

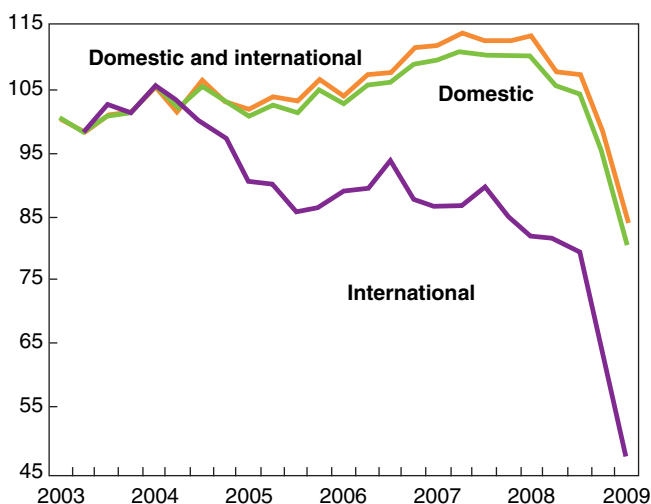
## The transport industry

Following the financial crisis of late 2008, the transport industry is probably one of the sectors to be hardest hit by the ensuing worldwide economic crisis. Businesses have failed, earnings gone into free fall and employees have been put on furlough or laid off during the past twelve months. This report will examine the state of the freight transport and motor vehicle industries in which new dynamics are emerging after a year of sluggish business activity: a new landscape, new players and new technologies.

### The freight transport sector

The freight transport sector, a direct indicator of economic health, has been going through a very difficult time. Road freight, which represents 350,000 jobs spread out among 35,000 businesses in France, has seen the volume of business fall dramatically since the middle of 2008.

Fig. 1 - Transport of domestic and international freight (base 100 = T1 2003)



Source: French Department of the Commissioner-General for Sustainable Development – Observation and Statistics Department

There are several reasons for this slump. First of all, the increase in motor fuel prices had already adversely affected the sector during the first part of 2008. As a result, the number of businesses filing for bankruptcy

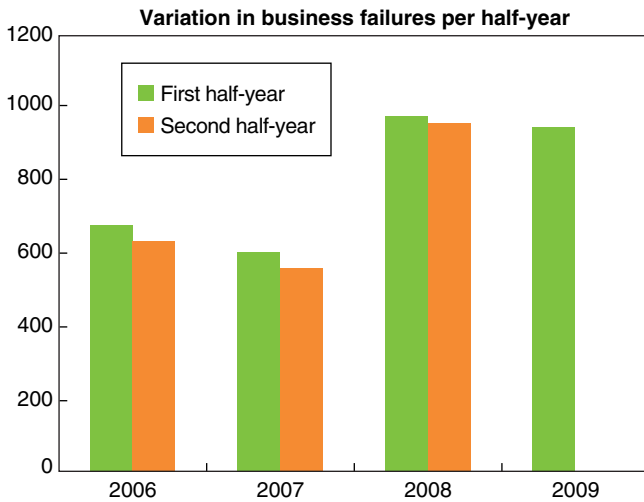
doubled between 2007 and 2008. Nor is short-term visibility very good: transport businesses expect to see their tax burden grow heavier in the period 2010-2012 as carbon credits and a carbon tax are implemented. In addition, starting in 2011, an eco-tax to encourage the switchover from road to rail transport is to be levied on vehicles; it will be based on the distance traveled on French roads and highways (not including motorways) and the number of axles.

In other words, transport operators are confronting the recession in a business environment marked by fierce competition, which is driving prices down at a time of rising costs. Many businesses are in difficulty and the number of failures is increasing. Along with real estate, the transport sector is one of those to be hardest hit by the economic crisis: the number of failures is up 60% in the road transport business in comparison with the years preceding the slump. Not surprisingly, the impact has been greatest on businesses with fewer than ten employees.

