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CHIP SHORTAGES TO BOOST CARMAKERS' PRICING POWER IN EUROPE

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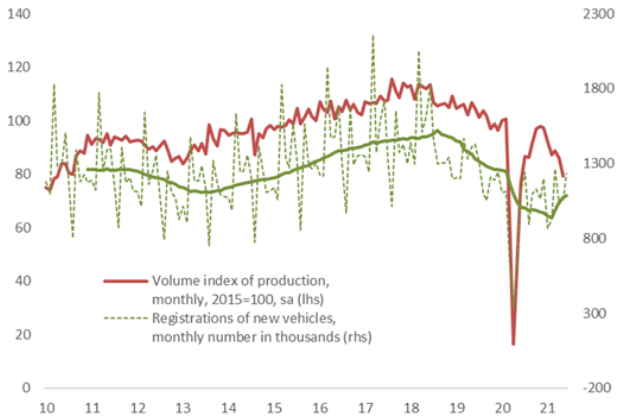
An unprecedented and intensifying shortage of materials, notably semiconductors, is creating a supply-demand mismatch in Europe's automotive sector that could last until H1 2022. This creates a unique window of opportunity for carmakers to raise prices by +3-6% after nearly 20 years of constraints. Over the first half of this year, demand for new vehicles in Europe benefited from the grand reopening: new car registrations grew by +25.2% to almost 5.4mn passenger cars (+1.354mn units) compared to the first half of 2020 (see Figure 1), with significant double-digit gains in most countries, notably the top four markets (+14.9% in Germany, +28.9% in France, +51.4% in Italy and +34.4% in Spain). This improvement is not yet sufficient to recover pre-crisis volumes since the first half of 2019 recorded 6.916mn passenger cars (i.e. +1.553mn units). Nevertheless, it has already and noticeably contributed to improving business sentiment in the sector, as evidenced by Eurostat business surveys[1] on factors limiting production (see Figure 2). According to the latter, in Q2 2021, the factor "demand" posted a large drop from the high levels reached in Q2 and Q3 2020 to reach H1 2019 levels, i.e below the long-term average.

Figure 1 - Production and sales of new vehicles, EU-27



Sources: ACEA, Eurostat, Euler Hermes, Allianz Research

However, this same survey also indicates a severe rebound of material/equipment as a key factor limiting production. The latter reached an all-time high in Q2, well above the previous records seen in 2018 and 2020, which were explained, respectively, by the regulatory changes in

[1] https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/business-and-consumer-surveys/download-business-and-consumer-survey-data/subsector-data_en

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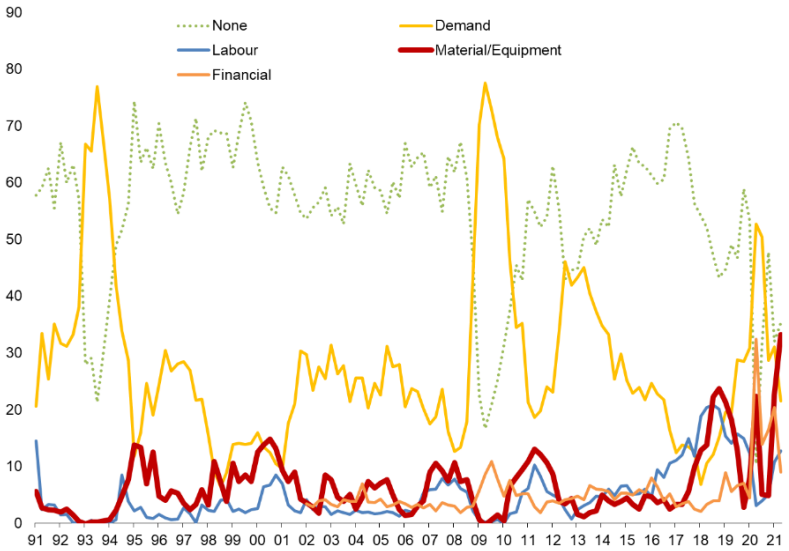
CO2 emissions and supply-chain disruptions due to the lockdowns. This historic level of material/equipment shortages is highly related to the lack of semiconductors[2], which has been exacerbated by the wide adoption among carmakers of just-in time processes of production dedicated to minimize the stockpiling of all types of inputs. Indeed, over the first half of the year, all carmakers continued to emphasize their obligation to optimize assembly lines and even to cut back production.

