

# The economic & political outlook may indeed "be different this time"

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**The downturn in the auto industry is starting to have a major impact on the wider economy**

## Executive Summary

Three core themes run through this month's Report. One is that the "excitement" over today's inflation levels is distracting attention from the recession risk created by the demand destruction now underway. The second is the increasing rate of Electric Vehicle (EV) adoption in the auto market, and its impact on oil and chemical markets. The third is the major changes underway in China as President Xi bursts its real estate bubble and positions himself for a 3rd term as President - and to potentially remain in power till 2033.

We start with our economic outlook, which highlights the wide range of opinions over the likely fallout from today's inflation concerns. We then turn to COP 26 and discuss the crucial role that now needs to be played by public and private finance if Net Zero targets are to be achieved. This takes us into our quarterly update on auto markets, where EVs are now seeing our expected acceleration up the S-curve of adoption.

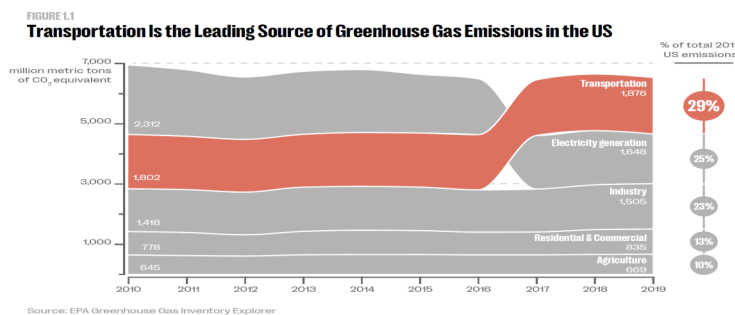


Chart 1: Transportation is now key to reducing CO<sub>2</sub> emissions in the USA

Auto markets are also, of course, key to the global economy, and the overall downturn in sales is starting to have a major impact. As the New York Times [reports](#), this turmoil in:

*"A powerful engine of the [global economy](#), is threatening growth and sending tremors through companies and communities that depend on carmakers for money and jobs."*

This turmoil is set to be reinforced by China's bursting of its real estate bubble. We continue to believe its real impact will be on those countries/companies who have built new capacity to supply its assumed demand. We present a case study based on developments in polyethylene and polypropylene to illustrate the potential issues.

We then update on Net Zero impacts on the oil industry. As chart 1 confirms, transport is key to reducing CO<sub>2</sub> emissions. And companies including Shell and TotalEnergies are now moving forward quickly to address the challenges it creates, and to exploit the opportunities for renewal of their business models.

Finally, our Politics update suggests politicians in Europe and the USA may be following Xi's lead in re-engaging with fiscal policy. The issue, particularly for centre-left parties, is that the share of incomes taken by the top 1% and top 10% in the USA and elsewhere has now returned to the levels of the 1920s.

### PROGRESS ON THE KEY PARADIGM SHIFTS

**DEMAND PATTERNS**  
**RESHORING**  
**ENERGY ABUNDANCE**  
**CIRCULAR ECONOMY**  
**ADVANCED MANUFACTURING**  
**"COMMON PROSPERITY"**

TRAVEL, LEISURE, CONSTRUCTION, REAL ESTATE SEEING MAJOR CHANGE  
PHARMA, AUTOS SUFFERING FROM FRAGILE SUPPLY CHAINS  
RENEWABLES' GROWTH LEADING TO THE END OF THE OIL AGE  
NEW BUSINESS MODELS NEEDED FOR PLASTICS AS RECYCLING DEVELOPS  
DIGITAL, CONTINUOUS & BIOTECH-ENABLED TECHNOLOGIES  
GOVERNMENTS FOCUS ON FISCAL INSTEAD OF MONETARY POLICY

**HIGH/URGENT** **UNDERWAY** **OPERATING**

*Net Zero is leading to progress on Demand Patterns, Reshoring and Energy Abundance; we also see signs that fiscal policy is starting to be embraced by Western politicians*

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## GLOBAL ECONOMIC OUTLOOK

There are a very  
wide range of  
views over the  
outlook

## 1. Demand destruction looms as inflation peaks

There is a wide range of views over the economic outlook for the next 12-18 months:

- ♦ Twitter CEO Jack Dorsey has warned of [hyperinflation](#) - where prices rise 50%+/month
- ♦ The Biden Administration fears [secular stagnation](#) - rising prices/low growth
- ♦ Most central banks believe in [transitory inflation](#) - where today's price rises soon end
- ♦ And a few observers see [deflation](#) on the horizon - after today's asset bubbles burst

We haven't seen such a wide range of opinions over the outlook before - suggesting this is one of those rare occasions when it really is "different this time".

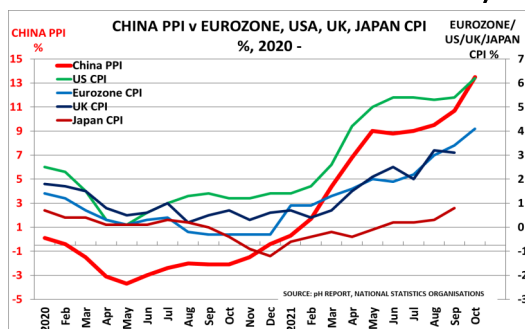


Chart 2: China's PPI has led global inflation

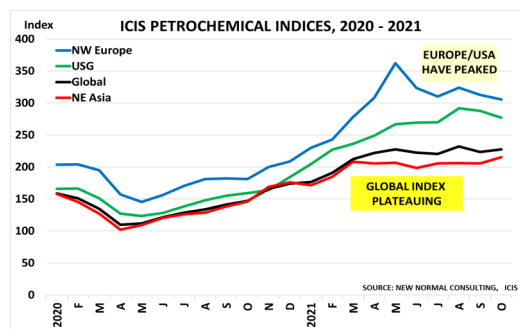


Chart 3: Petrochemical prices are starting to fall

- ♦ Chart 2 shows China's PPI continuing to lead the rise in global consumer inflation
- ♦ Chemical industry data began to anticipate this increase from Q4 last year, as chart 3 showing the [ICIS Petrochemical Price Index](#) confirms. But now, it is suggesting that prices are starting to fall in Europe/USA as the chaos unwinds
- ♦ We also expect China's PPI to soon slip now the boycott of [Australian coal](#) is over
- ♦ Coal is [58% of China's energy use](#) and its prices are [down 45% since 7 October](#) - whilst the benchmark Baltic Dry shipping index [has halved over the same period](#)

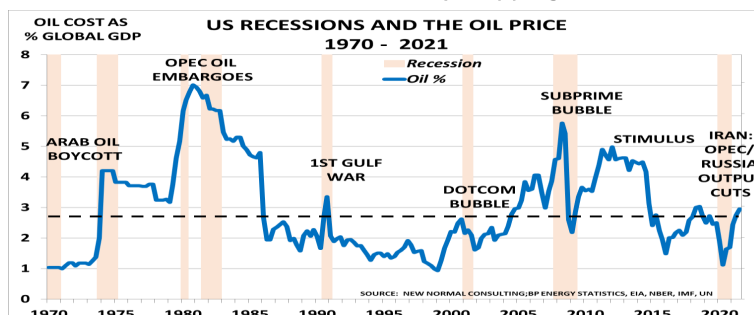


Chart 4: Oil prices are at levels which normally lead to recession

Chart 3 also confirms Europe was worst impacted by the supply chain chaos due to China's port problems and the Texas freeze/Hurricane Ida. But the global Index was in a normal range. Given chemicals' position in the value chain, we expect the supply chain chaos to start to die away in coming months - and, in turn, inflation fears to reduce.

Chart 4 highlights the real risk to the economy - the impact of today's high oil prices on demand. It shows that recession typically follows when these account for ~3% of global GDP, as today. The only exception was when the central banks added \$36tn stimulus to the economy in the 2010s, helping to create today's asset price bubbles.

And these bubbles highlight a second test for the economy. As discussed last month, China's decision to burst its real estate bubble will have a very negative impact on those countries/countries who expanded output to supply the speculative demand it created.

We are therefore more concerned about demand destruction from the (a) recessionary impact of today's high oil/natural gas prices and (b) bursting of China's real estate bubble, and the loss of its speculative consumption. Combined with today's growing demographic deficit (discussed here in June 2016's, "[Ageing populations create paradigm shift for growth](#)"), it would be no surprise to see a slide into deflation in 2022.

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## COP 26/ FINANCIAL MARKETS

There remains a lot of work to do, and a decreasing amount of time to do it

## 2. Finance has key role in transformation to Net Zero

Governments dragged their feet again at COP 26, and nowhere more so than on the crucial area of financing the transformation needed to achieve Net Zero. The Global Commission's 2018 [New Climate Economy](#) report had estimated economic benefits by 2030 of "at least \$26tn". But its analysis was still at a very theoretical stage, only able to segment the key challenges into four groups:

- ♦ **Mitigation:** How do we minimise further incremental damage to the climate?
- ♦ **Adaptation:** How will we help people to live with the impacts of climate change?
- ♦ **Finance:** How will these initiatives be funded – how, who and when?
- ♦ **Collaboration:** Who will do what, and how will the work be coordinated?

The issue is that the scale of sustained financing required is unprecedented and has to come from both the public sector, and private capital. So far, however, both have fallen short of commitments. The [Climate Finance Delivery Plan](#) shows some progress, with \$59bn raised in 2016, \$71bn in 2017 and \$79bn in 2018. But the original \$100bn target for 2020 has already slipped to 2022. Private finance provided only \$14bn in 2017-2019, less than half of the \$33bn forecast in the 2016 [climate finance roadmap](#).

Mitigation and adaptation are a universal need, and it is already clear that the greatest need is in developing countries, who have the lowest capacity to fund the efforts needed. So as with Covid vaccinations, policymakers need to dramatically accelerate progress - based on the concept of enlightened self-interest. Investment by the developed world in funding the necessary work will dramatically reduce the overall cost of future adaptation.

