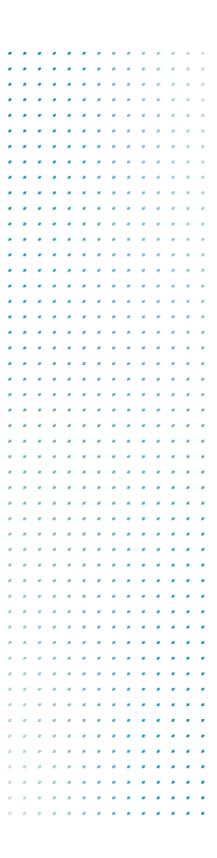
4th UPDATE: AUGUST 2020 Updated RV outlooks for Czech Republic, Finland, Sweden and Switzerland.

How will Covid-19 shape used car markets?

Scenarios for residual value development in Europe for 2020, 2021 and 2022

Last updated: 7 August 2020





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Three-speed RVs – Europe's used-car prices emerging from lockdown

As Europe's automotive sector emerges from Covid-19 lockdowns, a 'three-speed' development of residual values (RVs) is emerging. **Autovista Group's senior data** *journalist Neil King* considers why some markets are benefitting from pent-up demand, some have had a rapid reaction to the impact of Covid-19 while others are 'late starters' with limited value movements thus far.

Autovista Group has developed a Covid-19 tracker, which follows recent RV developments in 12 European markets. The indexed tracker starts in February, with a value of 100. In the UK and France, the tracker shows that the index of RVs has risen since mid-May and peaked at 103.7 (a 3.7% rise) in the UK and 101.8 (a 1.8% rise) in France in the week to 2 August.

In France, the enhanced trade-in bonus also applies to used cars and hence the notable rise in RVs

> The UK is enjoying the release of pent-up demand, both from the lockdown and from the uncertainty running up to departure from the EU. The UK is also facing a starker vehiclesupply challenge than any other market, which is filtering through to higher residual values as demand outstrips supply. There is no sign of an incentive scheme in the UK, which could

dampen RVs as consumers expect new and, in turn, used-car prices to lower. 'The end of furlough will drive some change towards the end of the year, and with Brexit looming, we believe the worst is still to come next year,' commented Anthony Machin, head of content and product at Glass's.

Vive la France

France is also benefitting from pent-up demand and a new incentive scheme that came into effect on 1 June. The \in 8 billion package includes a \in 7,000 grant for private buyers of new battery-electric vehicles (BEVs) costing less than \in 45,000 (\in 5,000 for fleet buyers), while buyers of new plug-in hybrids (PHEVs) can claim a \notin 2,000 subsidy.

Additionally, France has also doubled its premiums for those looking to trade in older vehicles for a cleaner model, with a €3,000 grant for vehicles with internal combustion engines and €5,000 for BEVs and PHEVs. Crucially in France, the enhanced trade-in

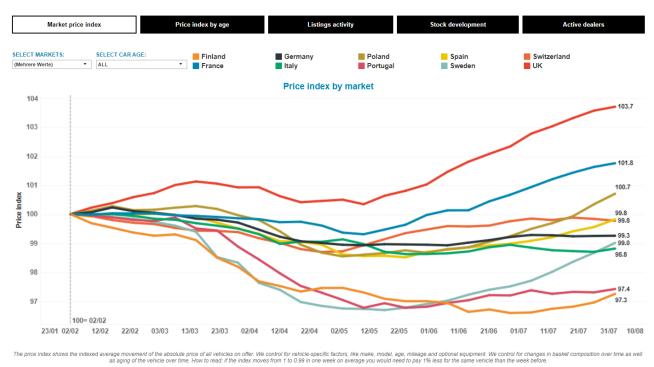


bonus also applies to used cars and hence the notable rise in RVs. While the initial hefty support for used car buying, including ICE, was quickly exhausted, France has extended the incentives for used car buying at a lower level and focusing on PHEV and BEV rather than ICE used car buying support.

The surge in used-car transactions was phenomenal; 595,942 used cars changed ownership in France in June, 29.1% more than in June 2019, according to the latest data published by the French carmakers' association CCFA. It should be noted, however, that this was also supported by two extra working days in June 2020 compared to June 2019 (21 versus 19) and there were still 17.4% fewer used-car transactions in the first six months of 2020 than in the first half of 2019.

Autovista Group anticipates a slowdown in the RV development in France and our latest residual-value outlook calls for prices of used cars to be 0.3% lower in France at the end of 2020 than when the Covid-19 crisis erupted in Europe, in March. Nevertheless, this is the most resilient expectation for all the European markets, as you will find from later chapters of this whitepaper.

Figure 1: Three-speed RV graph – indexed price development across Europe



Source: Autovista Group, Residual Value Intelligence, Covid-19 tracker



Rapid-reaction markets

Sweden, Finland and Portugal all had rapid negative reactions to Covid-19 and are at the lower end of RV developments, but for different reasons. Dramatic lockdown measures were not introduced in Sweden and Finland, but Autovista Group's Covid-19 tracker shows that the index of RVs in Sweden fell from early February to mid-May in both markets due to the overall fear and uncertainty about what would happen.

Sweden, Finland and Portugal all had rapid negative reactions to Covid-19

'We have seen a drop in new car registrations in Sweden in April (around 30%), May (around 50%) and June (around 20%). And the outlook is that this will not be recovered until the end of the year. However, the used-car market has recovered fine as stocks are decreasing and sales volumes are rising,' said Johan Trus, head of data and valuations Nordics at Autovista.

'People are not allowed to travel to other countries, so the summer vacation is spent in the country, and then people need a car to travel. In addition, car exports have picked up,' added Trus.

In Finland, the index of RVs fell from early February to only 97 in mid-June and has remained at the lowest level in Europe since. 'Finland is still running on low numbers, and we don't see the same quick recovery as in Sweden. The import of young used Swedish cars has picked up again and this, in combination with lower used-car values than normal, already before the crisis started, has made us lower the outlook slightly,' Trus commented.

Portugal has also endured falling residual values since the tracker index started in February, but a more pronounced downturn commenced at the end of March. Ass in Finland, the price index is only showing a slight increase and not truly recovering.

'The first impression we have is that there was a little panic and then there was an attempt to sell cars, or at least secure online contracts, by lowering prices a little. In the previous crisis, however, prices dropped by more than 15%,' said Joao Areal, editorial manager of Autovista Eurotax Portugal.