In both April and May, at the EU-27 level, the volume index of production for the overall automotive sector[3] fell back to its lowest monthly levels since the early 2010s (see Figure 1) — by -3.4% m/m and -7.8% m/m, respectively — with most car-manufacturing countries contributing to the drop, including the major ones. In this context, the level of production reached in May was still well below the pre-crisis level for the EU (-23% compared to 2019 average), with a stronger hit for established car producers (-33% for France, -30% for Germany, -25% for Spain and -10% for Italy) than for the other car-producing countries such as Czechia (-6%), Sweden (-6%) and Hungary (-5%).

Figure 2 - Factors limiting production in the automotive sector, EU-27 level, quarterly survey



Sources: ACEA, Eurostat, Euler Hermes, Allianz Research

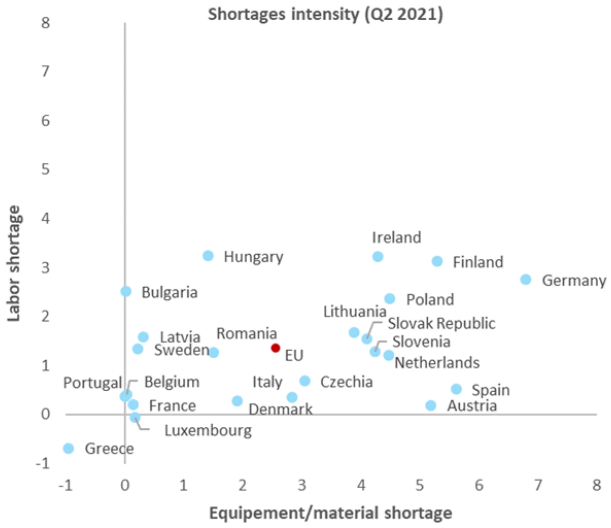
Looking at past episodes of material/equipment shortages, the intensity[4] of the constraint reached in Q2 2021 appears to exceed the standard deviation observed in the past within Europe by 2.5 times. This shortage intensity looks particularly severe for Germany and Spain (i.e. 51% of EU production) and to a lesser extent in smaller car-producing countries such as Finland, the Netherlands and Slovakia (see Figure 3). Differences in shortage intensity reflect differences in anticipation in demand (which led to differences in orders cut), uneven relationchips with suppliers (short-term vs long-term contracts, closer partnership allowing better access to inputs) and differences in types of needs in car chips (chip shortages are

[2] See our recent report *Semiconductors realpolitik: A reality check for Europe*.
[3] Motor vehicles, trailers and semi-trailers, parts and accessories.
[4] In order to estimate the shortage intensity we compare the last level of shortages (Q2 2021) with the level of standard deviation observed over the past 20 years.

higher for power management and microcontrollers than for Advanced Driver-Assistance Systems products).

We calculate[5] that the current shortages could take on average 3.5 quarters to normalize, with Germany and Sweden exposed to a longer wait (3.9 quarters for each, see Figure 3). In a best case of a recovery starting as early as Q3 2021 — which is the timing most often quoted by carmakers as of today — we estimate that the recovery process will be complete in Q2 2022. Interestingly, the recovery time is higher in Western Europe: Germany, Sweden, Spain and Italy, which together represent 72% of EU production, will take longer than 3.5 quarters to recover, while Hungary will need nearly three quarters and Czechia, Poland, Romania and Lithuania less than three quarters.