	REPORTING	RISK MANAGEMENT	RETURNS	MOBILISATION
Goal	<ul style="list-style-type: none"> <li>Improve the quality and quantity of climate-related financial disclosures.</li> <li>Promote alignment of disclosure globally around TCFD framework.</li> <li>Establish pathways to mandatory disclosure.</li> </ul>	<ul style="list-style-type: none"> <li>Assess the resilience of companies and financial sector to climate risks.</li> <li>Ensure financial sector develops tools and products to manage climate-related financial risks.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure financial institutions have the frameworks to: <ul style="list-style-type: none"> <li>Assess the credibility of net zero transition plans.</li> <li>Measure alignment of their portfolios with the transition to net zero.</li> <li>Make their own commitments to net zero.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Increase private financial flows to emerging and developing economies to finance the transition to net zero by: <ul style="list-style-type: none"> <li>Developing pipeline of investable projects.</li> <li>Aligning development bank funding with climate goals.</li> <li>Encouraging new market structures and products.</li> </ul> </li> </ul>
Implementation	<ul style="list-style-type: none"> <li>Publish stocktake of compliance with TCFD recommendation, best practice examples, and refined TCFD recommendations around scenario analysis.</li> <li>Action: TCFD</li> </ul>	<ul style="list-style-type: none"> <li>Conduct climate stress tests of banks and insurers and issue guidance to financial firms on climate risk management.</li> <li>Action: central banks; supervisors</li> </ul>	<ul style="list-style-type: none"> <li>Review approaches and establish best practice/standards for financial institutions to assess the credibility of companies' transition plans to net zero.</li> <li>Action: banks; asset managers; asset owners; academic and NGO communities</li> </ul>	<ul style="list-style-type: none"> <li>Develop a pipeline of investable projects by connecting available capital to projects that meet pre-defined investment principles, such as the CFL's investment readiness guidelines.</li> <li>Action: private sector investor coalitions; countries</li> </ul>
	<ul style="list-style-type: none"> <li>Issue guidance for financial firms and corporates on climate-related reporting and implementing the TCFD recommendations.</li> <li>Action: central banks; regulators; governments</li> </ul>	<ul style="list-style-type: none"> <li>Embed use of scenario analysis in the financial sector using the NGFS reference scenarios.</li> <li>Action: central banks; supervisors; financial firms; credit rating agencies</li> </ul>	<ul style="list-style-type: none"> <li>Review approaches and create a framework for measuring the alignment of investment portfolios with climate targets.</li> <li>Action: investors; asset managers; portfolio alignment analysis providers</li> </ul>	<ul style="list-style-type: none"> <li>Close the protection gap and improve resilience in climate-vulnerable countries.</li> <li>Action: insurance sector</li> </ul>
	<ul style="list-style-type: none"> <li>Develop TCFD-compliant listing guidance.</li> <li>Action: stock exchanges and standard setters</li> </ul>	<ul style="list-style-type: none"> <li>Promote scenario analysis in the real economy through development of sector-specific scenarios and guidance.</li> <li>Action: companies</li> </ul>	<ul style="list-style-type: none"> <li>Develop consumer-friendly metrics that reflect investment alignment with net zero.</li> <li>Action: conduct regulators; investors</li> </ul>	<ul style="list-style-type: none"> <li>Development banks to align investment with climate goals and report alignment of their own lending portfolio, facilitate access to markets, de-risk investment and provide technical assistance.</li> <li>Action: MDBs; NDBs; RDBs; DFIs; countries</li> </ul>
	<ul style="list-style-type: none"> <li>Publish pathways to making climate-related financial reporting, based on TCFD recommendations, mandatory.</li> <li>Action: countries</li> </ul>	<ul style="list-style-type: none"> <li>Capture climate risks in central bank mandates, including in monetary policy, financial stability and market operations where applicable. Central banks in turn to disclose in line with TCFD, including on alignment of their investment portfolios.</li> <li>Action: finance ministries; central banks</li> </ul>	<ul style="list-style-type: none"> <li>Commit to align portfolios and lending with net zero, disclose accordingly, and publish credible transition plans.</li> <li>Action: banks; asset managers; asset owners</li> </ul>	<ul style="list-style-type: none"> <li>Encourage the development of the infrastructure for scaling up high-quality voluntary carbon markets.</li> <li>Action: financial market infrastructure providers; banks; companies</li> </ul>
	<ul style="list-style-type: none"> <li>Establish pathways to globally consistent mandatory reporting.</li> <li>Action: international standard setters</li> </ul>	<ul style="list-style-type: none"> <li>Establish centre(s) of excellence for central banks and supervisors to share knowledge and build capacity around climate risk measurement and practices.</li> <li>Action: NGFS; central banks; supervisors</li> </ul>	<ul style="list-style-type: none"> <li>Incorporate data that helps measure transition-readiness of firms and portfolio alignment of investors into list of recommended disclosures.</li> <li>Action: TCFD; standard setters; countries</li> </ul>	
	<ul style="list-style-type: none"> <li>Climate-related risks and assumptions to be considered during assurance of company reports and accounts.</li> <li>Action: auditors</li> </ul>	<ul style="list-style-type: none"> <li>Integrate climate risks into IMF FSAPs and Article IV reviews.</li> <li>Action: IMF</li> </ul>		
	<ul style="list-style-type: none"> <li>Commit to voluntary TCFD disclosures.</li> <li>Action: companies</li> </ul>	<ul style="list-style-type: none"> <li>International standards to review approach to climate risk measurement and management.</li> <li>Action: FSB, BCBS, IAIS</li> </ul>		
		<ul style="list-style-type: none"> <li>Develop the insurance products needed to de-risk the transition and improve physical risk modelling to increase coverage.</li> <li>Action: insurance sector</li> </ul>		

Chart 5: The Carney report highlights the key areas for progress

Mark Carney's proposals for [building a private finance system for Net Zero](#) are meant to re-energise the process as chart 5 shows. Real progress will also require government action to develop today's embryo carbon markets and establish global. These moves are essential to avoid 'border leakage' and support necessary behavioural changes.

The EU's proposed "Carbon Border Adjustment Mechanism (CBAM)", may well provide the necessary model, as discussed here in [June](#). It proposes to create import tariffs that effectively price the 'hidden' carbon content of imports at a level equivalent to domestic. And, of course, the revenue raised will help to finance mitigation/adaptation projects.

Equally important is the business angle, as the transition to a more sustainable world will create very substantial commercial opportunities. Developments in renewables and batteries over the past decade have confirmed that S-curve rates of improvement can be expected, once companies recognise the potential for highly profitable innovation.

But there remains a lot of work to do, and a decreasing amount of time in which to do it.

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## AUTO MARKETS

EVs are starting to approach price parity with ICEs

### 3. EVs move into the mainstream as costs reduce

As chart 6 confirms, Electric Vehicle (EV) sales are starting to accelerate up the S-curve into their exponential growth phase - when supportive factors reinforce each other:

- Estimated EV sales in [September](#) confirm the potential for sales to further accelerate as market penetration increases as chart 7 confirms. China is currently 51% of the market, with Europe in second place with 24% and the USA third with 10%
- It seems likely that all 3 regions will now see major volume increases as consumer acceptance increases, along with government support - President Biden's proposed \$12.5k tax credit for [union-made EVs](#) aims to help achieve [50% EV sales by 2030](#)

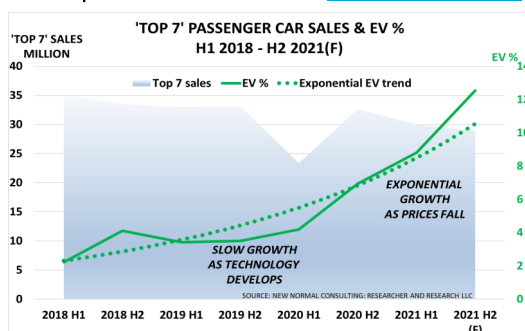


Chart 6: EV sales are accelerating up the S-curve

Chart 7: EV sales are building a strong base

Sales volume and shares of the top 10 EV sales countries in September 2021

Ranking	Country	Sales Volume	Sales share %	EV %	Share %
1	China	354,139	51%	135%	28%
2	USA	49,918	10%	68%	57%
3	Germany	34,712	8%	34%	3%
4	UK	48,159	7%	37%	267%
5	France	30,643	4%	62%	68%
6	Norway	17,074	2%	32%	16%
7	South Korea	14,785	2%	90%	22%
8	Italy	14,466	2%	100%	124%
9	Sweden	12,431	2%	24%	31%
10	Netherlands	8,084	1%	3%	17%
	Other countries	64,782	9%	46%	16%
	Total	693,156	100%	69%	85%

Chart 7: EV sales are building a strong base

Another key issue is that [EV prices](#) have generally not increased very much over the past year, as automakers focused on building EV market share for the future. They have, however, increased legacy Internal Combustion Engine (ICE) prices by >20% - leading to a major rise in average prices, as chart 8 confirms. The [price differential has thus fallen by 1/3rd](#), and UBS expect EV and ICE prices to equalise by 2024 as EV costs continue to fall:

- The US Energy Dept, which has supported EV battery research since 2009 (when lithium-ion batteries cost \$1200/kWh), is now [targeting \\$60/kWh](#)
- Tesla's new 4680 battery should cost [\\$57/kWh](#), with VW aiming at the same price
- At this point, total cost of ownership will be 26c/mile, versus ICEs at 27c/mile
- And, of course, oil/gasoline prices have moved higher since these studies were done



Chart 8: US auto prices have risen due to ICE rises

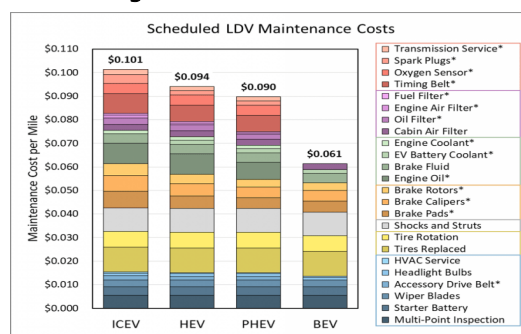


Chart 9: DoE data shows EVs are cheaper to run

[US government data](#) also shows EV running costs are already 40% lower than for ICEs, at \$0.061/mile versus \$0.101/mile, as chart 9 confirms. Battery design is now a key area:

- Companies including Tesla, Lucid Air and Rivian have adopted [cylindrical batteries](#)
- GM and Hyundai are focusing on [pouch-style cells](#)
- VW is developing [prismatic designs](#), and aims to recycle 95% of each battery pack
- It is also introducing [bidirectional charging](#) to turn batteries into "power banks" able to store surplus energy from solar panels and transfer it back as needed
- Plus, of course, everyone is now working on [solid-state batteries](#) for sale in ~2024. These aim to increase range by 30% and halve today's fastest charging time

Another emerging area is charging networks. [GM is partnering with EVgo](#) to build fast-charging networks, Shell is planning [500k charging stations by 2025](#) and Wall Street has raised [\\$6.5bn for 3 start-ups](#) this year. And Nio, [Ample](#) and others are all now rolling out

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## Battery partnerships are becoming a key feature of the EV landscape

their battery-swapping models as discussed in our last [quarterly update](#).