One consequence of this situation is a drop in new vehicle purchases. In first quarter 2009, new vehicle registrations collapsed (-25.4%) and sales of second-hand heavy trucks continued to slide (-9%) after having already slipped (-1.6%) in fourth quarter 2008. This has led to a decline in business for heavy truck manufacturers like Renault Trucks. The end of the year promises to be equally gloomy, since the BNP Paribas Industrial Vehicle Observatory is predicting that the market for the entire year will total 32,800 vehicles, a figure that is more than 40% lower than in 2008. The sector is expected to rally in 2010, i.e. when the economy starts to

## The transport industry

Fig. 2 - Number of road transport bankruptcies in the last three years



Source: Fédération nationale du transport routier

grow again and vehicle manufacturers have sold off existing inventory stocks.

## The automobile industry

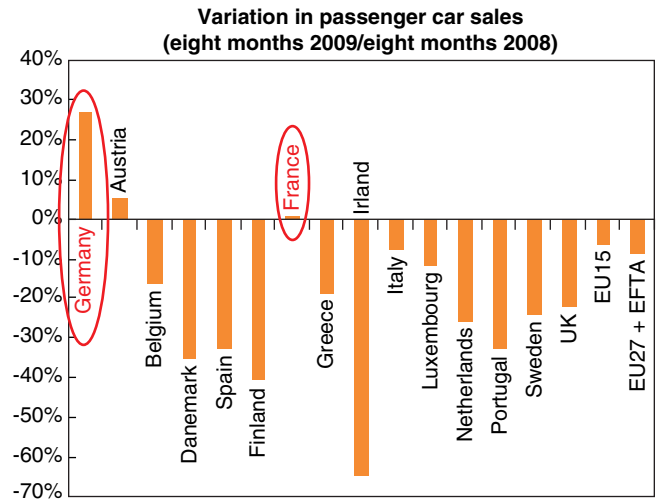
Naturally, the recession has had a major impact on the automobile industry. Carmakers had a very rough time towards the end of 2008, then saw a net contraction of world markets for first half of 2009 compared to the same period of 2008.

The US market shrank by 35% in the first half of 2009 compared to the same period of 2008 and did not register a positive figure until the month of August. In Asia, Japan also found itself hurting as sales volumes dropped 20%. On the other hand, the Chinese market became the Number One on the world automobile market (3,660,000 vehicles sold in the first six months of 2009) despite a slowdown in growth.

In Europe, the results were mixed. Spain (-32%), the United Kingdom (-10%) and Italy (-7%) reported very poor sales figures for the first eight months of 2009. All in all, the European market (EU27 + EFTA) fell by 8% compared to the same period of 2008. However, some countries have resisted better than others. Automobile sales remained stable in France and even rose in Germany: +27% period on period (Figure 3).

These variations in performance can essentially be attributed to the national car buyer assistance schemes set up to boost automobile sales. New car rebates, trade-ins involving the scrapping of "clunkers" and tax incentives gave France and Germany an arsenal that allowed them to put up stronger resistance on domestic

Fig. 3 - Automobile sales in Europe (2009 and 2008)



Source: Comité des constructeurs français d'automobiles

markets that had not overheated in previous years, as they had in Italy and the United Kingdom. But these assistance programs applied mostly to entry-level or "smaller" vehicles, as we will see subsequently in further detail.

These stimulus plans paid off in 2009: sales rallied significantly in all of the countries in Western Europe. However, sales are still falling in the countries of Eastern Europe and manufacturers fear that the markets will undergo a severe correction once the rebate programs come to an end.

In order to cope, carmakers have had to make adjustments at production facilities. Output has been scaled back at most of them. Renault and PSA have cut production by about 20% and even more at their French plants (by more than 30% for first half of 2009).

This dismal business environment has weakened auto manufacturers all over the world, especially in the United States. In 2008, Toyota made more than nine million vehicles, becoming the Number One carmaker. Today, it is facing deficits, especially in Europe, due to the sluggish economy as well as an unfavorable euro/yen exchange rate that is eating into the profits of Japanese motor companies. The sales of family cars and SUVs have been the most severely affected. If Toyota hopes to see a return to profits by 2011, it will have to launch city cars or hybrids, which are more compact as well as fuel-efficient.