Figures 3a & 3b– Shortages by country, EU-27 countries, Q2 2021



	Material/Equipment shortage		Share of the sector in the EU automotive production			Share of the Auto sector in the domestic manufacturing production
	Intensity (*)	Recovery time (**)	Motor vehicles (a)	Parts and others (b)	Total (a+b)	
Germany	6,8	3,9	50%	33%	44%	20%
Spain	5,6	3,5	7%	8%	7%	13%
Finland	5,3	3,3	0%	0%	0%	2%
Austria	5,2	3,4	2%	2%	2%	9%
Poland	4,5	2,9	2%	8%	4%	12%
Netherlands	4,5	3,4	2%	1%	2%	5%
Slovenia	4,2	3,2	0%	0%	0%	13%
Slovakia	4,1	3,5	3%	4%	3%	38%
Lithuania	3,9	2,6	0%	0%	0%	2%
Czechia	3,1	2,5	4%	9%	6%	28%
Italy	2,8	3,7	6%	10%	7%	7%
Denmark	1,9	2,6	0%	0%	0%	1%
Romania	1,5	2,6	3%	2%	2%	23%
Hungary	1,4	3,1	2%	5%	3%	26%
Sweden	0,2	3,9	5%	3%	4%	19%
France	0,2	3,8	12%	11%	11%	11%
Belgium	0,0	2,4	1%	2%	1%	5%
Portugal	0,0	3,5	1%	2%	1%	11%
Total/avg	2,6	3,6	100%	100%	100%	10%

(*) in number of standard deviation observed in the past twenty years
(**) in number of quarters
Sources: Eurostat, Euler Hermes, Allianz Research

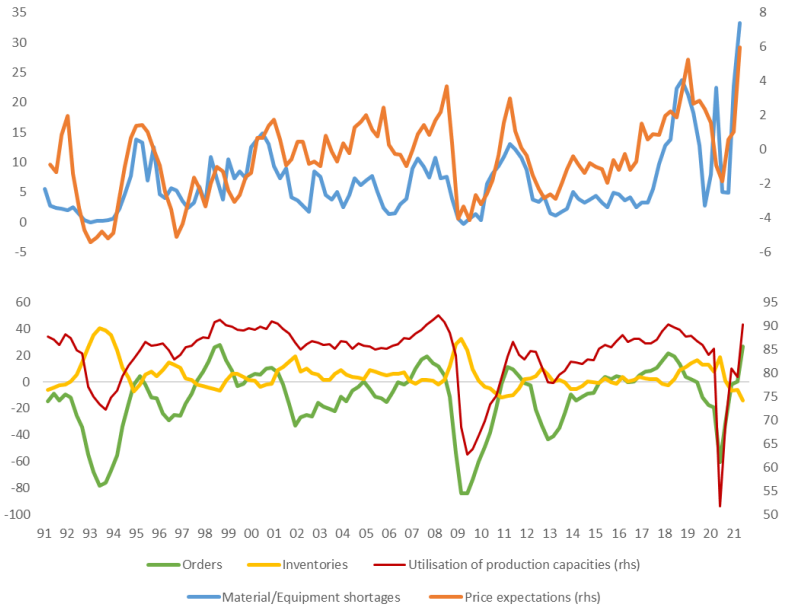
The long-lasting shortages will maintain a supply-demand mismatch within Europe until H1 2022 since the fundamentals of domestic demand remain better oriented for the short and medium term. This is due to several reasons: Some are directly related to the grand reopening, such as the boost in consumer confidence and the (partial) unleashing of the significant amounts of savings accumulated by households[6]. Others are specific factors supporting the purchase and/or renewal of vehicles, from the willingness of households to be less dependant/exposed on collective transportation to the subsidies in place to favor the switch to electric vehicles cars, the intensifying restrictions on the use of traditional cars powered by international combustion engines as well as, later in 2022, the need for car rental companies to upgrade their fleets.

[5] In order to estimate the recovery time, we calculate the needed time to cover a cycle in the past 20 years. To do so, we compute the difference between the highest and the lowest level of shortages in the same business cycle and then we normalized it. This simple calculation gives us an insight of how much time it took the automotive sector to get back on track.

[6] See our report *European households: The double dividend of excess savings*

At the same time, we do not expect exports to mitigate the supply-demand mismatch, since the US market is seeing a stronger dynamic (with vehicle sales already close to H1 2019 levels in H1 2021 (8.5mn units)), which should impact the carmakers that export the most to the US, particularly German brands. Domestic and export orders have already bounced back to top levels in June, according to business surveys, pointing to a solid outlook in demand for the months ahead (see Figure 4) — providing that the sanitary situation remains under control.