'After the reopening, there has been an increase in sales of used cars, with a greater incidence in the lower segments. One of the indicators is the increase in car credit in May-up 88% in relation to April – as the lockdown ended on 15 May, but this is still far from the beginning of 2020. As the economy is down, increasing prices to the pre-Covid level will not be easy, but we will have to wait for the next few months to see the real impact,' added Areal.

Late starters

The rest of Europe's tracked markets are the 'late starters', where several effects are balancing each other out, and we still do not see a significant movement in RVs.

The first reason for the current stability is that many markets have essentially been 'on hold.' Sales activity resumed later in Spain - very late in May and even June in some cases. In Italy, 'the market has been waiting for a better understanding of the full impact of the economic crisis, especially considering that many experts are convinced that we could face a second wave and a new lockdown in



autumn,' explained Marco Pasquetti, forecast and data specialist of Autovista Italy.

Italy is now coming under a bit of pressure, however, with RVs falling again since late June. This is partly because of the proposed incentives to support the country's automotive industry, effective from 1 August. There is also the Ecobonus incentive scheme, but the amount allocated is insufficient in our opinion (so far). We think that we'll see an impact on values starting from September,' Pasquetti added.

The significant disruption to new-car supply and registrations has also supported RVs

The significant disruption to new-car supply and registrations has also supported RVs. 'In many cases, dealers are delivering stock and used cars, as this is their only chance to get a car. They say they are not applying discounts to very young used cars yet, but discounts already exist for new-car sales, ranging from 15% to 40%-45%, depending on the manufacturer and the type of buyer. I think all this activity will have a consequent effect and once the very young used cars have been delivered, we will start seeing RVs drop,' said Ana Azofra, valuation and insights manager at Autovista Spain.

Switzerland saw the same dramatic decline in new-car sales volumes as elsewhere and so

nearly new cars, aged 0-6 months, may have served to fill the gap left by new cars. This would explain why their RVs have seen increases, whereas used cars aged seven to 17 months are losing ground.

'Dealers and registration offices in Switzerland were never fully closed during the lockdown. There was never an over-stocked used car parc. This may be one reason for the stable or slightly increasing RVs,' commented Hans-Peter Annen, chief editor for Autovista Switzerland.

'Now that manufacturers have resumed production and all the individual new-car incentives, which we had in the pre-corona phase in Switzerland, have come back and are even increased, this will most likely increase the used-car stock volume and the pressure on the RVs of young used cars,' Annen concluded.

Meanwhile, there has been a very positive development in Poland. 'Sales of new passenger cars are growing and are currently at a level of 20% year-on-year. Imports of used cars are returning to the pre-pandemic level. However, we have identified another risk not related to the Covid pandemic. This is the WLTP introduction effect: fast-growing list prices of new passenger cars. This risk is more significant than lockdown for the level of RVs. It may be a reason to decrease RVs in coming months, despite quite good demand for used cars. We expect a clearer view after the holidays,' commented Marcin Kardas, head of the editorial team Autovista Polska.

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A golden age for used car markets?

Dr Christof Engelskirchen, chief economist at Autovista Group, speaks to our leading data scientists, **Dr Anne Lange and Markus Halonen**, who help make sense of used car market trends during the Covid-19 ramp-up phase.

Christof: As we described in the first chapter, we see very different RV developments across Europe. Finland, Portugal are down. France, the UK, and to some extent also Poland, are up. The rest of the markets are trailing around the 100point index mark, on average. In these markets, we do not see any negative or positive impact on RVs due to Covid-19, yet.

Clearly, used car price development is an important indicator of the strength of a country's economy. When you look at our data, what factors currently impact used car price formation?

Anne: This chapter captures well how the three different clusters of countries behave during the ramp-up phase. What we usually see is a solid, yet lagged, relationship between stock market performance and used car prices, as long as the stock market represents a good reflection of the economic mood of a country. Currently, that is not the case. Low-interest rates and hopes that Covid-19 may be contained shortly have pushed stock prices up. When we look at activities at dealers, we see that the initial shutdown has led to an increase in days in stock of cars. When dealers reopened, they initially began to manage prices down to clear out stock.

Markus: Yes, this was in the beginning of the crisis, where the supply of used cars was still stable as previously ordered cars were delivered to customers, which brought used cars in stock (see Figure 2, left chart). The used car demand was weak during the first weeks of the crises and thus used car stock was increasing (see Figure 2, right chart).

Already in mid-April, the stock levels started to drop. This was because the inflow to stock

Today, days in stock are almost at pre-Covid-19 levels in some markets

decreased as new car deliveries collapsed but used car demand and sales volume was already improving. Today, days in stock are almost at pre-Covid-19 levels in some markets, which is remarkable (see Figure 2, right chart).

The three clusters we are describing make sense. Initial used car price drops are either slightly recovering, or stabilising, or even rising in markets like UK and France, for very different reasons, which have been well captured in the first chapter (see Figure 1).



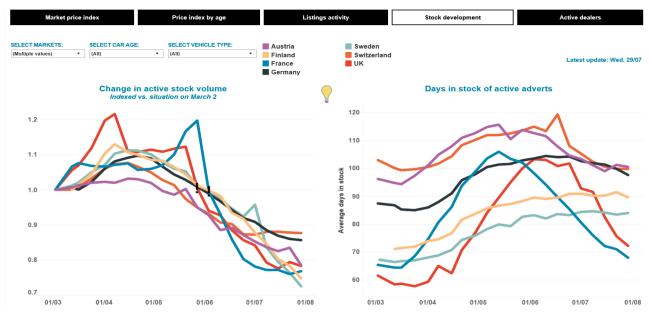


Figure 2: Change in active stock levels and days in stock of active adverts across Europe

Left chart shows how active stock at dealers has been declining; right chart shows how days in stock rose initially during lockdowns and have been declining during the ramp-up phases to below pre-Covid-19 levels. Source: Autovista Group Covid-19 tracker

Christof: Are we in a phase of the market, where trends can already be safely interpreted or is it more affected by external events? I am referring to the massive incentive scheme in France also for used car buying, which has pushed RVs up. And I am referring to the weak-Britishpound- and supply-shortage-induced lack of new and used cars on the market that meet some pent-up demand and lifts prices up in the UK?