This brings us to another effect of the current dismal economy. Lower household purchasing power, in combination with the impact of car allowance rebates and tax incentives tied directly to vehicle CO<sub>2</sub> emissions, have

## The transport industry

Table 1  
New car rebates

| Country        | Criteria applied to vehicle to be scrapped | Type of car rebate                                    | Period of validity  |
|----------------|--|---|---|
| Austria        | >13 yrs old                                | €1,500 to buy a new car or a secondhand Euro 4 car    |   |
| France         | >10 yrs old                                | €1,000 to buy a new car <160 g of CO <sub>2</sub> /km | Rebate valid till December 2009   |
| Germany        | >9 yrs old                                 | €2,500 to buy a new car or secondhand Euro 4 car      | Rebate valid till €5 billion funding limit is reached                               |
| Greece         | No age limit                               | €400-800 to scrap + €1,500-3,400 per new car          |   |
| Italy          | >10 yrs old                                | 1,500 € per new car <140 g gasoline; <130 g diesel    | Rebate valid till December 2009   |
| Portugal       | >10 yrs old                                | €1,000-1,250 to buy a new car <140 g                  |   |
| Romania        | >10 yrs old                                | €1,000 to buy a new car                               |   |
| United Kingdom | >10 yrs old                                | £2,000 to buy a new car                               | Rebate valid till March 2010  |
| Spain          | >10 yrs old or >250,000 km                 | €2,000 to buy a new car                               | Rebate valid till March 2010  |
| United States  | No age limit                               | Up to \$4,500 to buy a new car                        | Rebate valid till November 1, 2009 or till the \$3 billion funding limit is reached |

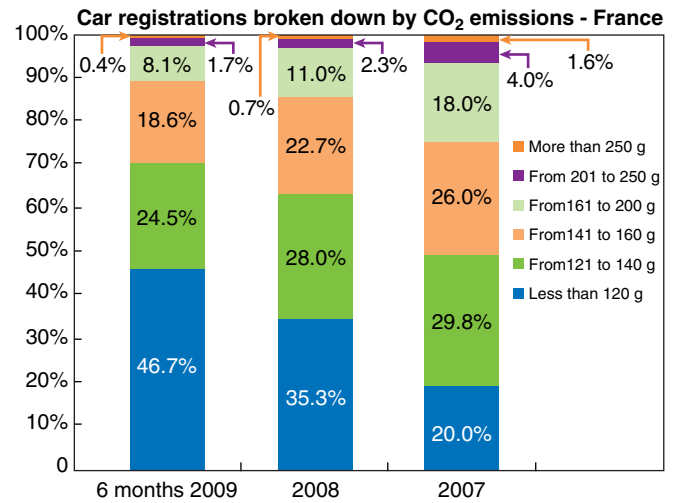
Source: BIPE

significantly modified the structure of the automobile market (Figure 4).

In a fairly marked trend, the structure of car registrations is evolving towards models with emissions lower than 140 g CO<sub>2</sub>/km: they accounted for 63% of the market in 2008 and more than 70% in first half of 2009. Even more striking is the fact that vehicles emitting less than 120 g CO<sub>2</sub>/km now represent nearly half of registrations, versus 36% in 2008. The incentive and assistance programs had an impact last year and an even greater one this year. Thanks to the new rebates, the fleet turnover rate accelerated to the benefit of smaller, less expensive models. Their purchase was facilitated even more (compared to more high-end models) by government car buyer assistance programs. In Germany, an equivalent situation prevails with respect to the weight of small cars.

