacturers that have been harmed the least in the US in the current crisis are the other Asian car companies (Hyundai, among others) who have gained three penetration points over the North American companies

### Participation in US light vehicle market

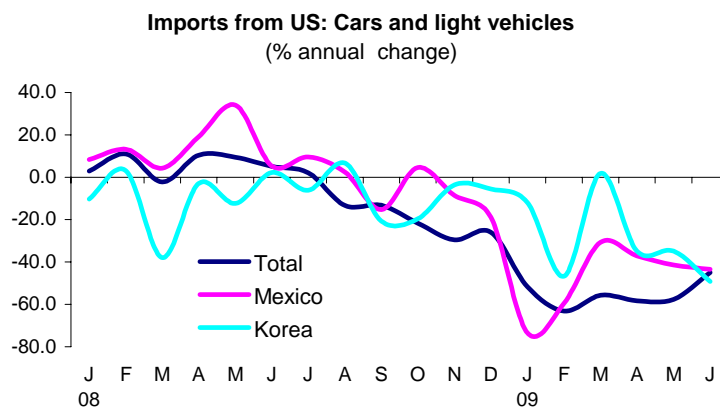


Source BBVA Bancomer with Wards data

Mexico gains participation in the car and light truck market but is followed closely by South Korea

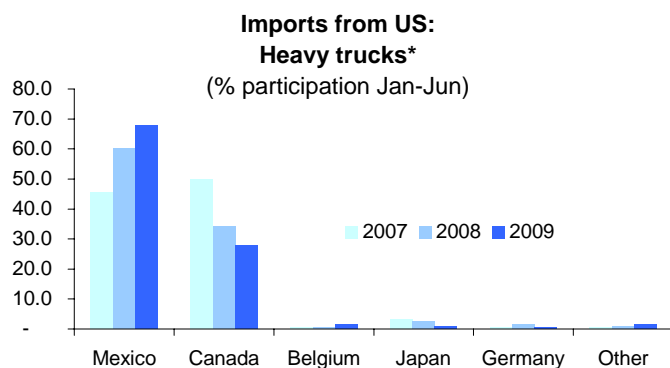


Source: BBVA Bancomer with International Trade Commission data

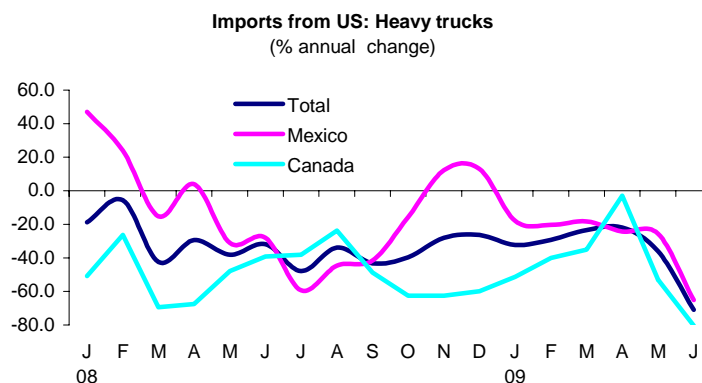


Source: BBVA Bancomer with International Trade Commission data

As regards heavy trucks, Mexico's position continues to improve

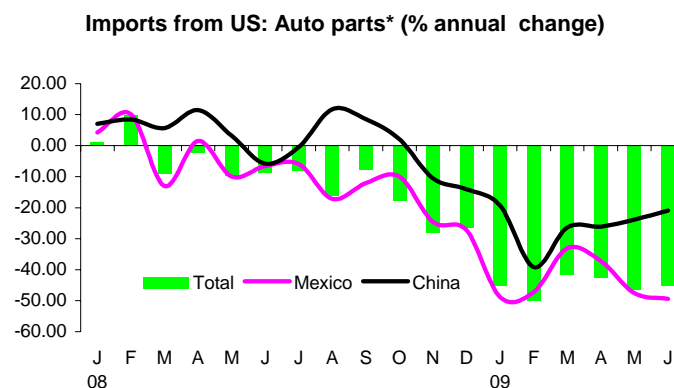
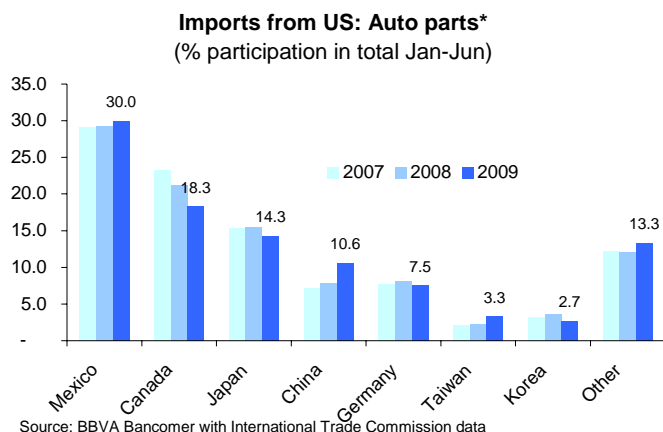