Anne: There are certainly some anomalies affecting current used car price trends. For example, the French incentive scheme, that subsidises used car buying and drives RVs up and the UK's shortage of supply of new and used cars, that drives RVs up.

There is one emerging trend that may last longer: people may exhibit a financial cautiousness and rather turn to a used car than a new car. This is further compounded by the lack of available new cars. In addition, those that used to rely on public transport may opt for some budget alternatives, thus driving demand for the older user cars up.

Markus: The reason for the decreasing active stock (number of active adverts) is simply that the dealers are selling out more cars than they are buying in. For example, in Finland and Sweden, the used car selling volume has been truly at a high level lately. In June this year, used car retail sales volumes were higher than in June 2019. High sales but lower than normal inflow of used cars keeps the stock falling.

We have some anomalies, like the French used car incentive scheme, pushing RVs up, but even in those countries where schemes are different or non-existent, there are commonalities: used car sales volume is at good level, stock decreasing and prices increasing. On top of what Anne said, a reason for the currently good demand for used cars is that people spend less money on vacation and spent less during the lockdown. Patterns of changed, at consumption have least temporarily. Used car markets are benefitting.



Christof: When we look at the very old used cars (>6 years), they usually perform pretty well in the current economic climate. Used car buyers seem to be looking for budget alternatives at times where they avoid public transport. But there is a peculiar pattern for the nearly new young vehicles vs. the very old used cars. In many markets, we see that the older used cars perform relatively better than the very young ones, for example in Germany, France, Spain, and in particular in the UK. But in Austria, Belgium, Finland and Sweden, we see a different pattern: the very young cars outperform the older ones. Is this driven by supply shortage more than differences in demand? What are the reasons?

Anne: Let me try to sort through this. In most countries, we can see a lower supply of less than 1-year-old used cars to the market than pre-Covid-19 (see Figure 3, left chart). For cars six years and older, there are more cars offered by dealers than pre-lockdown (see Figure 4, left chart). You are therefore describing two trends that have very different root causes. There is a lack of supply of new and very young used cars currently supporting price realisation for very young used cars. For the very old used cars, it is rather the strong demand for them that helps keep prices stable and rising.

Christof: People ask questions about our methodology for publishing used car price development. How sensitive is our methodology for outliers? How do we control for irregular market conditions? What is the lag in our published values, i.e. how quickly do we capture emerging trends?

Markus: Our methodology is based on market observation data that we source from various portals all across Europe on a daily basis. We control for outliers, data errors and nonactively managed cars. This works reliably.

I am not sure what the background is to question around controlling for irregular market conditions. Irregular market conditions like the Covid-19 pandemic have an effect on used car prices, and that is what we are capturing with our data models. For measurement accuracy, we have implemented rolling values, where past days' trends are captured as well as the current days' realities. We put more weight on recent values in the statistical models. There is only a very small lag in how fast we see emerging trends, much smaller than for any economic modelling.

Christof: Has dealer activity picked up again? Are we back to normal? In which markets have dealers achieved the full turnaround in activities?

Anne: The number of dealers that are active in the market is almost back to pre-pandemic times, although there is less new advertising activity than selling activity overall. Dealers are still clearing out their stock. Numbers indicate a shortage of young used cars.

Markus: Although it may be short-lived given the gloomy economic outlooks, many countries seem to be experiencing a bit of a golden period of used car remarketing. As long as there is a supply shortage of new cars and very young used cars, and some pent-up demand, this could continue for a while.

Christof: Any word of advice?

Markus: Keep riding the wave of currently strong used car demand. A well-managed used car business is most important for car dealers during these difficult times, where fewer new cars are sold than normally.

Anne: I agree. Tougher times may be ahead, and our editorial teams are publishing the Covid-19 Whitepaper to discuss the RV



forecasts for 2020, 2021, 2022 by scenario. My advice would be to keep reviewing the latest outlooks provided later in this whitepaper.

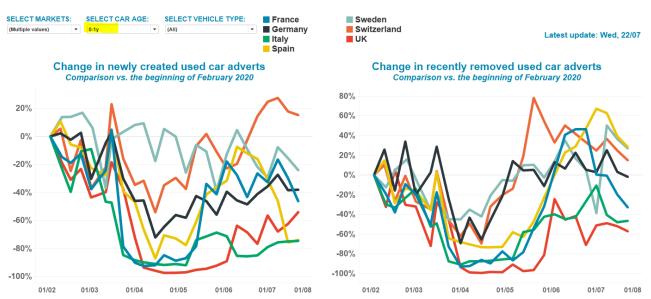
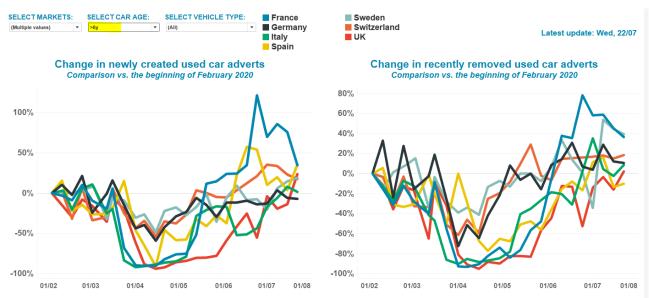


Figure 3: Change in active stock levels and days in stock of active adverts across Europe

Left chart shows how active stock at dealers for cars up to one year old has been declining and rising but they are still at a below pre-Covid-19 level; right chart shows that sales of these very young used cars is on pre-Covid-19 levels on average. Source: Autovista Group Covid-19 tracker

Figure 4: Change in active stock levels and days in stock of active adverts across Europe



Left chart shows how active stock at dealers for cars older six years is increasing to slightly above pre-Covid-19 levels; right chart shows that sales of these older used cars exceeds pre-Covid-19 levels. Source: Autovista Group Covid-19 tracker

The double-edged sword of EV government incentives?

Autovista Group's chief economist Dr Christof Engelskirchen ponders the pros and cons of electric-vehicle (EV) purchase incentives.

High up-front discounts granted on the purchase of new cars and their negative impact on residual values (RVs) is a phenomenon well described and frequently observed in the automotive industry. We covered it in our recent piece on the impact of sales planning on residual values. Lower residual values do not only represent a direct economic loss for those with vehicles on their balance sheets. Low residual values also prevent profitable new car sales, as they make it almost impossible to offer competitive and sustainable leasing rates.