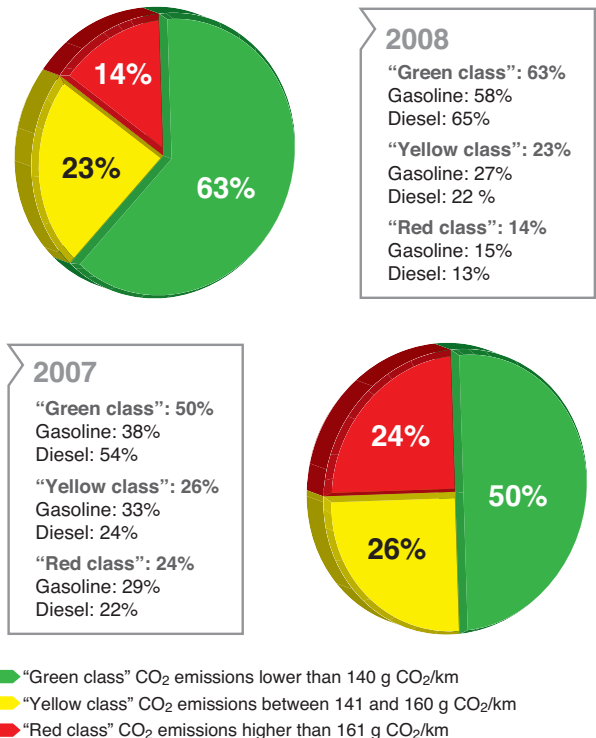
At the same time, the car purchase incentives tied to vehicle CO<sub>2</sub> emissions boosted diesel vehicle sales: in 2008, vehicles emitting less than 140 g CO<sub>2</sub>/km repre-

Fig. 4 - Structure of car registrations, broken down by CO<sub>2</sub> emissions



Source: Comité des constructeurs français d'automobiles

Fig. 5 - Breakdown of car registrations by category of CO<sub>2</sub> emissions



Source: Comité des constructeurs français d'automobiles

sented 63% of the French market and 65% of the diesel vehicles sold (versus 54% in 2007).

Another consequence is that low-cost and ultra-low-cost vehicles are gaining ground on the market. After Renault-Dacia led the way by introducing the Logan, then Tata presented the Nano, the market offering has been enriched with models whose features and production

## The transport industry

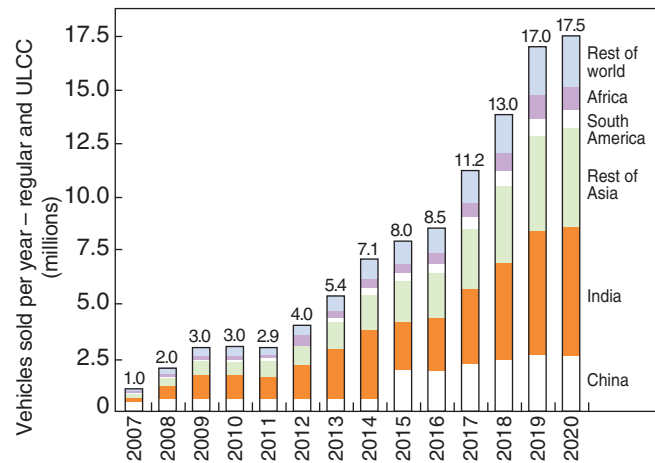
costs have been reduced to a basic minimum. According to current estimates, there are only several million vehicles on this segment worldwide, but it is expected to grow relatively rapidly in the years to come. It is also expected to show a shift towards even lower prices to attract customers in developing countries (however, with the economic crisis, the effect will no doubt be broader). According to projections by the consulting firm A.T. Kearney, the number of low-cost and ultra-low-cost vehicles on the world market could reach the 17.5 million mark (equivalent to one quarter of today's market) by 2020, mostly in the developing countries.

As for the motor companies themselves, the economic crisis has taken a heavy toll. US carmakers had a very rough time early in the year. General Motors barely escaped bankruptcy, thanks to federal aid granted by the Obama administration. Ford has completely restructured its organization and Chrysler has formed an "alliance" with the Fiat Group in order to survive.

The severity of the world recession has triggered another wave of corporate mergers, leaving only a few large groups on a highly concentrated market. Since the 1970s, the number of motor companies has declined incessantly.

