

## AUTOMOBILE INDUSTRY AND JAPAN'S STRATEGY FOR THE GLOBAL ENVIRONMENT

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### Abstract

*Japan's automobile industry evolution for the last five years was a success story, based on long-term strategy and strong innovative development. This article makes a review of the automobile industry's main trends and challenges for the Japanese manufacturers.*

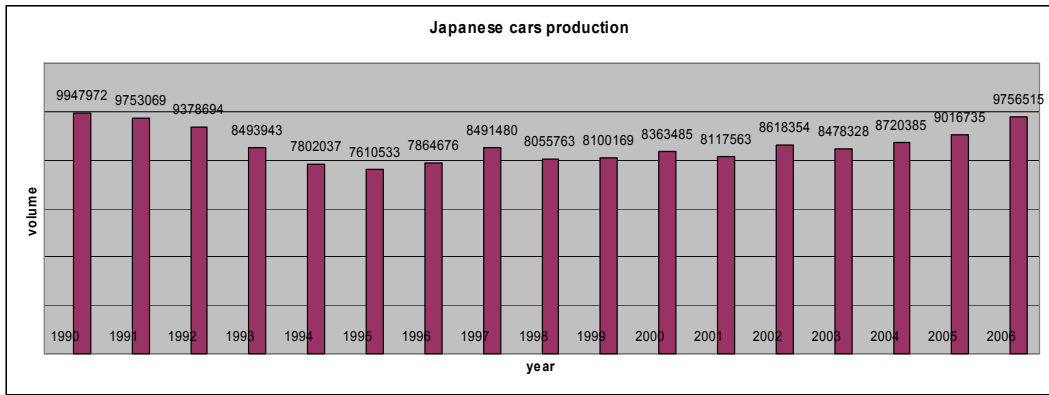
The recent development of the Japanese economy, after a long period of socio-economic and financial turmoil, marks the exit from the crisis period in a manner that has surprised a lot of specialists. The Japanese economy has experienced a rise which has surpassed through its length all the previous records, the GDP being in constant growth (2.3 % in 2004, 2.7 % in 2005, 2.8 % in 2006, the estimates for 2007 have presented a 2% growth and the 2008 assessments are maintaining the same growth level). Another relevant aspect is the end in 2006 of the deflation period; the consumption price index has recorded a 0.3% growth.

Given this favourable environment, the auto industry in Japan was not left out of the general trend. The last years have marked peaks hard to even conceive: in the year 2006, Toyota overtook Ford, in sales volume in the United States, for the first time while in 2007, the same car manufacturer was to become, for the first time ever, the biggest automobile producer on a global scale, overtaking in sales volume General Motors.

After the oscillating evolution from the 1990s, the car industry in Japan has regained the growth tendency, the level reached in 2006 (9.756.515 automobiles, of which 3.826.819 were Toyotas) was the highest level reached since 1990 (the number of cars produced then was 9.947.972).

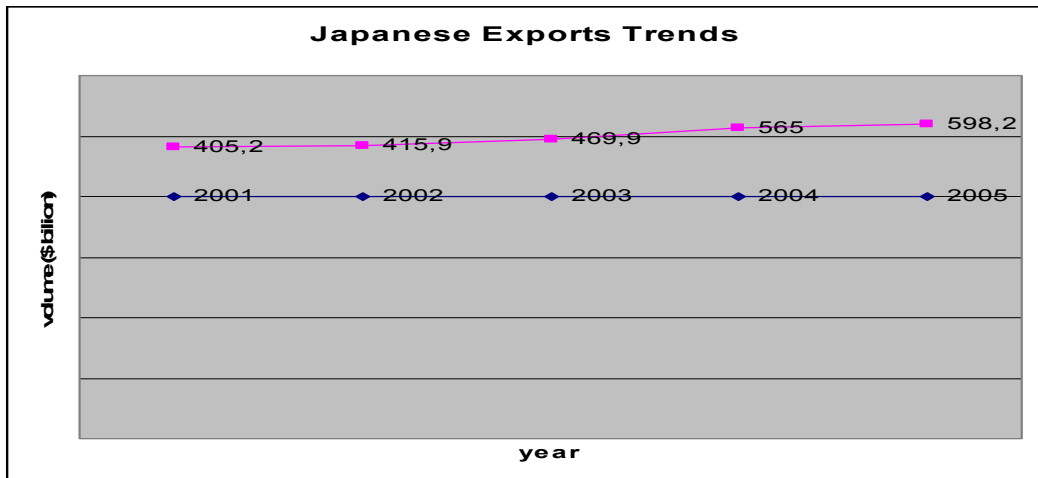
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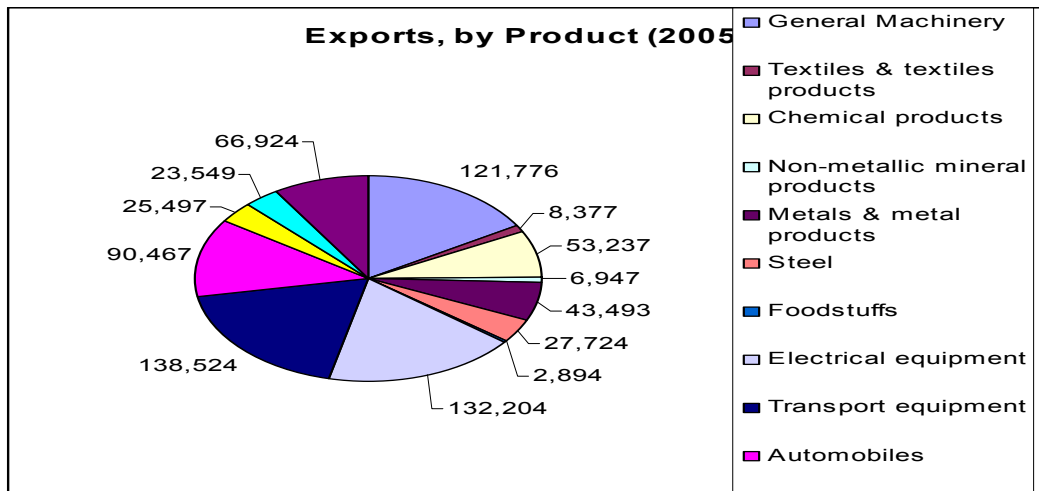
Source: Japan Automobile Manufacturers Association, Inc.