Many governments are determined to support the particularly battered automotive industry, which is confronting several expensive fights. They are battling with new technologies, new competitors, the shift to zero-emission and depressed margins. The pandemic and the associated lockdowns have intensified the pressure. Recovery will take considerable time. Many jobs are at risk, and it is sensible for governments to soften the blow by supporting the transition financially.

There is one caveat: too often, the government-funded stimulus programmes focus solely on stimulating demand for new

cars. Governments should avoid this and other common mistakes such as:

- Up-front, transparent and long-term incentives send the signal that new cars are overpriced without them. Lower transaction prices of new cars will lower transaction prices of used cars. A good example of this can be seen in France, where many years of a bonus/ malus system have depressed the used-car price of battery-electric vehicles (BEVs);
- 2. Governments creating risk an oversupply of used cars. The German government has reduced companycar taxes for many plug-in hybrid electric vehicles (PHEVs) by 50% (and 75% for BEVs). That makes them highly attractive as company cars, in particular, PHEVs due to their versatility. There is a substantial risk that the rise in the supply of used PHEVs will not meet the same demand on used-car markets, as there is no similar relative benefit for a used-car buyer to choose PHEV over petrol;



- Even though government programmes mostly stimulate alternative powertrain types, the massive support, which is granted – easily 10%-20% of the list price, delivers negative spillovers on all used-car prices, even those of internal combustion engine (ICE) vehicles. The higher the stimulus is, the higher the spillover effects become;
- 4. Reducing VAT for used cars is a mistake, as it directly lowers the signalled retail used-car price. Germany has implemented such a measure for the period July and December 2020, VAT rates are reduced from 19% to 16% - also for used cars. This will effectively drive signalled retail used-car prices on internet portals down by 2.52%. The idea of stimulating used-car purchases can be RV-supportive if done correctly: ex-post refund of part of the VAT or simply a purchase incentive for used cars, like in France and to a lower extent in Spain, works better: and
- 5. 5. Incentives are like a drug, and an exhausted incentive scheme creates a bigger demand gap. Many push the purchase of their vehicle forward because of a scheme, currently observed in France where used-car prices are rising because their purchase is incentivised by the government. The scheme will likely run out by the end of July. There is the risk that further schemes need to follow, as was the case in Italy during and after the financial crisis 2008/2009. We should also expect that schemes in France and Spain will be extended if they are exhausted too quickly.

European incentive schemes: more pressure

The existing government incentive schemes in the big European markets and the UK are diverse and show how differently countries approach the topic. We compare them in Table 1. We have evaluated the relative strength of the stimulating effects for each dimension of the scheme, for example, there is a very strong stimulating effect derived from the very high purchase incentives for BEVs and PHEVs in France and Germany.

> There is a very strong stimulating effect derived from the very high purchase incentives for BEVs and PHEVs

Acquisition tax benefits are relatively small in France, Germany and Spain. Where there are company-car tax incentives, they are usually very impactful as stimuli, e.g. in Germany and the UK. We evaluated company-car tax incentives in France as "moderately" impactful as in reality they apply only to BEVs (vehicles <20g CO2/km). For the UK they also apply only to "zero-emissions vehicles", but the magnitude of government support is higher than in France.

Our evaluation of the schemes covers previously existing schemes on top of the newly added schemes. The UK is the only market that has not introduced additional incentives post Covid-19 lockdowns, as discussions are ongoing.

Table 2 describes the scheme and verdict for France, Table 3 for Germany, Table 4 for Italy, Table 5 for Spain and Table 6 for the UK.



Table 1: Government incentive schemes, their potency and risk of building up RV pressure

	Incentive Scheme for Electric Vehicles (BEV & PHEV) (how much demand is stimulated: + = mildly; ++ = moderately; +++ = strongly)							
	Acqui- Owner- Company Purchase incl and sition Tax ship Tax Car Tax Incen- used (optional) Benefit Benefit Benefit tive cars scrappage							
FR	+		++	+++	+++	+++		
DE	+ + ++++ (+)							
IT		+		+++		++		
ES	+	+		++	+	+		
UK		+	+++	+				

- Incentive Scheme-induced Pressure on RVs for Electric Vehicles in 2020/2021
- Incentive Scheme-induced Pressure on RVs for ICE Vehicles in 2020/2021

Low		Med		High
		Х		
			Х	
	Х			
	Х			
Х				

 Low
 ---- Med
 ---- High

 X
 X
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Table 2: France – high EV incentives; stimuli for used-car purchases help ease pressure on RVs

Description of scheme	Verdict for EVs	Verdict for ICE vehicles
 Acquisition-tax exemption for all alternatively powered vehicles (total or 50%, depending on region). No ownership-tax benefits. Exemption from CO2-based company-car tax component, if less than 20g CO2/km. Purchase incentive now up to €7,000 for private buyers for cars if <20g CO2/km. Scrappage scheme for new and used BEV/PHEV (<50g CO2/km), up to €5,000, and new and used ICE up to €3,000, depending on income. Used-petrol cars purchased younger than nine years, diesel not registered before September 2019. Used-car portion of scheme only for 200,000 vehicles and has been exhausted by the end of July; an extension of the scheme at slightly reduced levels and focusing on PHEV and BEV used cars has been installed The rest of scrappage scheme for new cars is valid until end of 2020. 	negative impacts on used car prices down, although not enough for a better score as used-car purchase support will be exhausted shortly, while the rest of the scheme remains in place.	



Description of scheme	Verdict for EVs	Verdict for ICE vehicles
 VAT reduction from July - December 2020 from 19% to 16%, but little stimulating effect expected. 10-year exemption for BEVs registered until end of 2020, but small economic impact compared to petrol taxes. Benefit-in-kind taxation: reduction of taxable amount (from 1% to as far down as 0.25%); this is very stimulating for the demand for new PHEVs or BEVs as company cars. Further enhanced-purchase incentive scheme: until 2021, further incentive of up to €9,000 for cars under € 40,000 net list price. Mostly targeted on new cars. Only BEV and PHEV benefit. Very high expected stimulation of new PHEV demand, in particular. 	substantial increase in top-down incentives on new electric vehicles adds pressure on used-car values. There is very little emphasis on stimulating demand for used EVs, so there is no moderating effect. The lower company- car taxation will stimulate many new-car transactions. There is a risk that used- car markets will not absorb these cars, in particular PHEVs, which adds further pressure towards 2022/2023. Albeit small, the VAT reduction directly lowers	Low-medium pressure for 2020/21 Gladly, the German Covid-19- additions to the existing incentive scheme continue to focus on EVs. This limits the impact on used-car prices of ICE vehicles, although the magnitude of incentives on new EVs will create some negative spillovers. So does the VAT reduction on new and used cars that lowers observed prices directly by around 2.5%. Commercial sellers will not bear these costs, but the lower price position for used cars will be a signal difficult to change once the VAT reduction runs out.