- ♦ Chart 10 confirms the importance of [battery partnerships](#) between the main automakers and battery suppliers in achieving an integrated supply chain. This gives both sides the confidence to invest for the future, supporting market growth
- ♦ Partnerships will also support the continuing innovation that is required. Hyundai, for example, is developing [wireless charging](#) for launch in S Korea next year
- ♦ [Regenerative braking](#) is also starting to appear, which can add [20%-30% to range](#)

At the same time, companies are developing their planned subscription plans ahead of the arrival of more advanced Autonomous Vehicles (AVs). Truck-maker [Rivian](#) expects to earn up to \$15.5k/truck over 10 years from selling entertainment, connectivity and diagnostic features, plus [Level 3 driving capabilities](#). VW is planning [hourly/daily charges from 2022](#).

Yet in the midst of all this activity, US oil company CEOs remain in Denial. As chart 11 from the [Dallas Fed confirms](#), only 3% expect US EV sales to be >40% in 2030.

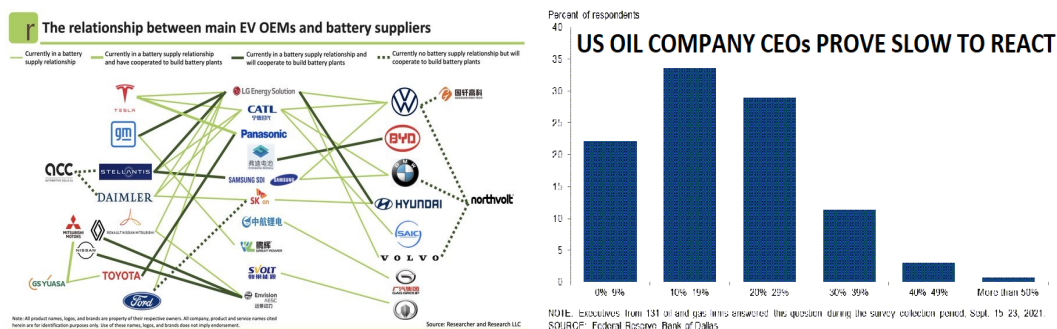


Chart 10: Supplier partnerships are supporting growth Chart 11: US oil CEOs still don't see the threat

## Automakers are adopting different EV strategies

### Comparison of GM, VW, Toyota, and Ford's Electric Vehicle Strategies

	General Motors	Volkswagen	Toyota	Ford
<b>Stated strategy and goals</b>	"No more ICEVs after 2035; carbon neutral by 2040; 30 EV mass-market models planned, 2/3 for U.S. market; expects to be #1 in EV market share in NA and sell over 1M EVs globally by 2025; big U.S. investment"	Half of sales are EVs by 2030; leading EV producer by 2025; stop selling ICEs in Europe in 2035, soon after that in China and U.S.	2 million BEVs+FCEVs by 2030, 8 million if you include HEVs+PHEVs. 15 new BEVs by 2025 out of 75 total models including HEV, PHEV, FCEV; touts 17 million "electrified" vehicles since Prius launch in 1997; net-zero by 2050	BEVs as 40-50% of global sales by 2030; two EV architectures (trucks/SUVs and crossover/cars), two battery architectures (retail and fleet); focus on services for fleets; recent big U.S. investment in BEV production and batteries
<b>Stated battery plans</b>	Ultium Cells, JV of GM & LG Chem; two U.S. plants (Lansdale, OH; Spring Hill, TN); two more planned in U.S.; locations TBD, may move to full vertical integration; total capacity of 140 GWh per year by 2025. Recycling alliance with Li-Cycle. Sourcing lithium in U.S. via alliance w/ Controlled Thermal Resources	Goal of 6 factories in Europe by 2030, e.g., Sweden (w/Northvolt) (2022); Germany (2024); Spain (TBD); JV w/ China's Gotion High-Tech (2025)—total capacity of 240 GWh	Targeting 200 GWh by 2030 through Panasonic JV and other external suppliers. New JV w/ Panasonic (past JV for Prius); JV with BYD in China; adding 80K capacity in Himeji, Japan. Big push on solid-state, prototype launch is delayed	Three U.S. plants as JV w/ SK Innovation, two in KY, one in TN, aiming for total U.S. capacity of 141 GWh (2.2M EVs); 240 GWh by 2030 worldwide (in 10 plants)
<b>Stated R&amp;D commitment</b>	\$35B for EV and AV through 2025, 75% boost from early 2021 announcement	\$41.7B by 2025 out of total of \$86.3B; new e-R&D centers in Wolfsburg & China	\$13.6B by 2030 in battery production and R&D, \$9.9B for 2021; no specific breakdown of R&D on EVs vs. other technologies	\$30B by 2025; up from earlier commitment of \$20B
<b>Ability to scale</b>	High ability to scale; 3rd largest OEM; four assembly plants (Factory Zero, former Detroit Hamtramck; Orion, MI; Spring Hill, TN; Ingersoll, Ontario (BrightDrop vans)	High ability to scale; #1 or #2 volume OEM worldwide; highest EV volume potential due to MEB (EV platform) and product range plus investments in R&D and battery capacity	High ability to scale; #1 or #2 volume OEM; new e-TNGA platform shared w/ Subaru; strong in mixed-model production, can change mix quickly; moves slowly for strategic commitments, fast for implementation	Middle range of OEM volume; knows how to scale; overall smaller after eliminating many sedans, pulling back globally
<b>Products drawing attention</b>	Cadillac Lyric; Chevrolet Silverado; GMC Hummer; Cruise Origin (AV+EV); BrightDrop van; 2023 Lyric First Edition sells out quickly	ID.3 (Europe only); ID.4 (US and China too); ID.5 (sporty); ID.6 X/Cross (SUV for China); Audi Q4 e-tron and Skoda Enyaq. Stumbled at rollout of ID.3 re: software updates	bZ4X SUV in 2022; 15 BEVs planned by 2025, 7 in bZ sub brand; all on e-TNGA platform, including first Subaru EV (Soterra), on bZ4X platform, also launching in 2022	e-Mach Mustang; Ford F-150 Lightning; Ford E-Transit van. All have high number of pre-orders
<b>Capabilities for EV transition</b>	High (see text)	Slow with electrification focus before 2010; now very motivated due to Dieselgate; strong EV platform strategy	Has the most electrification-related patents (by 2X); technicians w/ HEV experience prepared to service EVs; will partner with its dealers to install necessary charging infrastructure	Early commitment to HEVs from Bill Ford; recent announcement of \$11.4B investment in multiple U.S. BEV battery and assembly plants; longtime patenting in HEVs, BEVs, AVs, mobility
<b>International exposure</b>	High for EVs due to big presence in China; pulled back in Europe, India, Australia, LATAM (though recently introduced new vehicles in LATAM)	Big and early presence in China; taking bigger stakes in Chinese JVs; very strong in Europe; relatively weak in U.S.	High due to big presence in China and North America; also prominent in Europe and SE Asia; closed plant in Australia	Relatively small in China; pulled back in Europe, Australia, LATAM, and India; much less global than in the past; U.S. is key to its success; dependent on a few key products
<b>Alliances of note (beyond batteries)</b>	Honda on AVs and EVs; EVgo on charging; Cruise in Avs; SolidEnergy Systems on solid-state batteries (leveraging GM's own IP on lithium-metal batteries)	Ford on AVs and commercial vehicles; Electrify America on charging (channel for U.S. spending out of Dieselgate settlement); increasing investment in QuantumScape (solid-state batteries)	Mazda and Subaru for EVs; solo initiatives through Woven Planet subsidiary; acquired Lyft's AV operations, investor in Aurora, which acquired Uber's AV operations	Argo for AV; VW for AVs and commercial vehicles. Solid Power on solid-state batteries. Recycling with Redwood Materials

Chart 12 The 4 major Western automakers are pursuing different EV strategies

It is also now possible to identify the different strategies being pursued by the 4 main 'legacy car makers' - GM, VW, Toyota and Ford - as chart 12 from Engine No 1 (the hedge fund who successfully challenged ExxonMobil's board nominees) [confirms](#).