Another indicator reflecting the outstanding performances of the Japanese car industry in the recent years is the export level. The constant growth, for five consecutive years, of car exports has led to a record figure of 5.295.497 cars exported in 2006, 21.4% higher than in 2005. The total value of exported automobiles has recorded a 15.5% growth than in the precedent year, reaching the figure of 134.4 billion US dollars.



Source: Ministry of Finance, Japan

The automobile export has been one of the primary sectors that have led to the significant growth in Japanese exports in the recent years, along with the export of transport equipment (other than automobiles).



Source: Ministry of Finance, Japan

The main challenges that the Japanese car manufacturers face are:

- *The ageing population in Japan*, which has led, for the first time in five years, to a mild decrease in sales on the internal market;
- *The rise of the oil price*;
- *The problems that the United States are facing*, as this is the main export destination of the Japanese automobiles (in 2006, approximately 42% of the total exports were made in the US) ;
- *The strict and harsh legislation concerning the environment*, which, in recent years, lead to allocation of important resources into finding new solutions.

We will focus our attention on the last challenge.

According to recent studies performed by a team of Japanese researchers from the University of Tokyo, National Institute for Environmental Studies and The Japan Agency for Marine-Earth Science and Technology, it is estimated that the average temperature on a global level will be with four degrees higher than the average temperature in the years 1671-2000. The researchers claim that a growth of the average temperature by more than two degrees will have serious effects. Based on these studies, the Japanese government launched, in the spring of 2007, the long-term strategy called “Cool Earth 50”. The main objectives of this strategy are: to reduce the emissions of greenhouse gases globally, to design a concrete campaign framework for addressing global warming beyond 2013 and to launch a national campaign for achieving the Kyoto Protocol target. One of the main targets of the Strategy is to achieve compatibility between environmental protection and economic growth through innovative technological development (such as efficient solar power generation, nuclear power and next generation automobiles such as fuel cell vehicles).

For the Japanese automobile producers these objectives are not new. Concerns for this aspect have made the global battle with the American and European competitors to be fought with new weapons. The Japanese advantages were the long term oriented perspective and the huge investments in technological innovation. Toyota Motor Corp. introduced the world's first mass-produced hybrid car in 1997 (Toyota Prius). The sales of Prius began in North America and Europe in 2000, and in April 2007 the domestic and foreign sales of Toyota's hybrid cars reached one million units. Prius's success may be observed also in the clients' satisfaction level not only in the sales figures. CNNMoney.com realised a study, at the end of 2007, of the most appreciated hybrid cars in the US, concerning the quality – price factor. On the first place, according to the above mentioned study, is situated Toyota Prius. Worthy of mentioning is the fact that, among the total 14 models nominated, seven are Japanese (Toyota being the best represented, alongside Prius there are also Camry, Land Cruiser and Lexus GS450h and RX400h, also Nissan Altima Hybrid and Honda Civic Hybrid). At the 2007 edition of Tokyo Motor Show, Toyota presented 1/X model, which is desired to be a future successor of Prius model. 1/X represents a new guideline for technical innovation.