Source: BBVA Bancomer with International Trade Commission data



Source: BBVA Bancomer with International Trade Commission data

In vehicle parts production, China has made significant progress, but Mexico still leads the sector



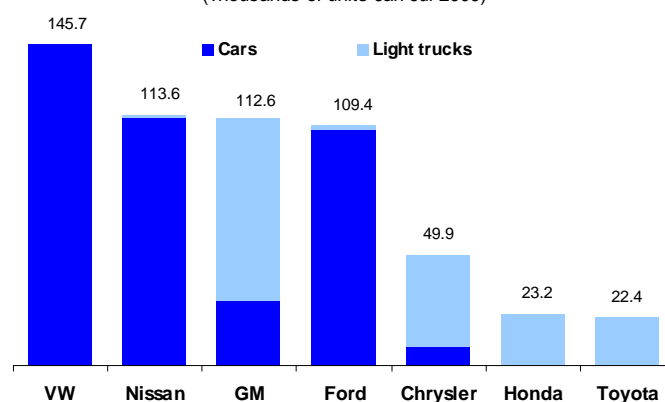
The progress of the US market is important for Mexico because it is the destination of more than 70% of its total production, 60% of which is oriented to the automobile sector

**Exports from Mexico per geographical destination**  
(Thousands of units)

	January-July			Part. %	
	2008	2009	Var. %	2008	2009
US	679	408	-39.9	70.8	70.8
Europe	136	68	-50.1	14.2	11.8
Canada	54	50	-8.2	5.7	8.7
Latin America	67	43	-36.2	7	7.4
Asia	21	7	-68.4	2.2	1.1
Other	2	1	-61.4	0.2	0.1
<b>TOTAL</b>	<b>959</b>	<b>576</b>	<b>-40</b>		

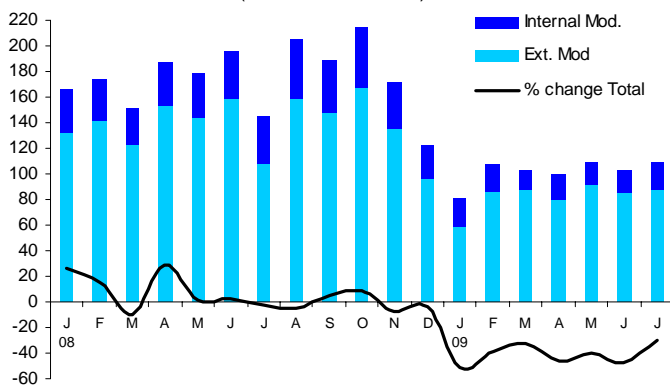
Source: BBVA Bancomer with AMIA data

**Exports from Mexico per brand and segment**  
(Thousands of units Jan-Jul 2009)



Source: BBVA Bancomer with AMIA data

**Vehicle production in Mexico**  
(Thousands of units)



Source: BBVA Bancomer with AMIA data

**Vehicle production in Mexico\***

(% participation in total)

Company	2008	2009	Diff.pp
Nissan	18.1	25.4	7.3
VW	18.9	23.5	4.6
Ford	13.1	15.6	2.5
Honda	2.1	3.9	1.8
Toyota	2.106	3.14	1
GM	19.6	20.3	0.6
Chrysler	11.5	8.2	-3.3
Total	100	100	

Source: BBVA Bancomer with AMIA data

\* With January-July information



Mexico dedicates more than 90% of its export production to 9 successful models.  
A year before, these same nine models represented 53% of total exports

### Models manufactured in Mexico most sold abroad

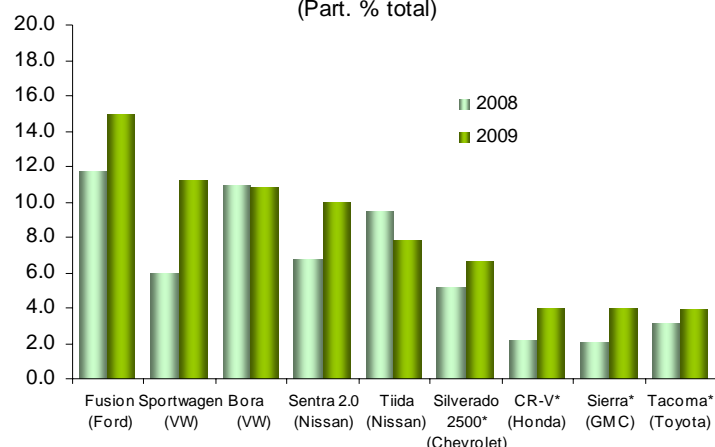
(% participation in total)