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**Tesla seems unlikely to achieve the monopoly position expected by many investors**

- ♦ GM and VW's decisions to stop manufacturing ICEs by ~2035 creates a "burning platform" to accelerate the pace of change, on the basis "there is no alternative"
- ♦ Ford is more cautious, despite Bill Ford's personal commitment, but may well adopt the same target as it becomes confident of meeting its 40%-50% target by 2030
- ♦ Toyota has [softened its position](#) recently, but essentially its top management still believes that [hydrogen](#) represents the likely future of automotive production

Company president Akio Toyoda has been an [outspoken opponent](#) of government policy:

*"Japan should not narrow its focus solely to EVs, but rather search for options that suit Japanese circumstances. In carbon neutrality, our enemy is carbon – not the ICE".*

But as the Itochu Research Institute has argued, his stance is now a minority view:

*"Japan should be aiming to win the competition with a speedy transition to EVs, under the Europe-led rules of the game already being played by the U.S. and China."*

This suggests that Toyota is in danger of losing its early lead from the introduction of hybrids, due to its failure to recognise the momentum behind the move to full electrification. This failure would resemble Nokia's in digital mobile telephony - having invented the category, Nokia then completely missed the market's move to smartphones, and has since completely exited the market and become a supplier to telecom networks:

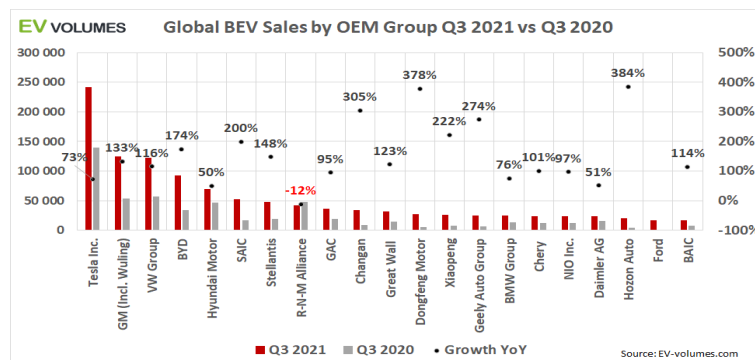


Chart 13: Competition is growing in the global EV market

A [second conclusion](#), confirmed by chart 13, is that Tesla is unlikely to achieve the monopoly position expected by many investors, as legacy automakers ramp up EV sales:

*"Recent market enthusiasm for Tesla and other EV start-ups suggests that investors are betting on EV innovators as most likely to lead this transition. But this bet may be revealed as magical thinking based on a misinterpretation of the scale of the challenge."*

## Global sales hit by downturns, chip shortages

The post-pandemic sales rebound in the Top 7 auto markets came to an abrupt end in Q3, as chart 14 confirms. Volume totalled 42.9 million YTD, down 13% versus 2019 and near 2012 levels, as chart 15 shows. Volume ex-China was only 28.5m, 16% below 2019 sales. The downturn's causes are not hard to find, with both supply and demand suffering - supply from the semiconductor chip shortage and demand from the impact of rising prices.

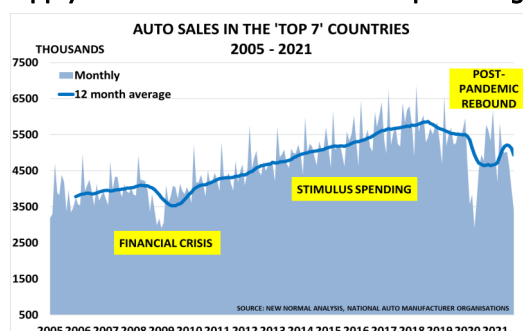


Chart 14: Top 7 sales fell in Q3

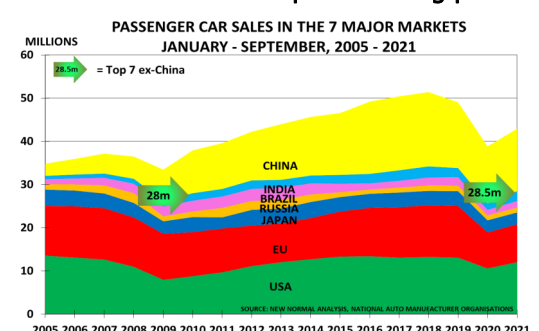


Chart 15: 2021 YTD sales are lower than pre-Crisis

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## Two major developments are now underway in China's auto market

The supply problem is mainly due to procurement policies, as the New York Times [notes](#):

*"Many automakers reduced orders for parts last year because of uncertainty about the pandemic's effect on sales, and they are now struggling to source new components."*

In addition, we are told that production of older ICE models is often still based on old chips, as the design hasn't been refreshed. And as the [WSJ notes](#), the pressures on supply means chipmakers are tending to refuse or delay orders for these small batches.

- ♦ [Toyota](#) had stockpiled chips - but was still forced to reduce output to 500k-600k in September/October, and is currently expecting November to be cut by 100k/150k
- ♦ [GM](#) said it expects to lose 20% of output in H2: [Stellantis](#) lost 30% of Q3 output

Most of the other major companies have also been impacted. But, of course, the shortage has enabled them to turbo-charge their planned strategy of maximising profits from their legacy ICE sales. Ford, for example, saw its average transaction price hit [a record \\$51.8k](#), up 13% versus 2020, as its incentive levels fell by 43% to average \$2482.

Automakers with financing subsidiaries have received [a double benefit](#), as the shortages have also pushed up the prices of used cars - leading to (a) higher-value loans and (b) higher residual values at the end of a lease and lower depreciation costs. VW trebled its global pre-tax financing profit in Q3 to \$1.5bn, whilst GM saw its profits double YTD to \$3.9bn and Ford made \$3.7bn - \$1bn more than the total for 2020.

Demand, however, is always an issue when prices rise by these amounts. And the risks increase with today's higher gasoline prices. But history shows that the problem only becomes obvious after the excitement over higher prices dies down, when it is too late:

- ♦ [US new car prices](#) highlight the global trend - average prices were 19% higher last month at \$44k than October 2020; average incentives were <4% for the first time
- ♦ [US gasoline prices](#) are also high at \$3.39/gal - the highest since 2014 - which effectively reduces the amount of discretionary spend available to consumers
- ♦ Top 7 sales in Q3 were the lowest since 2009 at 12.9m, with China down 17% versus 2020 at 4.5m; the US down 13% at 3.5m; and Europe down 26% at 2.5m

It therefore seems that we are doomed to repeat history - with profits rising as prices rise, and companies assuming the market upturn is robust. And then, too late for corrective actions to be taken, it turns out that higher prices have indeed destroyed future demand.

## EVs and used cars start to change China's market

China's auto market hardly existed in 2000 with just 16m cars on the road. There were still only 43m in 2005 as chart 16 shows. But it then saw continuous and rapid growth from 2008 onwards in response to the 'subprime on steroids' policy. Outpacing even the US subprime period, speculative profits from the housing market powered a dramatic increase in auto sales - which rose 4x from 550k/month to 2.2m/month at the H1 2017 peak. But since then new car sales have slowed, and two major developments seem to be underway:

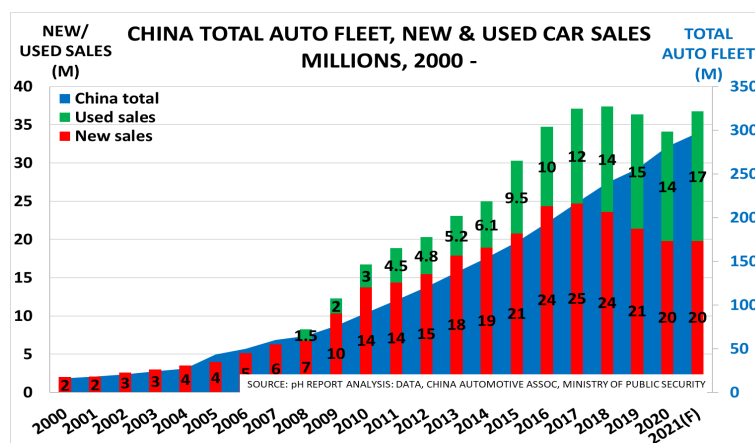


Chart 16: Used cars are now becoming a major part of China's auto market

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**EVs' market share doubled to 20% in China in Q3, with volume at a new peak in September**

- ♦ **Used car sales** have now become a key factor for the first time, equalling new car sales for the first time in September
- ♦ **EV sales** are also ramping up; they took a record 21% of the market in Q3, whilst ICE sales have plateaued

We expect both themes to have important implications for the overall market over the next few years. Continued growth in used car sales seems highly likely, given that they are normally 2x - 3x new sales in fully developed markets. And given their current sales momentum, it would be no great surprise if EVs take 50% of the market by 2025, even if the government continues to reduce its subsidies.

The key issue for the **used car market** is that it has only developed very recently. Just 2 million new cars were sold in 2000, and their quality was so low that a used car market hardly existed. Things only began to change in the mid-2000s, when local manufacturers began to form joint ventures with the leading Western companies in order to access their manufacturing and commercial know-how. And then the post-2008 stimulus programme accelerated the market's development:

- ♦ New car sales doubled from 6.7m in 2008 to 13.7m in 2010, and came close to doubling again by 2017 to 24.7m. But this proved the peak, after President Xi's [policy statement](#) at the communist party's October 2017 Congress that: "Houses are for living in, not for speculation"
- ♦ This year we expect sales to stabilise at 20m as the introduction of Xi's "3 red lines" tightens liquidity in the property market, as discussed in detail [last month](#)

Over this period, the rapid improvement in technology has also meant that new cars now last long enough to allow a used car market to develop. Its volume doubled between 2008 -2010 from 1.5m to 3m, and then doubled again to 6m in 2014 before growth slowed in the late 2010s due to restrictions on cross-border sales between the provinces.

The government began to tackle this issue in 2016, when it started to allow buyers of new cars in Tier 1 cities to sell their used car into [poorer Tier 2, 3 and 4 cities](#). But even when the restrictions were fully lifted, it took time to establish market confidence. Many potential buyers were understandably nervous about buying a car with no warranty or history. Gradually these issues have been overcome, and it seems reasonable to assume that the end of the real estate bubble will support the financial logic for buying a used car.