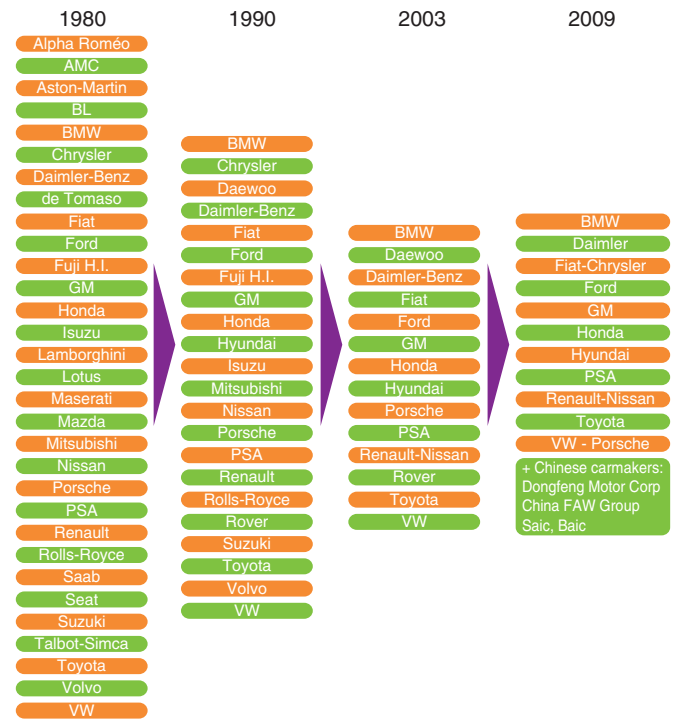
In addition, companies often set up technology partnerships for the joint development of automobiles or engines or, at the very least, common platforms. PSA and Mitsubishi have recently entered into an alliance to share platforms and build a joint plant. In the next few months, the future of Suzuki, Mazda and the US carmakers, among others, may depend on whether they can strike new alliances to reach the critical size, which has

Fig. 6 - Scenario bearing on world sales of low-cost and ultra-low-cost cars



Source: A.T. Kearney

Fig. 7 - Number of automobile companies 1980-2009



Source: IFP

steadily grown larger. Market players now estimate that the critical size needed to remain competitive corresponds to annual output of at least six million vehicles.

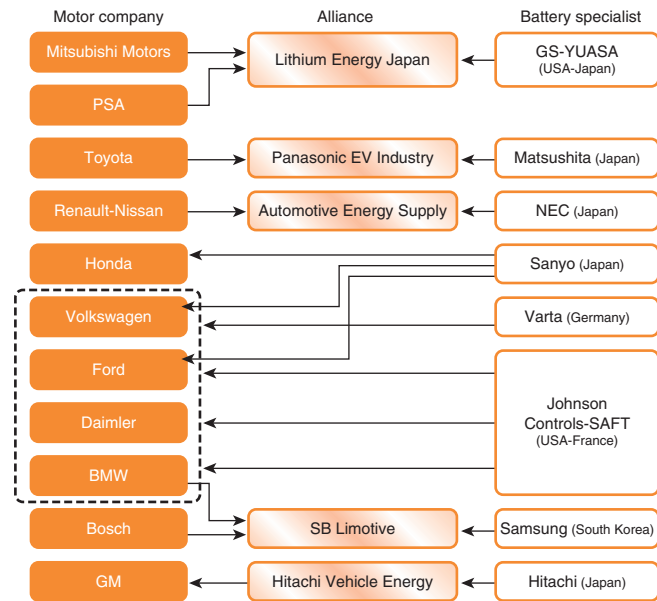
Paradoxically, the trend towards a more concentrated market has been accompanied by the arrival of new entrants on the automobile scene via two different paths.

The first path has emerged with the strengthening of the Chinese automobile market, currently the world's largest, and of Chinese motor companies. After getting a start in joint ventures formed with foreign carmakers, Chinese auto companies are now gaining ground. The latest examples are Baic and Geely: the former aims to take over Saab while the latter is acquiring a majority stake in Volvo.

The second path has been opened up by vehicle electrification, which introduces new components – such as battery systems and hybrid transmissions – into the value chain and gives new players a chance to establish themselves in the automobile industry. Observers note a growing number of alliances between carmakers (e.g. the one formed by Volkswagen, Ford, Mercedes and BMW) and joint ventures involving a conventional player on the automobile market (a manufacturer or an equipment supplier) and a battery specialist (Figure 8).