Table 3: Germany – risk of higher pressure on EV RVs than in other markets

Table 4: Italy – among the highest purchase incentives for EVs

Description of scheme	Verdict for EVs	Verdict for ICE vehicles
 No reduced acquisition taxes. Ownership tax benefits: five-year exemption for EV from first date of registration; then 25% of equivalent petrol vehicle tax applies. No company-car tax benefits. Purchase incentives until end of 2021. (1) €4,000 (without scrappage) and €6,000 (with scrappage of Euro 0-4) for cars emitting <=20g CO2/km; price less than €50,000, excl. VAT; (2) €1,500-€2,500 for emissions between 21g and 70g CO2/km; (3) malus of up to €2,500 for cars emitting more than 250g CO2/km Additional purchase incentive until end of 2020: with scrappage of a car older 10 years and as long as the new car emits below 111g CO2/km, €1,500 (€2,000 if below 61g CO2/km). On top, dealers must add another €2,000 for this scheme to apply; price of new car to be below €40,000, excl. VAT. Without scrappage, the government contributes between €750 to €1,000 with dealers having to add another €1,000. 	It makes buying a used BEV attractive. The lack of company- car benefits avoids risks of oversupply of PHEVs or BEVs as used cars. The moderately long bonus/ malus scheme (until end of 2021) and the additional purchase incentive (until end of 2020) grants a substantial	Low-medium pressure for 2020/21 Some direct pressure will be induced on smaller-vehicle segments because there are purchase incentives (with and without scrappage) for ICE as long as they emit less than 111g CO2/km. There is a small risk of spillovers due to the lower transaction prices for new EVs that may decrease the demand for used ICE slightly and thus impact prices. The small tax benefit associated with EVs may negatively impact demand for used ICE.

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Description of scheme	Verdict for EVs	Verdict for ICE vehicles
 Acquisition-tax exemption from 'special tax' for vehicles emitting up to 120g CO2/km; VAT exemption for alternative powertrain types, incl. HEVs, emitting up to 110g CO2/km on Canary Islands; there are plans by the government to adjust. Ownership-tax reduction already in place for longer time: reduction of 70-75% for BEVs and PHEVs in main cities (e.g. Madrid, Barcelona, Zaragoza, Valencia); more schemes could follow. No company-car tax benefits. Revised incentive scheme in place: (a) Plan MOVES II, specific for new and young used (registration in 2020) BEVs and PHEVs (<45K): €5,000 plus up €500 if car >seven years (€1,000 if car >20 years) is scrapped; (b) Plan RENOVE - Hybrids, MH, GLP, GNC new and used vehicles (registered in 2020) <35K: scrappage of car > 10-year-old car is required, up to €2,000 incentive and €500 if car scrapped >20 years; and (c) Plan RENOVE, ICE new and used vehicles (registered in 2020) up to 120g CO2/km (<35K) Petrol Euro 4, 5, 6; diesel Euro VI: up to €1,600 with the same scrappage elements as (b). 	Low-medium pressure for 2020/21 The biggest potential risk for pressure on RVs stems from the substantial purchase incentives, which cover BEVs and PHEVs up to €45,000 list price. Purchases of young used cars are incentivised, which lowers the demand for three-year-old vehicles, thus adding to the pressure. The acquisition tax exemption puts some mild pressure on used electric vehicles. A positive and moderating effect comes from the longer-term ownership tax reduction and a lack of company car tax benefit.	Low-medium pressure for 2020/21 The majority of the scheme focuses on incentivising EVs, but some portions of the scheme are designed to increase demand for new ICE and young ICE. This adds some pressure to RVs. Together with the negative spillovers from EV incentives to ICE used-car demand, we allocate the pressures on the same low-medium area as for EV, although they may be situated on the lower side of the range.

Table 5: Spain – sizeable ownership tax cut & high EV incentives; covers young used ICEs

Table 6: UK – no Covid-19-induced scheme, currently solely on zero-emission vehicles

Description of scheme	Verdict for EVs	Verdict for ICE vehicles
 No ownership tax exemption. Exemption for excise duty – ownership tax – for zero-emission vehicles. Sizeable company-car tax benefits for zero-emission vehicle: 0% in 2020-2021, 1% in 2021-2022, 2% in 2022-2025. Purchase incentive for zero-emission vehicles of £3,000 if the purchase price is below £50,000. Ongoing discussions to enhance the scheme further, but no decision has been communicated, and previous suggestions have been rejected. 	emphasis on BEVs. The purchase incentive is sizeable but smaller than in other European countries. The company-car tax benefits are strong and will lead to more BEVs becoming company cars. However, there is an inherent supply shortage of new and used BEVs in the UK market, so no	Low pressure for 2020/21 As there is no current purchase stimulus for ICE vehicles, the only marginal risk could come from negative spillover effects generated by the increased demand for new BEVs. This is unlikely to be sizeable, which is why we expect low or even no pressure on RVs for ICE vehicles in the UK due to the current government incentive programme.

Incentive schemes are necessary to compensate for an expected loss of private purchasing power as part of the economic crisis that will follow Covid-19 lockdowns. Most European countries have enhanced their schemes, and they offer very sizeable purchase incentives. Schemes are largely targeted on new electric vehicles (i.e. BEVs and PHEVs), which is why the expected negative impact on residual values is higher for electric vehicles. The schemes may create an oversupply of electric vehicles towards 2022.