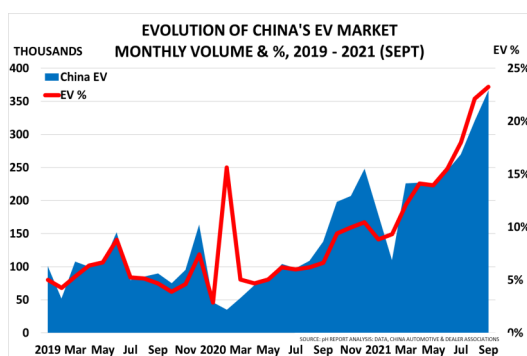


Chart 17: EV sales are starting to see rapid growth

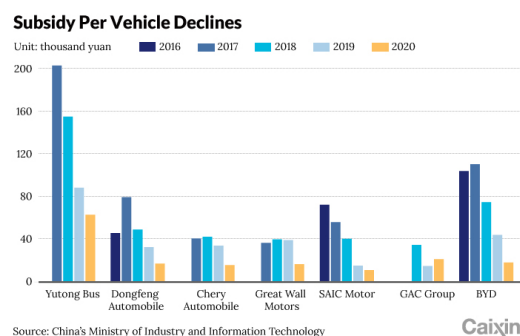


Chart 18: EV subsidies are in steady decline

**EV sales** represent the second key turning point, as their market share is now rapidly increasing. As chart 17 shows, sales were around 100k/month during 2019, but volume and market share then saw a steady increase during 2020 despite the pandemic. This year has seen exponential growth, with EVs' market share doubling to 20% by Q3, whilst volume hit a new peak at over 350k/month in September.

Importantly for the outlook, this growth is being achieved even though subsidies per car are being reduced, as chart 18 shows from Caixin. As [they note](#):

"Over the last few years, government subsidies for EVs have declined by 80% per vehicle, as Beijing looks to wean the industry off the handouts that helped it get off the ground."

- ♦ BYD's subsidies fell from Rmb 103.6k/car (\$17k) in 2016 to Rmb 17.45k last year
- ♦ Bus-maker Yutong's support fell from Rmb 203k/bus in 2017 to Rmb 62.4k
- ♦ Tesla and Xpeng only received Rmb 21k/car and Rmb 23k/car support in 2020

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## BP is now moving into China's battery swapping market via a JV

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Overall, the government paid out a total of Rmb 32.9bn over the 2016-2020 period, as annual costs rose from Rmb 864m in 2016 (for just 7278 cars), to Rmb 10.5bn in 2020 for 580k cars. Importantly, however, the recent fall in subsidy/car has not impacted growth - unlike in 2019, when a cut in subsidy had to be quickly reversed.

This suggests that consumer acceptance is now increasing, as word-of-mouth reports encourage buyers to consider an EV. Manufacturing costs are also declining as companies move along the experience curve and overall volumes increase. 2021 has seen subsidies cut by 10% from 2020 levels, with phaseout currently planned for 2023.

Another feature of the EV market is that [battery recycling](#) is starting to take off in a major way. Analysts expect it to be worth Rmb 40bn by 2025, when 780kt (116 GWh) will be recycled. This will more than treble 2020's volume of 200kt (25 GWh) - and represents major progress from just 2.9 GWh in 2017. Activity took off following Beijing's decision to make battery recycling an area of focus for government support, with 5 ministries now:

*"(Combining to) cascade utilization of power batteries, which involves reusing retired batteries from EVs in other facilities, to encourage cooperation between EV manufacturers, and to power battery producers and recyclers."*

As always in China, today's early stage market has a Wild West feel to it, with a lack of regulation and 15k companies currently engaged in recycling. Meeting the targets will require major improvement in the quality of batteries being made, as well as the development of local infrastructure and more advanced recycling technologies. Enhanced industry standards and the development of a robust regulatory framework will also be key.

[AV development](#) is also continuing to take off, with 30 companies such as WeRide entering the local food delivery market, based on the advantage of being "able to work in all weathers" and reduce infection risks during the pandemic. The [trucking market](#) is key:

- ◆ Plus is trialling Level 2 AV trucks on the 1500km/1600km Wuhan - Wuxi/Changsu routes, whilst Uisee has raised Rmb 1bn (\$150m) to build partnerships with companies including BASF, Dongfeng Motors and others. Vehicle costs are also reducing with some having halved from Rmb 500k to the Rmb 200k-250k range
- ◆ With 5m heavy trucks, and 14m smaller vans on the road, the benefits of safer driving and reduced fuel consumption create a strong value proposition, especially as 5G technology will be used to speed up the development of Level 4 AV capability

China's auto market therefore seems likely to see major changes in the next 2 - 3 years. On the negative side, the likely bursting of the real estate bubble could well lead to a decline in ICE sales as speculative property profits disappear. October saw [a 32% drop](#) in the value of property sales versus last year, after a 36% fall in September, despite this normally being one of the busiest times in the year.

But a downturn in new sales affordability would likely support future growth in the used car market, as price replaced prestige as a critical factor for buyers. We also expect major growth to continue in the EV market. Beijing is clearly focused on building a leading global position, based on a strong domestic market. Interestingly, BP is now moving into [battery swapping](#) via a JV deal with Aulton New Energy Automotive Technology and note:

*"This partnership will enable fleet customers to swap a depleted EV battery for a fully charged one in just one minute or less. Providing innovative charging solutions like rapid battery swapping will help meet China's fast-growing EV needs. It's another demonstration of BP's commitment to becoming a leading EV solutions provider."*

China is now targeting 1000 battery swap stations in 11 cities. And Nio's development is a case study, given its drive for [export success](#), with its decision to add services in the shape of battery-swap stations to its offer. It is now installing 20 of these in Norway's 5 largest cities and major roads, with turnaround times of just 3 minutes.

Wuling's Mini EV, featured [here on launch](#), is also continuing to develop well and should have major appeal in developing country markets. Some suggest these will continue to buy ICEs, but with Wuling's basic model selling for \$4k, this view seems complacent. Wuling expects [500k sales this year](#) and will launch an upgraded version soon.

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The strong level of orders for Ford's F-150 pick-up truck suggests Biden's target of 50% EV sales by 2030 is achievable

## US rebound stalls as prices rise, supply chain chaos continues

US sales have risen 14% YTD versus 2020, but the rebound has now stalled as chart 19 confirms. Volume saw good gains from March versus the first wave of the pandemic, with April/May seeing higher volume higher than in 2019. But since August, the downturn has returned - with October down ~20% versus both 2019 and 2020.

This is not necessarily bad news for automakers, however, as inventory levels were [just 26k](#) in September, as chart 20 shows - around 10% of more normal levels. And so they have no need to worry about market share and are instead hiking prices. Ford, did however, suggest last month that its inventories were [now stabilising](#), although it added that the chip shortage could continue through next year, and potentially into 2023.

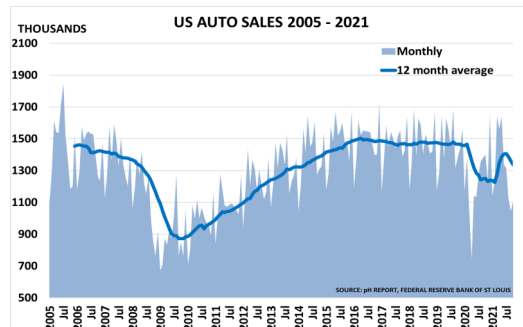


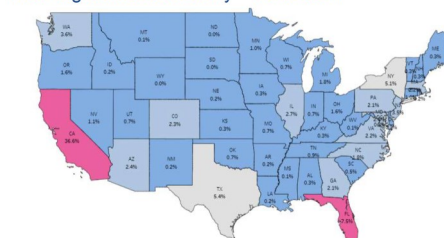
Chart 19: H1's sales rebound has stalled



Chart 20: Auto inventories are at an all-time low

As in China, both the used car and EV markets have become more prominent over the year. [Experian data](#) suggests that 43.8m used cars changed hands in the year to June - 2.6x the 16.8m new car sales in the same period. Prices rocketed over this period, and were up 51% Y-o-Y at their peak in May. The [Black Book Index](#) has now reached a new peak at 169.5, although Y-o-Y growth has slipped from 51% in May to 30% in September.

U.S. Electric registrations by state share  
New registrations January - June 2021

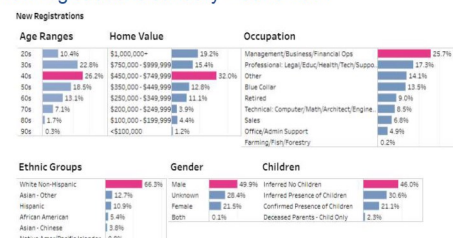


30 © Experian Public

Source: Experian Automotive New registrations January - June 2021 (right daily registered vehicles)

experian.

U.S. Electric registrations demographics  
New registrations January - June 2021



30 © Experian Public

Source: Experian Automotive New registrations January - June 2021 (right daily registered vehicles)

experian.

Chart 21: California/Florida lead in EV adoption Chart 22: The typical buyer is white, male, aged 40s

Experian data also [highlights](#) the Early Adopter profile of US EV buyers, as charts 21 and 22 confirm. Early Adopters are generally defined as enthusiasts for the product or service, and act as opinion leaders within their group. They are therefore ideal change agents.

The data shows the core profile is someone who is white, male, in their 40s, with a house worth \$450k-\$750k and no children. This clearly tallies with Tesla's core marketing demographic, with nearly half of buyers in a management/professional role. But, of course, this demographic is not typical of the American car-buying public.

Mass-market adoption depends on buyers of products like Ford's F-150 pick-up truck - the workhorse for blue-collar workers. As discussed in July, Ford was nervous about demand for the EV version, and only planned [to sell 150k by 2024](#). But it has already received 160k orders, and these are ramping up by 10k/month. High adoption levels in the critical middle-America demographic therefore seem possible - even before price parity arrives.

This interest also suggests (a) Biden's target 50% level for EV adoption by 2030 is definitely achievable and (b) that legacy automakers are likely to do well with EV offerings - confirming the rationale for them to ramp up their activities, as highlighted earlier in chart 13. We would expect them to progressively overtake Tesla in the main markets over the next 2 - 3 years as a result - by when they will also be starting to introduce Level 4 Autonomous Vehicle offerings.