Figure 4 – Business sentiment on shortages (material/equipment), price expectations, orders, inventories and utilisation of production capacity, EU-27

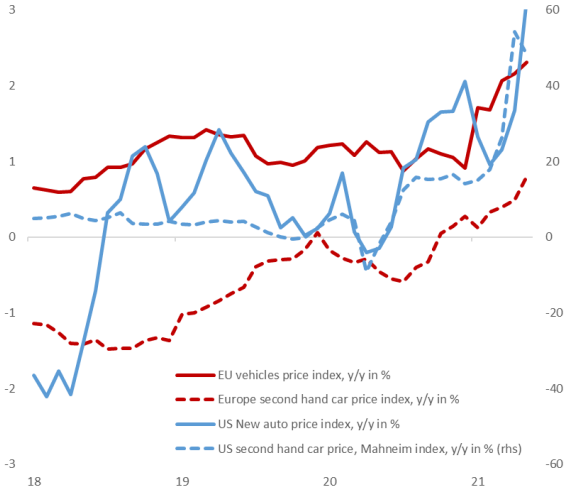


Sources: Eurostat, Euler Hermes, Allianz Research

In this context, we expect car prices to increase by at least +4% in Germany, with the potential to exceed +10%. Spain and Italy could see increases between +2.4% and +5.8%, while France could see a rise between +0.8% and +5.0%. Unlike in the past, the automotive sector now faces a unique supply situation with all the stars aligned: a very high level of orders, a very high utilization of production capacity, which is reflecting the severe adjustments done by the sector over the pandemic, and a very low level of inventories, all at a time when companies have to face a surge in raw material prices (rubber, copper, steel) and higher freight rates[7]. This unique background is supporting a higher pass-through to the consumer, also because it is 'helping' car manufacturers to keep on adjusting their product mix in favor of the most profitable cars to the benefit of the premium segment — and thus German brands. Financial statements available for Q1 and Q2 2021 most often confirm good if not strong margins, despite the lower volumes. This context is also implying an upside trend in second-hand car prices in Europe but not with the same magnitude observed in the US since the US market has proved to be much more massively supply-constrained (with the inventories/sales ratio down to an all-time low in May 2021).

[7] See our report *Global trade: Ship me if you can!*

Figure 5 – New and second-hand car prices evolution, EU-27 and US



Sources: Manheinm, BEA, Eurostat, Euler Hermes, Allianz Research

To obtain the estimated price increase, we calculate the elasticity of car-CPI regarding car-PPI[8] during recovery times in order to catch the historical recovery pace. Then we outline a set of scenarios (see Figure 6) based on both (i) three levels of price expectations and (ii) three levels of pass-through capacities in order to have a range of potential price increases with the following two extreme cases:

- A "low" scenario in which carmakers' price expectations are lower (+5 bp) and their pricing power is low (25%);
- The "high" scenario in which carmakers' price expectations are still high (+15 bp) and their pricing power is high (75%).

Thereafter, we simulate the impact of the expected price shock by adding it to the last three-months average. Finally, we distribute the simulated shock on CPI over the recovery time.

Figure 6 – Potential car price increases, EU-27 level

Price expectation	Ability to transfer price expectation to PPI	Increase in automotive price (CPI) compared to last quarter average
+5	25%	2,7%
	50%	3,6%
	75%	3,4%
+10	25%	3,1%
	50%	3,8%
	75%	4,5%
+15	25%	3,4%
	50%	4,5%
	75%	5,6%