We are less concerned about pressure building up for used ICE vehicles across Europe, as they receive less attention in government schemes. France is the only country that substantially incentivises the purchase of used ICE vehicles, in particular petrol, which effectively compensates for some of the discount-induced pressures. Spain incentivises the purchase of very young We are less concerned about pressure building up for used ICE vehicles across Europe, as they receive less attention in government schemes

used ICE vehicles as well. Germany's company car tax benefits may drive too many PHEVs into the market and Germany's VAT reduction, which covers also used cars, creates a direct reduction of signalled retail used car prices of around 2.5%. Italy provides slightly higher purchase incentives than Spain, but both schemes are bullish. The UK has not yet adjusted their scheme post-Covid-19, but discussions are ongoing. So far, the UK's scheme is creating the least risk for RVs.



Coronavirus scenarios – how swiftly will economies recover?

As coronavirus lockdowns are left behind, thoughts turn towards economic recovery. However, there are still challenges to be faced in the months ahead, least of all the threat of a 'second wave' of infections. Here, Autovista Group's experts analyse the latest trends and scenarios for Europe.

In our ambition to support analysis of the impact of the coronavirus on the automotive industry, we have developed a number of scenarios. The scenarios are based on risks associated with the following five mandatory parameters, as well as other country-specific factors that influence RV development:

- How long until the spread of infections is contained;
- The economic outlook for 2020, 2021 and 2022;
- On the supply side, expected issues in the supply chain for new car production;
- On the demand side, development of private consumption over the coming years; and
- An assessment of how effectively fiscal and monetary policy measures are working.

the crisis and its economic impact has continuously darkened. Before the lockdown, forecasts of GDP growth were around 2% for 2020 globally and slightly below 1% in the Eurozone – an outlook that had already been depressed compared to January and February baselines.

Over recent months, economic forecasts have been declining and are not bottoming out, yet. For the Eurozone, Moody's has reduced their full-year outlook for 2020 from -7.3% in June to -8.8% in July. The EU Commission and the IMF have also substantially reduced their outlooks in July (IMF in June), but their 'Previous Forecast' had been from May and April, respectively. The IMF is slightly more negative for 2020 at -10.2% (Table 7).

There are worse scenarios than these, but all research institutes signal that forecasts are just ballpark estimates at this stage. There is too much uncertainty around how big and long a post-pandemic economic crisis might be.

Views on the economy darken

Since the publication of previous versions of this report in May and June 2020, the view of



Table 7: Growth projections GDP Eurozone

Growth Projections GDP Eurozone	Most Recent Forecast			vious ecast
	2020	2021	2020	2021
Moody's	-8.8%	+3.6%	-7.3%	+4.5%
EU Commission	-8.7%	+6.1%	-7.7%	+6.3%
IMF	-10.2%	+6.0%	-7.5%	+4.7%

Note: Moody's previous forecast was from 6 June, the most recent is from 7 July; the EU Commission previous forecast was from 6 May; the most recent is from 7 July; the IMF previous forecast is from April; the most recent is from June.

Most likely scenario: 'medium risk'

In our July update of this whitepaper, 10 out of 18 markets assigned the highest risk to scenario 3, 'medium risk: slow u-shaped recovery'. For this current update, in August, 12 out of 18 markets have moved into this scenario. Slovakia and Czech Republic used to assign higher likelihoods for the better scenario 2 but have a slightly more pessimistic view on the RV risk scenario now (see Table 8).

Zsolt Horvath, operations manager, Eurotax Hungary, explains: 'The effect of the likely second wave on the automotive business is unknown at this moment, but across the board, mid-term outlooks have declined. That is why we are putting a higher likelihood for a medium-risk scenario in Hungary and have moved Slovakia and Czech Republic into this cluster as well. There are currently no plans from local governments to incentivise purchases of new or used cars.'

Italy has increased the likelihood of scenario 3 to now 65% and 'there is no chance for a Vshaped recovery in the Italian market', according to Marco Pasquetti, forecast and data specialist at Autovista Italy. 'As confirmed by the latest outlook of the European commission, the Italian economy will experience a worse drop in GDP in 2020 than initially expected.'

Few countries have improved their risk probabilities, amongst them Switzerland, which now allocates 30% to scenario 2 instead of previously 20%. Scenario 3 likelihood has come down from 60% to 50% in this update. And RV outlooks have been slightly raised (see next section).

Poland as well has slightly further improved their outlook for its used car market. Scenario 2 likelihood moves from 50% to 55%, and Marcin Kardas, head of the editorial team at Autovista Polska, confirms: 'we still observe very positive developments of car markets in Poland. Sales of new passenger vehicles is growing and currently is on the level of -20% year on year. Import of the used cars from abroad is almost back at pre-pandemic levels.'

Romania and the UK still present the most pessimistic outlooks in this line-up and have not adjusted their assessment of the situation and confirm scenario 4 for the time being. 'There has been some revival of the economy but not more than expected. July and August are traditionally vacation months in Romania. Come September we will be able to judge more precisely how the market behaves based on sales volumes and transaction prices,' says Ulmis Horchidan, chief editor at Autovista Romania.

> Romania and the UK still present the most pessimistic outlooks

The UK confirms its scenario and continues to be the only country that is currently allocating a substantial risk of 35% to our scenario 5: 'Very deep recession, I-shaped recovery'. The combination of the negative economic



consequences of the pandemic and Brexit are behind this gloomy outlook. Anthony Machin, head of content and product for Glass's: 'Increasing redundancies in parallel to the entry into a likely severe recession is starting to wobble the British people's resolve.'

Table 8: Risk scenarios for the impact of coronavirus

	Scenario 1 (SC1) Low risk (Risk Score 5-7) 'Swift v- shaped recovery'	SC2 Low-medium risk (Risk Score 8-10) 'Moderately quick v-shaped recovery'	SC3 Medium risk (Risk Score 11-13) 'Slow u-shaped recovery'	SC4 Medium-high risk (Risk Score 14-16) 'Deep recession, slow recovery'	SC5 High risk (Risk Score >16) 'Very deep recession, I- shaped recovery'
Austria	0%	20%	60%	20%	0%
Belgium	2%	10%	55%	30%	3%
Czech Republic	0%	<u>25</u> %	<u>55%</u>	<u>20%</u>	0%
Finland	0%	10%	65%	20%	5%
France	5%	55%	30%	10%	0%
Germany	0%	50%	35%	15%	0%
Hungary	0%	<u>15%</u>	<u>60%</u>	<u>25%</u>	0%
Italy	0%	<u>10%</u>	<u>65%</u>	25%	0%
Netherlands	2%	65%	25%	8%	0%
Poland	0%	<u>55%</u>	<u>40%</u>	5%	0%
Portugal	0%	20%	50%	30%	0%
Romania	0%	0%	25%	70%	5%
Slovakia	0%	<u>25%</u>	<u>55%</u>	<u>20%</u>	0%
Slovenia	0%	30%	40%	20%	10%
Spain	0%	20%	55%	25%	0%
Sweden	0%	10%	65%	20%	5%
Switzerland	0%	<u>30%</u>	<u>50%</u>	20%	0%
UK	0%	0%	0%	65%	35%

Note: <u>Underscored</u>, where changes to the probabilities were made vs. the previous update. Each of the five mandatory, and one optional, parameters within each scenario contributes a country-specific risk score between one and five. The minimum risk score achievable is five and the maximum 30. The scenarios are built on risk scores. Countries have based their current probability on how likely it is that each scenario will emerge. The one that carries the highest probability is the base case for each market.