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**Battery EVs market share in Europe was just 3% less than for diesel in September**

## EV sales reach 10% share in Europe

Europe is seeing a similar pattern to China and the USA. New car sales have stalled, but used car sales are out-performing - and EV sales are accelerating up the S-curve:

- ◆ New car sales initially staged a V-shaped recovery in H1, albeit from a low base, but this has since stalled as chart 23 confirms.
- ◆ Q3 sales were down 26% versus 2020 and 31% versus 2019, with no immediate improvement expected during Q4 as supply issues continue
- ◆ Used car sales are more buoyant, but still lower, with Autovista [noting](#) consumers "are unwilling to accept the higher prices and long delivery times for new cars"
- ◆ EV sales are continuing to rise as chart 24 shows, as automakers prioritise their sales due to the ongoing need to meet the new fuel emission standards
- ◆ [Battery EVs](#) were at a record 10% of the new car market in September YTD, and a record 15.9% in the month - just 3% less than diesel sales, which are falling fast

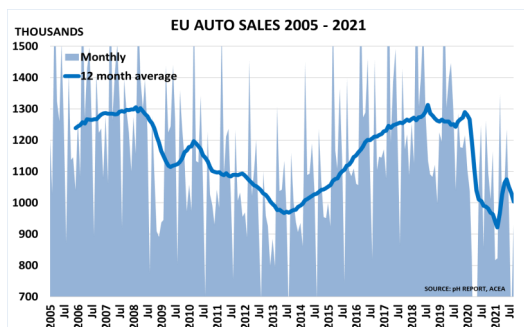


Chart 23: New car sales stalled in Q3

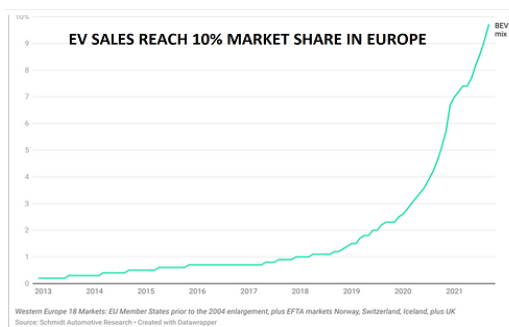


Chart 24: Battery EV sales reached 10%

The likely coalition partners for the new German government - the so-called 'traffic light' coalition of SPD, FDP and Greens - are highlighting [decarbonisation](#) as a key policy area. They fully support the EU's "Fit for 55" programme and want Germany to be in the lead - although the FDP continues to veto the general introduction of motorway speed limits:

*"In the transport sector only CO<sub>2</sub>-neutral vehicles will be permitted in Europe in 2035 - this will have an earlier effect in Germany. Outside of the existing system of fleet-limit values, we are committed to ensuring that it is verifiable that vehicles that can only be refuelled with e-fuels can be re-registered."*

*"We want to make Germany the leading market for electromobility and to do so massively accelerate the expansion of the charging-station infrastructure. As part of climate-friendly mobility, we will support the development of intelligent system solutions for individual transport and public transport."*

European cities are also continuing to promote the adoption of Paris' "15 minute city" concept, where all key services are within a short walk or bike ride. Lisbon is the latest to adopt the concept under its new Mayor (and former EU Commissioner) Carlos Moedas. Paris has meanwhile gone further, reducing the speed limit from 50kph to 30kph except for the Péripherique, Champs-Élysées and a few major road. As its deputy mayor [noted](#):

*"The challenge is to cut the presence of cars, their speed, and their grip on the city to give space to other users. We reckon that it will cut the noise nuisance by three decibels, or by half in terms of what people perceive. It's really a big gain in terms of quality of life."*

These developments really began to take off with the arrival of the pandemic and they seem likely to be one of its enduring effects. As we noted in [May last year](#), "there are weeks when decades happen". Milan's deputy mayor was prescient then, commenting:

*"Before, we were planning for 2030; now the new phase, we are calling it 2020. Instead of thinking about the future, we have to think about the present."*

COP 26 and the Net Zero agenda are likely to build further momentum, particularly because Europe recognises its current lead in this area is already being challenged by China - and is likely to be challenged before too long by the USA. If it loses first-mover advantage, it will likely prove very hard to regain it.

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7 used cars are  
being sold for  
every new car in  
Brazil

## Japan, India, Brazil, Russia sales see mixed performance

Sales in the other 4 major markets were up 14% YTD versus 2020, and down 13% versus 2019. But overall sales were at their lowest level since 2009, and were 27% below the record 10.5m level seen in 2012. Individual countries also saw a mixed performance. India saw strong gains, but Japan was still lower as chart 25 confirms.

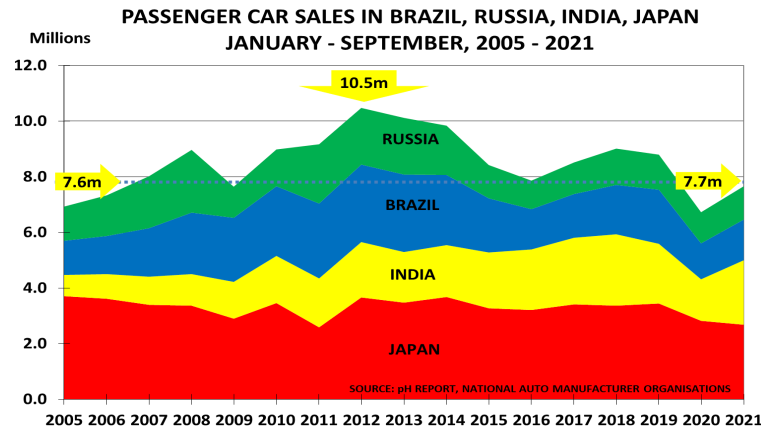


Chart 25: total BRIJ sales were 27% below the 2012 peak

**Japan** saw its lowest sales level since 2011 (after the Fukushima disaster) at just 2.7m. It also risks seeing its lowest annual sales level (apart from 2011) since 1987's total of 3.3m, if Q4 volumes continue to disappoint. This is not what was supposed to happen when Premier Abe took charge in 2012. He had promised a quick return to growth and inflation, and replaced Masaaki Shirakawa as Governor of the Bank of Japan because of his view that Japan's ageing population meant these objectives were unobtainable.

Japan's car industry is also feeling the pressure from EV growth as Nikkei Asia [reported](#):

*"In a bid to accelerate development and cut costs, 10 Japanese automakers and major parts suppliers (including Toyota and Mazda) have agreed to standardize the way they design vehicles. Every part will be designed in digital form to create a 'virtual car' and allow designers to see which parts cause malfunctions or increase wind resistance."*

**India** has seen a strong recovery in 2021, after the downturn that began in 2019. YTD sales had reached a record high of 2.6m in 2018, but they then fell 16% in 2019 and a further 31% last year. This year, however, has seen a 55% increase to 2.3m. But the recovery has come too late for Ford. It has [confirmed](#) its decision to [exit the market](#) after suffering losses of \$2bn - and making investments of \$2.5bn - having realised India was unlikely after all to become the [world's 3rd largest passenger vehicle market by 2021](#).

On the positive side, however, Tata is raising \$1bn to develop an [EV-based mobility business](#) in India, initially focused on developing a national charging network and launching 10 EV models. India has just 1300 charging points, compared to China's 950k.

**Brazil** has also seen a recovery this year, with sales up 13% to 1.5m, after last year's 33% fall. But industry bodies are gloomy about the outlook after the chip shortage led sales and output to weaken in September. Anfavea, which represents GM, VW and Fiat in Brazil, now expects sales to rise by a maximum [of 3%](#) this year, after having forecast 13% sales growth in July. And it worried that sales might actually even fall marginally.

The combination of supply concerns and a 20% rise in new car prices has also led to an [explosion of interest in used cars](#). Typically, the used market has been 3x the size of the new car market. But today, seven used cars are being sold for every new car sold.

**Russia** might have seemed an obvious market to see a strong recovery in sales, given the potential benefit to the economy from today's higher oil and gas prices. In reality, however, whilst this linkage meant sales only fell 12% last year, it has not proved sufficient to produce more than a 7% rise in volume to 1.2m YTD. And the automakers' association is not optimistic about the outlook, saying it cannot make a forecast for sales to year-end, as *"the market situation is very uncertain at the moment."*

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## CHINA

President Xi now ranks alongside Mao and Deng in the pantheon of China's Communist Party leaders

### 4. Xi secures his position as real estate bubble bursts

In normal circumstances, President Xi Jinping would now be finishing his second term of office. And the in-fighting would be intense to decide his successor, as in 2011 with the remarkable upset to [Bo Xilai's](#) hopes after he and his wife were implicated in the murder of British businessman, Neil Heywood. This is presumably why Xi originally decided to start [bursting China's real estate bubble](#) at the end of 2017. He began by warning that "[houses are for living in, not for speculation](#)". People's Bank of China Governor Zhou Xiaochuan then followed by warning that a '[Minsky Moment](#)' could be approaching:

*"China's financial sector is and will be in a period with high risks that are easily triggered. Under pressure from multiple factors at home and abroad, the risks are multiple, broad, hidden, complex, sudden, contagious, and hazardous. The structural unbalance is salient; law-breaking and disorders are rampant; latent risks are accumulating; and vulnerability is obviously increasing. We should prevent "black swan" events and "grey rhino" risks."*

But "events" then intervened in the shape of President Trump's decision to wage his trade war. It quickly became clear it was unwise to subject the domestic economy to the risks created by the bursting of the bubble, when it was also facing major pressure from the new US President. The problem with postponement, of course, is that the risks have since grown, as discussed in recent Reports, along with the urgency of tackling the problem.