Sources: Eurostat, Euler Hermes, Allianz Research

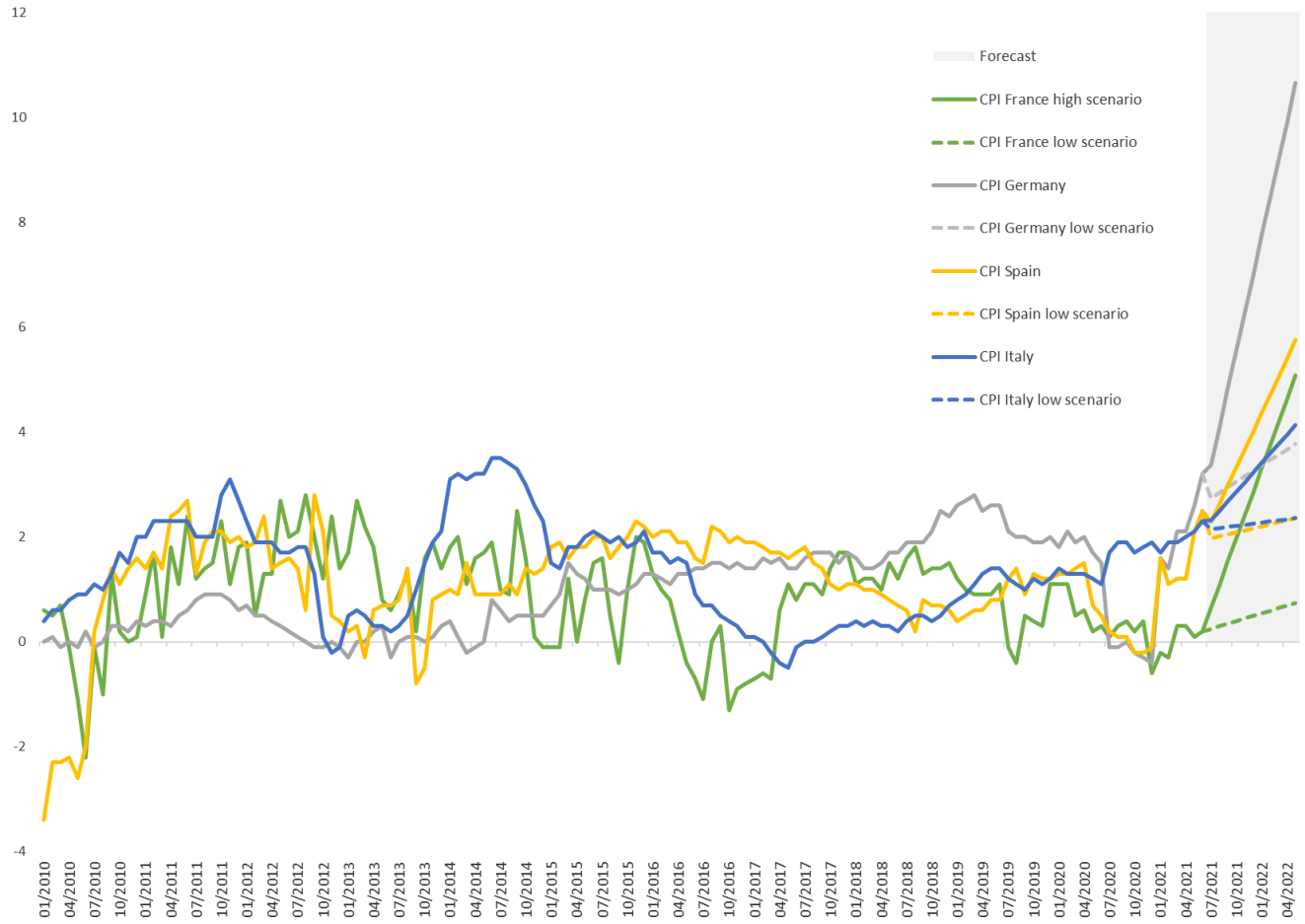
The potential vehicle price increase may slightly differ between countries (see Figure 7). In Germany, which represents almost half of the automotive sector (44% of the production and 38% of car registrations), we expect car prices to increase by at least +4% but with the potential to exceed +10%, noting that they have already started to increase in 2021 (+2.6% y/y in May and +3.2% y/y as of June). Spain and Italy, which both represent 7% of

[8] Car-CPI : car consumer price index ; car-PPI : car producer price index

automotive sector output, are expected to increase their car prices between +2.4% and +5.8%. France, whose prices have historically been more stable, is expected to see its car price increasing between +0.8% and +5.0%.

These numbers must be put into perspective with the maximum car-CPI observed in the past: +2.8% for Spain, +2.9% for France, +3.3% for Germany and +3.5% for Italy. We anticipate in our "low" scenario that only the German car-CPI would be higher than its historical level. In our "high" scenario, we estimate that the four countries - which account for 2/3 of the EU car production – would post a historic pace of car-CPI.

Figure 7 – Potential car price increases, selected countries



Sources: Eurostat, Euler Hermes, Allianz Research

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