	Jan-Jul		
	2008	2009	Diff. in pp
Fusion (Ford)	11.7	14.9	3.2
Sportwagen (VW)	5.9	11.3	5.3
Bora (VW)	10.9	10.8	-0.1
Sentra 2.0 (Nissan)	6.7	10.0	3.2
Tiida (Nissan)	9.5	7.8	-1.7
Silverado 2500* (Chevrolet)	5.2	6.6	1.5
CR-V* (Honda)	2.2	4.0	1.9
Sierra* (GMC)	2.0	4.0	1.9
Tacoma* (Toyota)	3.1	3.9	0.8
<b>Subtotal</b>	<b>57.2</b>	<b>73.2</b>	
<b>Total (thousands of units)</b>	<b>960</b>	<b>577</b>	

Fuente: BBVA Bancomer con datos de AMIA

### Most sold in the export market

January-June  
(Part. % total)

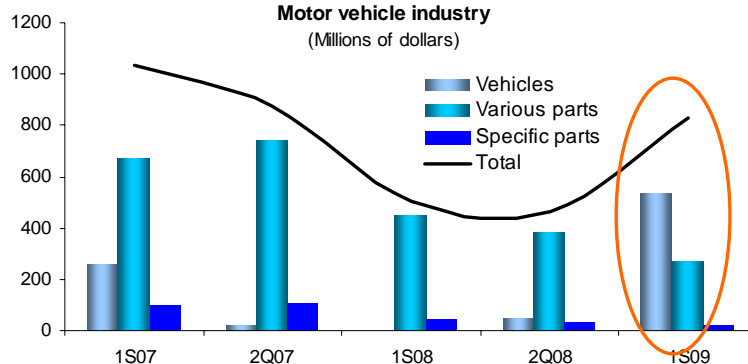


Source: BBVA Bancomer with data from

The advantage of producing in Mexico is backed by the recent figures offered by the DFI in the country.  
Despite the crisis, DFI continues to flow into the country

### Foreign investment in Mexico Motor vehicle industry

(Millions of dollars)



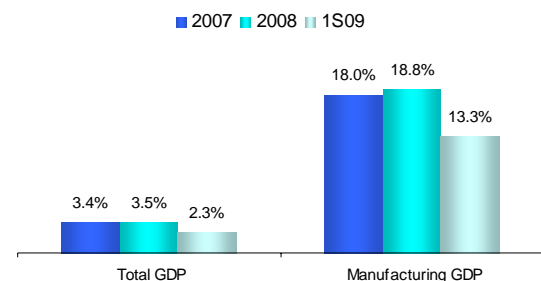
Source: BBVA Bancomer with SE data

\* Refers to chassis, transmission engine systems, suspension and brakes, etc.

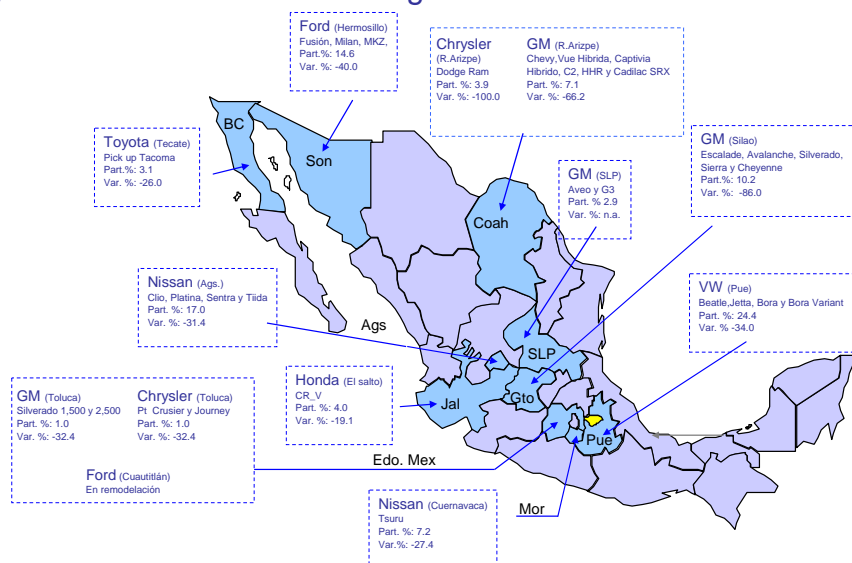
The motor vehicle industry has strong links with the national and regional economies