## The transport industry

Fig. 8 - Alliances for the development of batteries



Source: IFP

These new entrants immediately take up a strategic market positioning, because the battery is already a key component in today's hybrid vehicles. But their weight on the market is expected to continue to grow as rechargeable hybrids and electric cars become increasingly important, making the cost and management of batteries even more essential. There are a few niches that remain to be exploited. For instance, Michelin has positioned itself as a provider of new technological solutions using in-wheel motors, and other companies are looking into the feasibility of business models based on leasing batteries for electric vehicles.

### Prospects for the future

The economic crisis has had a very large impact on the motor industry and may have redynamized the sector in conjunction with the implementation of standards to reduce the emissions of carbon dioxide and other pollutants (especially nitrogen oxides). Having attained 140 g CO<sub>2</sub>/km, carmakers must now aim to reach 120 g CO<sub>2</sub>/km for their range average. The target will be lowered progressively between 2012 and 2015, then set at 95 g of CO<sub>2</sub> by 2020. However, the emissions limits are less stringent for light commercial vehicles (175 g/km by 2016; 135 g/km by 2020) and nonexistent for heavy trucks; apparently, several technological solutions will have to be implemented in parallel in order to meet emissions limits.

Most manufacturers are planning to support the expected advances on internal combustion engines by hybridizing their range, following the example set by Toyota with its fifteen hybrid models. Although many of the first hybrids were sedans (Prius II and III), luxury models (LS 600h) or SUVs (RX 400h and RX 450h), smaller models are on the way. Toyota is planning to bring out its Auris hybrid by the end of 2010 while Volkswagen intends to launch a Golf hybrid and PSA several diesel hybrids, including a 308, a 3008 and a Citroën DS5 at the high end of the range.

On the freight transport segment, there are a few hybrids available. Ford offers the E-350 and E-450 cut-away vans, Freightliner has built a fleet of hybrid trucks for FedEx and Volvo is marketing the FE Hybride, a refuse collection truck that consumes up to 30% less fuel. But it is obvious that heavy truck hybrids continue to be heavily penalized by the cost of the requisite components. Moreover, these vehicles are mainly utilized in urban and suburban areas.

At the same time, manufacturers are making progress on their electric vehicle projects. The first EVs to reach the market will be the Bluecar (Bolloré), the i-MiEV (Mitsubishi) and the R1e (Subaru) by 2010, followed by the Volt (Chevrolet) by 2011 and the electric Smart and the Toyota IQ by 2012. PSA Peugeot Citroën expects to benefit from a partnership formed with Mitsubishi to develop and produce 25,000 electric cars a year for the French carmaker starting in 2011 and to launch the iOn in 2010. All of these projects will focus on city cars, at least to begin with, until further progress is made on batteries. Increasing the range of EVs and lowering their cost will be key to development on a large scale.

At Renault, the electric vehicle is a key priority for business development. Four different models are slated for launch in 2011 and 2012:

- a two-seater city car: the Twizy,
- a compact comparable to the Clio: the Zoe,
- a family car: the Fluence,
- a light commercial vehicle: the Kangoo Be-Bop ZE.

Now that the electric vehicle is back, its success will depend on making further progress in technology (especially on batteries), and on the implementation or deployment of strong public support or incentive policies: battery recharging or exchange infrastructure, support for investment (e.g. for battery production at the Renault Flins plant west of Paris) and research (e.g. for the planned battery R&D center in Grenoble and the Mov'eo Dege electric vehicle R&D platform in Satory).

## The transport industry

Any controversy over the origin of the electricity used (coal, nuclear power or renewable energy) will have to be defused effectively and in a transparent manner, e.g. with respect to methodological requirements and regional disparities. In the final analysis, the origin of the electricity will determine the efficiency of EV technology in reaching CO<sub>2</sub> emissions targets for the transport sector and the environmental impacts of the batteries used (end of life and recycling).

Far from moribund, the automobile industry is already seeing signs of a commercial recovery that is technologically rich, with many projects attractive to consumers and respecting the principles of sustainable development.

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