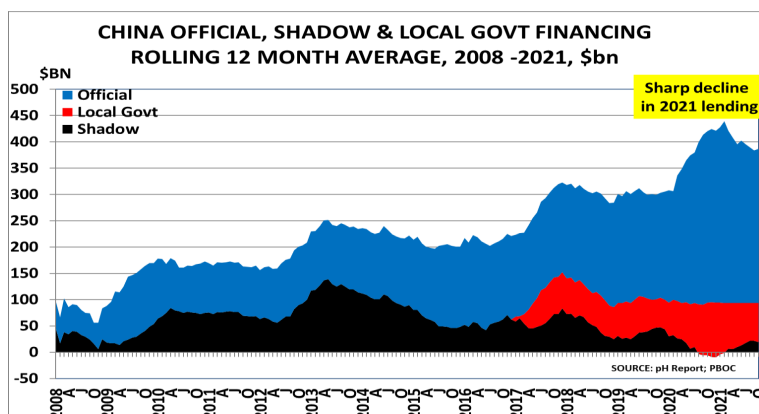


Chart 26: China's "3 red lines" policy is reducing lending

Chart 26 confirms the squeeze now underway in lending levels. Total lending is already down 15% YTD, equal to the decline in 2018 before the squeeze was aborted. In turn, this is leading to growing distress amongst [property developers](#) - and problems for local governments, who depend on land sales for much of their revenue. Over the past couple of years, therefore, Xi has been preparing to overturn Deng Xiaoping's decision to introduce term limits for the presidency to avoid a return to Mao's personality cult.

Whether one agrees with this decision or not, the end-result is that the Party last week agreed a "historical resolution" for only the 3rd time since its foundation in 1921. The first was in 1945 to consolidate Mao's position. The second was Deng's in 1981, which criticized the Cultural Revolution and led to China's opening up and economic reform of China.

This ranks Xi above his predecessors Jiang Zemin and Hu Jintao, and weakens the position of key members of their faction in the Party, including premier Li Keqiang and Xi's potential challenger for the presidency, Wang Yang. As suggested before, this makes it very likely that Xi intends to serve for at least one more term, and probably till 2033.

The Resolution itself demonstrates Xi's strength by comparison with his predecessor:

*"Xi solved many tough problems that were long on the agenda but never resolved, and accomplished many things that were wanted but never got done".*

The Resolution also highlights Xi's objectives for his continuing presidency:

*"We should deepen reform and opening up across the board, promote common prosperity for all, and build up our country's strength in science and technology".*

But first, of course, he has to resolve the existential crisis of China's real estate bubble.

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## PLASTICS

We fear the new export-oriented shale gas-based PE plants in the USA may become stranded assets

## 5. Polymers see major shifts in demand patterns

Changing demand patterns is one of our core paradigm shifts. And the polymers industry is shaping up to be a key example of the changes underway. The charts below highlight some of the key issues in respect of polyethylene (PE, the world's largest volume polymer with ~90 million tonnes) and polypropylene (PP, the second largest with ~70Mt).

We focus on China, the world's largest consumer of PE/PP, showing YTD production and [Trade Data Monitor net imports](#) for PE (chart 27) and PP (chart 28) for 2019-21:

- ◆ Its PE demand rose 10% in 2020, but fell 3% in 2021 - and is up just 6% overall
- ◆ Its production rose 8% in 2020 and a further 12% in 2021 - and is up 21% overall
- ◆ Its imports rose 12% in 2020, but then fell 19% in 2021 - and are down 9% overall
- ◆ Overall, its Middle East imports fell 10%; SE Asian imports fell 15%; NE Asia rose 6%; NAFTA rose 7%, EU + UK rose 5%; Former Soviet Union trebled to EU levels
- ◆ China's PP demand rose 17% in 2020 and 4% in 2021 - and rose 22% overall
- ◆ Its production rose 14% in 2019 and 14% in 2021 - and rose 30% overall
- ◆ Its imports rose 36% in 2020, but have fallen 54% this year - and fell 38% overall

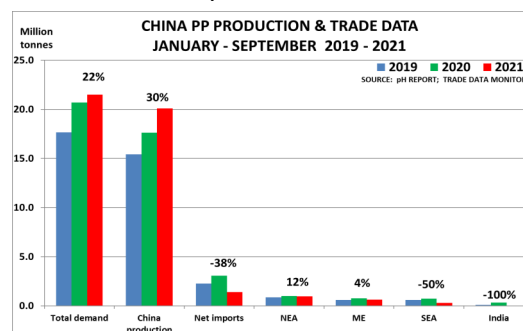
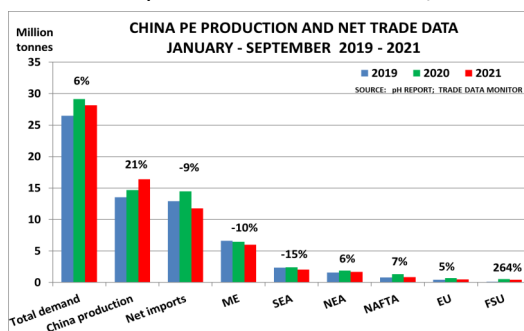


Chart 27: China's PE demand has fallen in 2021 Chart 28: China's PP imports have disappeared

The fall in China's PE demand suggests that last year's boom in online sales during the pandemic has run its course. And China's steady increase in production will clearly continue to pressure exports from the Middle East, and N & S East Asia, and make it difficult if not impossible for N American exporters to reach their hoped-for volumes.

The PP data adds a further twist, as it shows China is continuing to see good demand growth - but is no longer reliant on imports to sustain this. 2021 volumes are on course to be <2Mt. This would be the lowest level since 2001's 2.2Mt, when consumption was 5.4Mt.

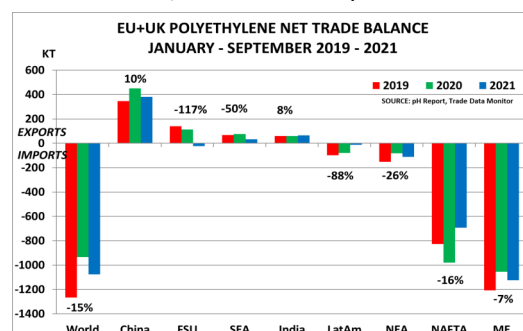
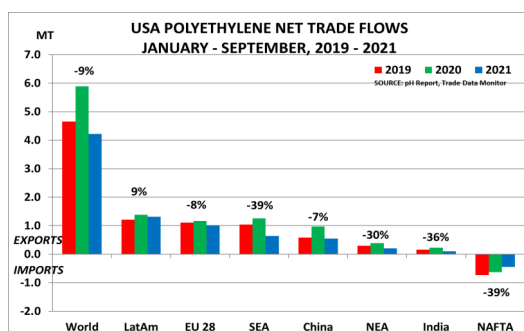


Chart 29: US PE exports fell 9% in 2021 v 2019 Chart 30: EU+UK PE exports are down 15% v 2019

Charts 29 & 30 show the impact of these changes on N America and Europe. Both have seen lower PE exports in 2021 v 2019, with most markets seeing a downturn. And without the impact of the Texas freeze and Hurricane Ida, the markets would have seen major over-capacity instead of supply chain chaos. This downside has, of course, only been postponed rather than avoided. When it arrives, it will further confirm the paradigm shift that means regional business models are replacing globalisation, based on reshoring.

This analysis also confirms our view that petrochemical demand is no longer increasing based on a multiple of GDP. Given China's move towards self-sufficiency, we therefore fear the new export-oriented US plants will soon become stranded assets.

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## ENERGY MARKETS

European oil companies are ahead of their peers in recognising the challenges, and opportunities, from Net Zero

## 6. Oil companies look for new roles in Net Zero

Oil companies are no strangers to transformation. As we noted in our special report in June on the outcome of the [Friends of the Earth court case in The Hague](#):

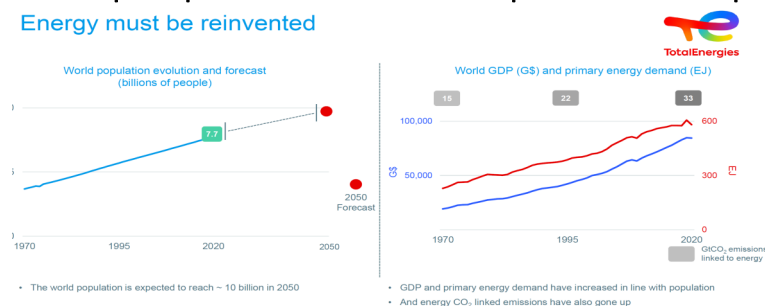
*"Shell has a distinguished history of successful adaptation to changing circumstances – it began life in 1833, after all, as a [shop selling sea-shells](#), before slowly transforming into the business we know today."*

And as the energy transition continues to pick up pace, International Oil Companies (IOCs) like Shell will come under increasing pressure to work out a distinctive role for themselves in the new world. Their problem is that the model that has worked for 60 years in oil, gas and chemicals will no longer work in the future. Essentially, it focused on finding:

*"The cheapest resource you can and building the biggest processing plant you can afford".*

Continued population growth from 2.5bn people in 1950 to today's 7.8bn, alongside the wealth created during the BabyBoomer SuperCycle, meant there was no need to worry too much about the demand side of the business. The focus was instead on fast-tracking technology innovation - initially in terms of step-change development, and then focusing on the rapid exploitation of incremental improvements to keep driving costs down.

Energy must be reinvented



Our societies must reconcile population growth and prosperity with massive reduction in CO<sub>2</sub> emissions

Chart 31: TotalEnergies highlights the challenge and the opportunity

In general, European IOCs are ahead of their peers in recognising the challenge - and the opportunity. French company TOTAL, for example, has rebranded as TotalEnergies, and chart 31 from its recent [investor presentation](#) highlights the key issue:

*"Our societies must reconcile population growth and prosperity with massive reduction in CO<sub>2</sub> emissions".*

Inevitably, vulture funds such as Third Point are also circling. It sees an opportunity for a quick profit by [breaking up Shell](#). Others will likely follow and some may be successful. But as [Engine No 1](#) has argued, more long-term value can be created on the basis that:

*"Over time, the interests of Main Street and Wall Street align, and we can engage as active owners to create value by focusing on this alignment."*

As discussed in July, refiners are also beginning to realise that the energy transition will create stranded assets. Since then, Shell has decided to [close crude oil refining](#) at the Rhineland Refinery in Germany, and convert it into

*"Shell Energy and Chemicals Park Rheinland, a venture focused on renewable energy-derived hydrogen, sustainable aviation fuels and renewable liquefied biogas (bio-LNG)."*

Similarly, Phillips66 has announced the [conversion of its Alliance refinery](#) in Louisiana to become a terminal, whilst LyondellBasell is "[weighing strategic options](#)" for its Houston refinery. The fact that all 3 refineries had strong integration into petrochemicals didn't change the underlying economic rationale, highlighting the chemical industry's challenge.