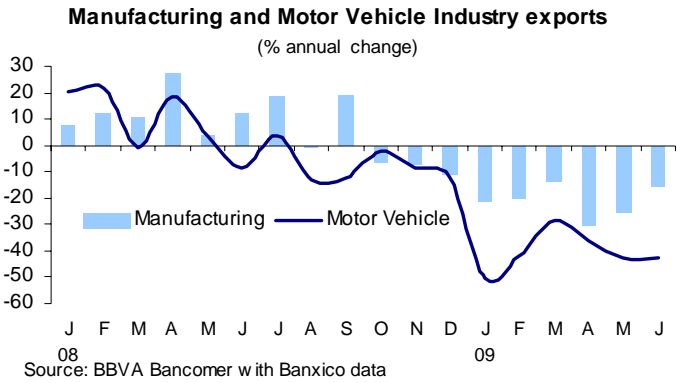
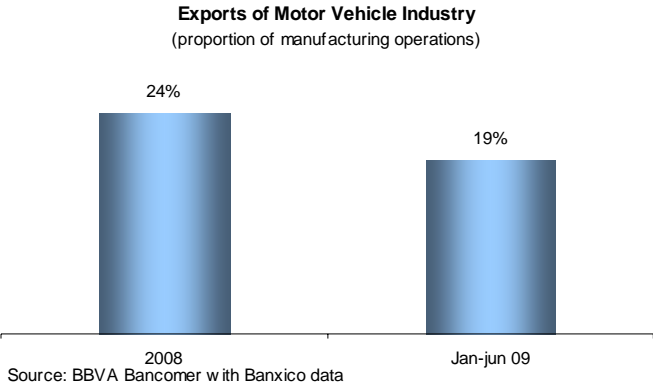
### GDP Motor vehicles

(as percentage of total GDP and manufacturing GDP)

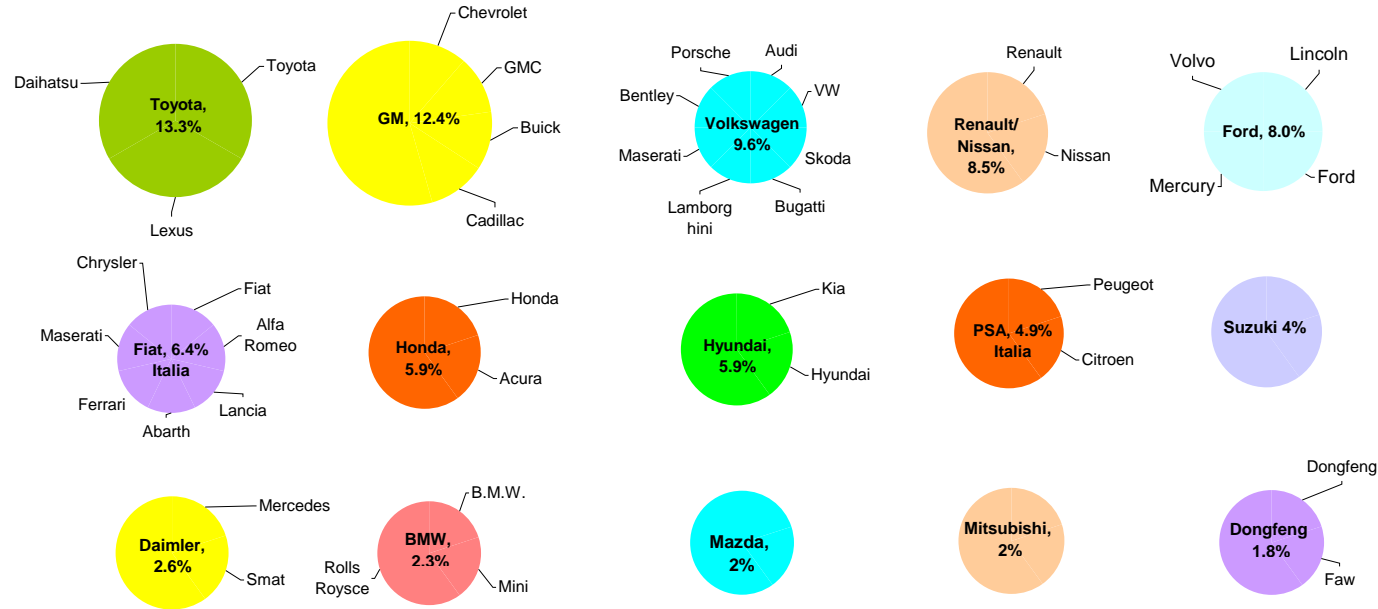


Source: BBVA Bancomer with INEGI data





The larger companies, such as Toyota have become stronger and others, like Fiat, have a better position, although the sale of Open by GM is still not finalized



\*With figures from 2008. These can vary in 2009 due to GM sales of Saturn, Sabb and Hummer and disappearance of Pontiac. The sale of Opel has still not been finalized. Chrysler is included in Fiat  
Source: BBVA Bancomer with International Organization of Motor Vehicle Manufacturers data