Source: Autovista Group

Impact on residual values

The impact on residual values depends on the most probable scenario and country-specific circumstances. Figure 5 shows the residual value development by scenario cluster, unweighted and indexed. Countries have been allocated to the scenario cluster according to their highest-probability scenario.

The more optimistic-view cluster consists now only of Poland, Germany, the Netherlands and France. Slovakia and Czech Republic have moved into worse scenario 3. For the scenario 2 cluster, we expect – on average – a decline of 2% for used car prices towards the end of 2020 vs. pre-lock down March 2020. Recovery will last until end of 2022, to almost the levels pre lockdown.

France expects no substantial decline this year (see Table 9), in particular, due to the government incentive scheme that also pushes demand for used cars. The initial used car support portion was exhausted quickly but it was extended with a lighter support for used BEVs and PHEVs. The positive momentum on used car markets should continue for the time being. The bigger impact of Covid-19 and the subsequent economic crisis should be felt in 2021 in France's used car markets (-1.3%).

The majority of countries assign a higher probability to the medium risk scenario 3, which describes a drop in RVs that is more substantial and drags on longer than scenario 2 countries. Towards the end of 2022, used cars will – on average – still trade around 3% lower than in March 2020. But there are substantial country differences in this cluster.

For example, Romania expects a drop of 5% in 2020 and no full recovery by 2022 (still - 4.1% vs. March 2020). Spain, likewise, will not recover from an expected approximate 5% drop by 2022. Italy expects to trade 4.6% lower

by the end of 2022 in comparison to levels in March 2020, before lockdowns.

The pattern for the UK is different from the rest of the countries we cover, in particular, due to the combination of lack of supply and pent-up demand. Our resolve vs. the June update of this whitepaper remains unchanged. According to Anthony Machin, 'compared to March 2020, we will see a slight drop still this year, but pent-up demand will lower the impact. The biggest impact will be in 2021, with values trading 3.6% lower than March 2020. The combined effect of the economic stress caused by Covid-19 and the high probability of a no-deal Brexit will stress the economy and private demand.' In 2022, the UK will continue to see RVs perform at lower levels than in March 2020 (-3.1%).

> The pattern for the UK is different from the rest of the countries we cover, in particular due to the combination of lack of supply and pent-up demand

Sorted by country cluster (Figure 6), it becomes apparent that Southern Europe (we include France and Belgium), will be impacted the longest and anticipate the worst impact.

In Austria, Germany and Switzerland, we see a quicker recovery, driven in particular by the still more optimistic view for Germany.



Germany confirms its scenario probabilities and its slightly lowered RV outlooks from July in this whitepaper update. head of valuations and insights at Schwacke. Andreas Geilenbrügge comments: 'The governmentfunded stimulus package, effective July 1, will negatively impact residual value development. Doubled incentives on BEVs/PHEVs as well as a temporary VAT drop will lower the transacted price levels, especially on the electrified used cars. ICE vehicles will also be affected as OEMs have started to react with discounts already in advance of the VAT effective date. Therefore, our outlook for 2020 and 2021 comes down.'

The Netherlands expects the strongest used car market performance amongst the worrying outlooks. By the end of 2022, it should have recovered from the expected 1% drop in 2020. According to Nico Vanhalst, RV manager, Eurotax Nederland 'the Dutch market has been transforming into a market with many electric vehicles. The government introduced incentives for used electric cars, which has not run out. There is still too little supply and thus less pressure on RVs. The Netherlands is benefitting from Lynk & Co that starts their European offensive in the Netherlands. Toyota has chosen the Netherlands as the launch country for their ProAce Electric. With this information in mind, we look positively ahead'.

The Nordic region has received the most extensive adjustments in this whitepaper update. In Sweden and Finland, there are no government incentives directly supporting the automotive industry. 'We have seen a drop in new car registration in April (around 30%), May (around 50%) and June (around 20%). And the outlook is that this will not be recovered until the end of the year,' comments Johan Trus, head of data and valuations Nordics at Autovista. 'However, the used car market has recovered fine. Since we did not have a lockdown, the values for Sweden and Finland went down in late March and April due to the overall fear and uncertainty about what would happen. In May and June, used car prices have started to recover. Stock levels are decreasing, and sales volumes are rising.' The RV outlooks for Finland and Sweden resemble more of a V-shaped recovery pattern (Figure 6).

> The Nordic region has received the most extensive adjustments in this whitepaper update

According to João Areal, editorial manager at Autovista Eurotax Portugal, who confirms his outlook for this update of the whitepaper: 'We do not see any used car price index recovery like in other markets. There was a bit of panic at the beginning of the lockdown, and dealers attempted to sell over lowering prices. The economy is down – we saw the biggest drop in new car sales in Europe. Our recovery will not be v-shaped but u-shaped.'

Italy expects the biggest hit on used car values to occur in 2021, after a more moderate decline in 2020. The supply shortage of new cars in 2020 should soften the blow. The full effect of the crisis should be visible during 2021. Italy has been particularly exposed to the coronavirus pandemic, turning into a fullblown economic crisis that will affect private demand for used cars for a longer period. Italy confirms its assessment vs. the previous update of this whitepaper.