Encouragingly, chemical companies are increasingly now recognising this existential risk to their fossil feedstock supply base. And our [Challenge Workshops](#) are helping to highlight the opportunities that can be created by focusing on the use of recycled feedstocks, as well as those based on bio and CO<sub>2</sub>.

There is also scope for major technical innovation. This can not only involve the opportunity to developing a more distributed mode of operation, closer to the end-user, but also by focusing on selling services and solutions rather tonnes of products.

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## POLITICS

There are signs that politicians may be starting to use fiscal policy again to share wealth more equally

## 7. Fiscal policy starts to make a political comeback

In economic terms, one can see the post-War period as effectively divided into 3 separate period, each covering between 15-30 years. And now a new period may be starting:

- ♦ The period from 1945-80 was essentially shaped by the end of the World War 2, with politicians actively engaged in managing the economy via fiscal policy
- ♦ The BabyBoomer SuperCycle to 2000 then saw the economy running on autopilot, as the Boomers move into the Wealth Creator 25-54 cohort led to constant growth
- ♦ Since then, politicians have handed over responsibility for the economy to central banks, in the belief that monetary policy could somehow create perpetual growth

As chart 32 shows, asset price inflation began to develop during the SuperCycle - and was then turbo-charged by monetary policy. Thus wealth is now again concentrated in an elite. Effectively, we have returned to levels last seen in the 1920s. The Top 1% in the USA now have a ~20% share of Income, and the Top 20% have a ~50% share.

This development suggests China's decision to adopt its Common Prosperity policy may be part of a wider trend where politicians engage again with the economy via fiscal policy.

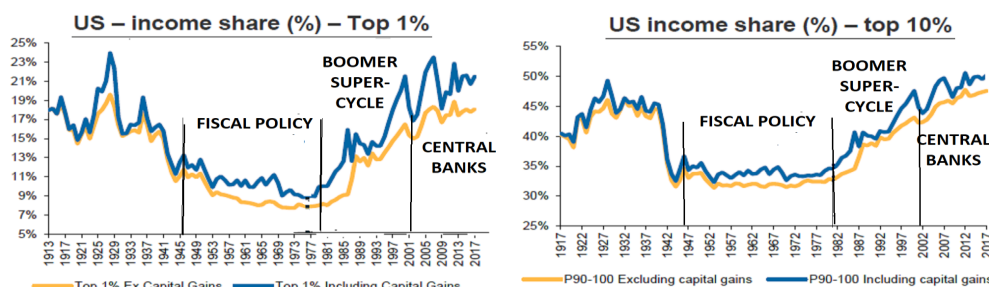


Chart 32: The Top 1%/10%'s share of US income has returned to the levels of the 1920's Gilded Age

There are certainly some signs that this development could be underway, most notably in the USA with President Biden's focus on fiscal policy. He has finally overcome the resistance of his "woke opponents" in the House of Representatives, passing the [\\$1tn Infrastructure Investment and Jobs Act](#) with Republican votes. Biden positions himself as an old-style Democrat politician, focused on US jobs, and his key initiative is clearly the Building Back Better agenda that formed the basis of his Presidential campaign.

Europe is showing similar signs of fiscal activism. Angela Merkel's retirement has opened the door for a new approach, after 16 years of relative caution and 'steady as she goes' policies. It was noteworthy that it was the Portuguese presidency of the European Council in H1 that successfully finalised the €1.8tn Next GenerationEU Recovery Fund and the EU vaccine programme, after Germany's Presidency in H2 2020 had left them in limbo.

Much will depend in Europe on the positions taken by the likely new German Chancellor, Olaf Scholz. The 'traffic light' coalition of SPD, FDP and Greens issued its outline agenda last month, focusing as The Economist notes on a narrative of modernisation, [aiming](#):

*"To halve the approval time for infrastructure schemes, accelerate digitalisation, loosen immigration laws, increase R&D spending and reduce the voting age to 16".*

But so far it has ducked the question of what happens to the EU's 'fiscal rules' - which were 'bent' in classic Brussels style to allow the EU to borrow in its own name for the first time. The EU cannot develop an active fiscal policy without this ability, as Reuters [notes](#):

*"The market's enthusiastic embrace of these new safe assets illustrates investors' confidence that the euro is here to stay. Germany and its allies had insisted this was a once-only crisis measure and not the birth of "eurobonds" or a long-demonized "debt union". But Berlin's incoming center-left coalition parties are [already discussing](#) another EU fund financed by collective borrowing, this time to permit massive public investment in green energy and digital networks."*

There are therefore clear signs that a turning point is now underway. This would see fiscal policy being used to share wealth more equally, and leave central banks to refocus on their original role of acting as lender of last resort and ensuring market stability.

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## VOLUME PROXY

All 3 Regions and  
all 3 Product areas  
are now negative

## 8. Volume Proxy highlights demand destruction

The Index has seen a steady decline over the past month, even though oil prices are only down 2.5%. This confirms, as chart 33 shows, that demand destruction is now underway.

The Regional chart shows that the fall began very sharply, in Asia, and was then followed in the USA and Europe. As often in such a downturn, we can now see a small bounce underway in both Asia and Europe as some buyers reorder, but the US is still falling.

The Products charts is also worrying. Firstly, there is the ongoing fall in Aromatics, usually a leading indicator. Secondly, Polymers - closest to the end-user - is also weak.

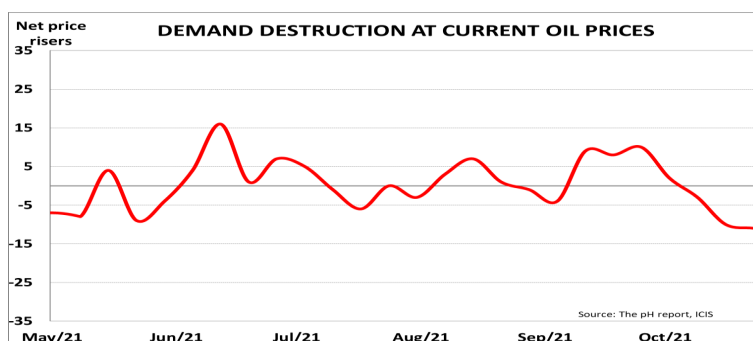


Chart 33: The Index is clearly in negative territory

- ◆ Some destocking may be underway as we reach the end of the year
- ◆ But the scale of the trend suggests it has a wider cause
- ◆ The most likely explanation for weakness is simply demand destruction

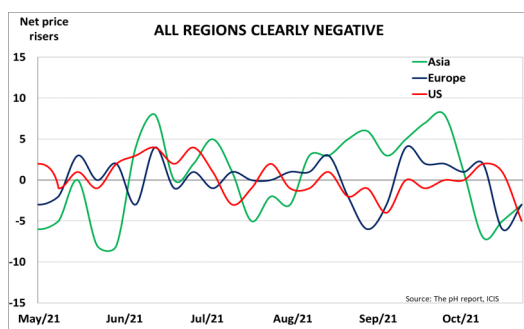


Chart 34: All regions are also negative

- ◆ Asia's decline was very sharp
- ◆ US, Europe followed soon after
- ◆ US continuing to slide

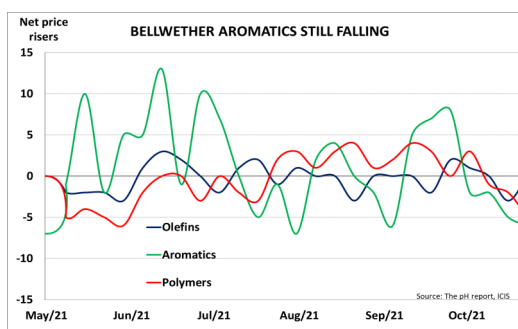


Chart 35: Aromatics is leading the Index lower

- Aromatics usually a bellwether
- Polymers suggests demand weak

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## About The pH Report

The pH Report is published by New Normal GmbH, a Swiss-based strategy consultancy advising Fortune 500 and FTSE 100 companies, investment banks and fund managers.



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Paul also serves as Advisory Board chairman for Infinity Recycling and non-executive Chairman of NiTech Solutions, and is a senior adviser to I.C.I.S Pricing and Recycling Technologies. Prior to moving into consulting in 1995, Paul spent 17 years with Imperial Chemical Industries (ICI) in the UK and USA. He held senior executive positions in petrochemicals and chloralkali, and was Executive Director of a \$1 billion ICI business.



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Was the first foreigner to be granted permission to run the finance company of a top-tier Chinese State Owned Enterprise, when establishing and managing ChemChina Finance Company. Previously, Daniël held a variety of senior positions in corporate and investment banking, including as Asia Pacific Head of Chemicals and Asia Head Asset Based Finance for ABN AMRO.

He moved to Hong Kong in 2001, and continues to spend much of his time in China, advising international and Chinese firms, as well as leaders in the public and private sectors. Daniël is a graduate of Leiden University, the Netherlands, with a Master of Law degree with a specialty of International law.



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Is an expert in financial markets. Previously he was a Managing Director-level equity analyst, working with some of the world's leading investment banks, and directly with chemical companies. For 21 years to 2017, he covered the global chemical industry for banks including ING, Merrill Lynch and Investec, making market recommendations and undertaking advisory work in M&A and lending. He was particularly well known for his development of the Chemicals Volume Proxy, a unique real-time monitor of chemicals demand. Prior to this, he spent 16 years in the industry itself, mainly with BP/BP Chemicals. He recently completed a four-year term as Honorary Treasurer of the Royal Society of Chemistry and previously chaired its Investment Committee.

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