But the Hybrid vehicles are not the only option for the future: clean-energy vehicles that run on alternative fuels such as natural gas, electricity and diesel-alternative LPG are rapidly gaining in popularity owing to their significantly reduced CO<sub>2</sub> emissions. Meanwhile, the use of low-emission gasoline-powered vehicles is also actively promoted by the Japanese automobile manufacturers; as a result, the combined total of clean-energy and low-emission vehicle shipments reached 4,21 million units in 2005.<sup>1</sup>

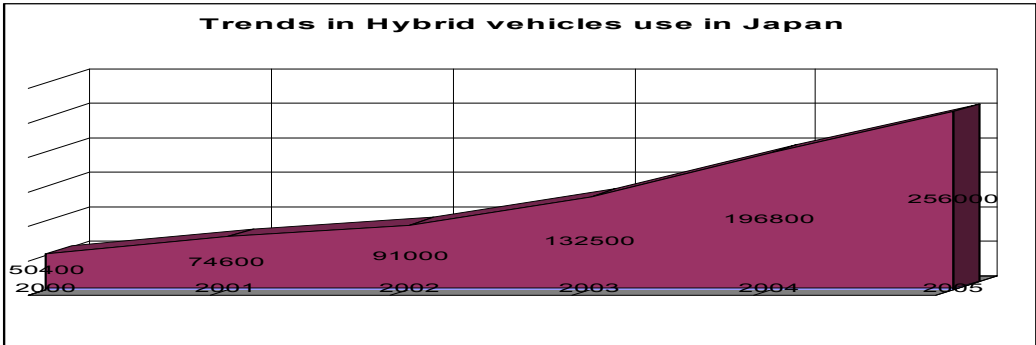
**Clean-energy & low emissions vehicle shipments (2005) - in vehicle units<sup>2</sup>**

	Passenger Cars	Trucks	Buses	Total
Fuel-cell vehicles	16	0	0	16
Electric vehicles	0	0	0	0
Hybrid vehicles	59756	1469	38	61263
Natural gas vehicles	36	2936	94	3066
Methanol vehicles	0	0	0	0

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<sup>1</sup> Source: Japan Automobile Manufacturers Association

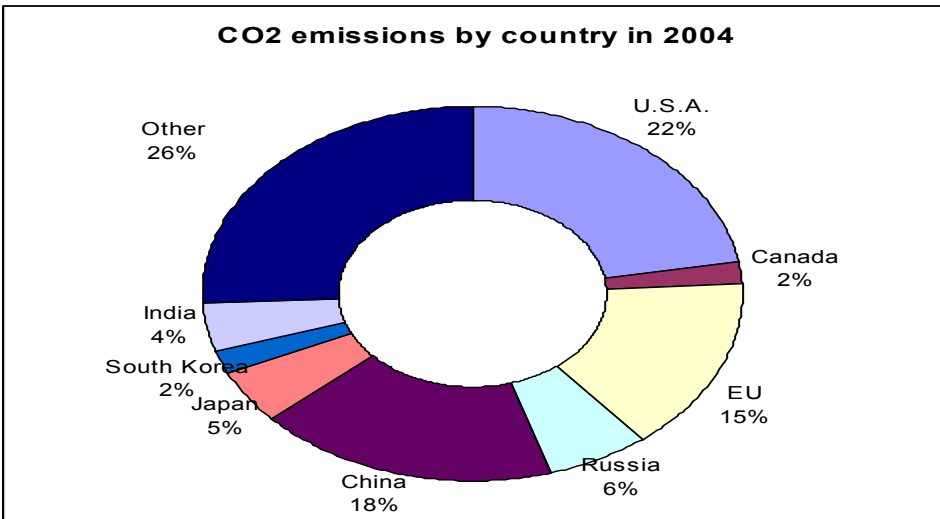
<sup>2</sup> Source: Japan Automobile Manufacturers Association



Source: Japan Automobile Research Institute

The main targets that the Japanese automobile industry is looking to achieve in the area of environmental protection and resource conservation are:

- The further reduction of harmful vehicle exhaust emissions and increased fuel efficiency. CO<sub>2</sub> emissions in Japan's transport sector dropped significantly in 2005, owing largely to improved fuel economy in passenger cars and greater efficiency in goods distribution<sup>1</sup>.
- The development of alternative-energy vehicles;
- Increased efficiency in plants and infrastructure to reduce air, water and noise pollution;
- To further improve vehicle recycling and recycling in the production process.



Source: Japan Automobile Manufacturers Association

<sup>1</sup> Source: Japan Automobile Manufacturers Association

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