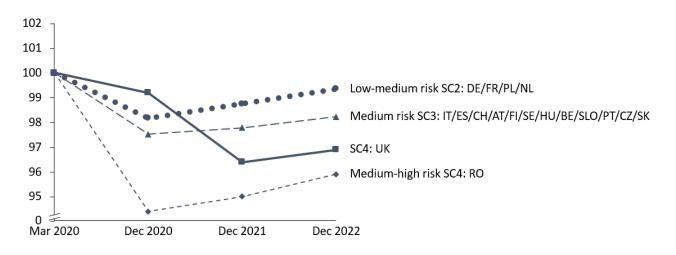
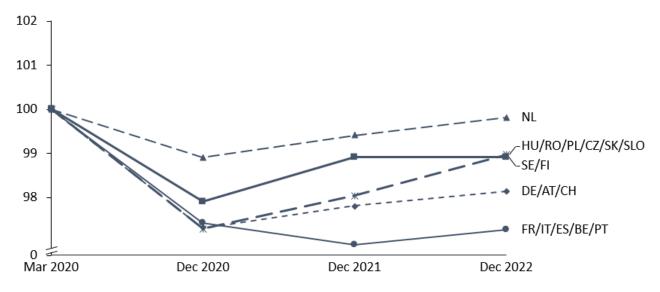


Figure 5: Used car price development by scenario cluster; UK separated out (indexed)

Note: These clusters represent unweighted averages of countries and do not represent country-specific forecasts. Please refer to Table 8 for the country-specific forecasts.

Source: Autovista Group





Note: These clusters represent unweighted averages of countries and do not represent country-specific forecasts. Please refer to Table 8 for the country-specific forecasts.

Source: Autovista Group



For Austria and Switzerland, we expect the biggest impact on RVs by end of 2020, beginning 2021. The RV outlook for Switzerland has been updated and shows a less pessimistic outlook. Almost three years into the economic crisis, by the end of 2022, residual values will still trade on average more than 1.6% to 2.3% lower than in March 2020. Robert Madas, valuations and insights manager for the two markets comments: 'The price decreases in the used car markets in Austria and Switzerland have been moderate so far because of pent-up demand, difficult new car situation and lower used car supply after the lockdown. Some vehicle categories recently even show an increasing trend. However, in both markets, we expect to see price decreases in the future due to the difficult economic outlook and the uncertaintv regarding the purchasing power.'

For Belgium, we confirm our expectation of a downwards correction by the end of 2020, of 3% on average. Used car prices will stabilise around 1.9% lower than March 2020 levels in 2021 and remain at a slightly depressed level in 2022. 'These are the anticipated average changes, but there are substantial differences to be expected between segments,' according to Idesbald Vannieuwenhuyze, chief editor and valuations manager, Autovista Benelux.

Germany sees the biggest drop in RVs occurring in 2020 (-2.5%). There will be almost

no recovery in 2021, and then RVs will stabilise in 2022 at a level down by 1.7% compared to March 2020 values. The expectation is that Germany will come out of the crisis more swiftly as private consumption will support the economy, but the incentive scheme effective 1 July 2020 adds pressure to residual values.

> The price decreases in the used car markets in Austria and Switzerland have been moderate so far because of pent-up demand

Spain has also confirmed its more negative view on used car market development and a prolonged recovery period. Spain continues to expect to see a substantial drop in RVs still in 2020 of 5.4% compared to March 2020 values and that drop will remain stable in 2021 and 2022. One of the main reasons is the very strong RV performance in Spain during the past few years. The downward correction will, therefore, be more pronounced.

	2020	2021	2022
Austria	-3.2%	-2.6%	-2.3%
Belgium	-3.0%	-1.9%	-1.4%
Czech Republic	-1.5%	-0.8%	-0.3%
Finland	-2.2%	-1.2%	-1.2%
France	-0.3%	-1.3%	-0.7%
Germany	-2.5%	-2.1%	-1.7%
Hungary	-2.3%	-1.0%	-0.2%
Italy	-1.0%	-4.8%	-4.6%
Netherlands	-1.1%	-0.6%	-0.2%
Poland	-3.4%	-1.0%	0.0%
Portugal	-3.2%	-2.1%	-2.0%
Romania	-5.6%	-5.0%	-4.1%
Slovakia	-1.5%	-1.0%	-0.2%
Slovenia	-2.0%	-3.0%	-1.4%
Sweden	-2.0%	-1.0%	-1.0%
Spain	-5.4%	-5.3%	-5.0%
Switzerland	-2.4%	-1.9%	-1.6%
UK	-0.8%	-3.6%	-3.1%

Table 9: Forecast percentage change in residual values EoY vs. March 2020

Note: Bold, where changed vs. last update. Values shown are percentage changes (not percentage point changes) in RV for 36m old cars/ 60,000km between March 2020 and December of the relevant year. For example, the RV in March 2020 is 10,000€ or 48% of the list price, the RV in December 2020 is 9,780€ or 46.94% (10,000€*0.978, respectively 48%*0.978). This results in a change of -2.2%.

Source: Autovista Group



Conclusion

This is the fourth update to our analysis of the impact that the coronavirus will have on societies, the economy and used-car markets.

The impact of the economic crisis on RVs will be felt differently depending on the circumstances individual countries. in Autovista Group expects a sharper drop in RVs in the Southern European countries, in some around 5-6% at the peak of the crisis. In Austria, France, Germany, the Netherlands, Switzerland and the Nordics, the regions will not be hit as hard, based on the current risk assessment.

A more elastic recovery could be anticipated in Eastern Europe, in particular the Czech Republic, Poland and Slovakia.

During the 2008/2009 financial crisis, we saw falls in RVs that were substantially higher than currently forecast in our most probable scenarios. At the time, declines of 12% on average across segments built up over 12-18 months into the crisis. We are currently far from expecting this level of impact on used car markets, as indicated in our risk scenario probabilities and RV forecasts.

Several things are different in this crisis. Governments have taken much stronger policy actions against the collapsing demand. The current economic shock is not paired with a lack of financing opportunity. And after the peak of the crisis, we are seeing some pentup demand as private consumers perceive the shock as temporary, and some incentive schemes support the purchase of new and used vehicles.

On the downside, infection rates are rising again, and a second wave of infections is immanent. Several markets and regions either have entered or may need to enter lockdowns. This may serve another hit to the battered economy and supply chains.

> On the downside, infection rates are rising again, and a second wave of infections is immanent

We will continue to update this analysis on a monthly basis and see how assumptions and scenarios evolve and how quickly and extensively the used-car market adapts.



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