QUARTZ MEMBERSHIP

The growing appetite for electric vehicles

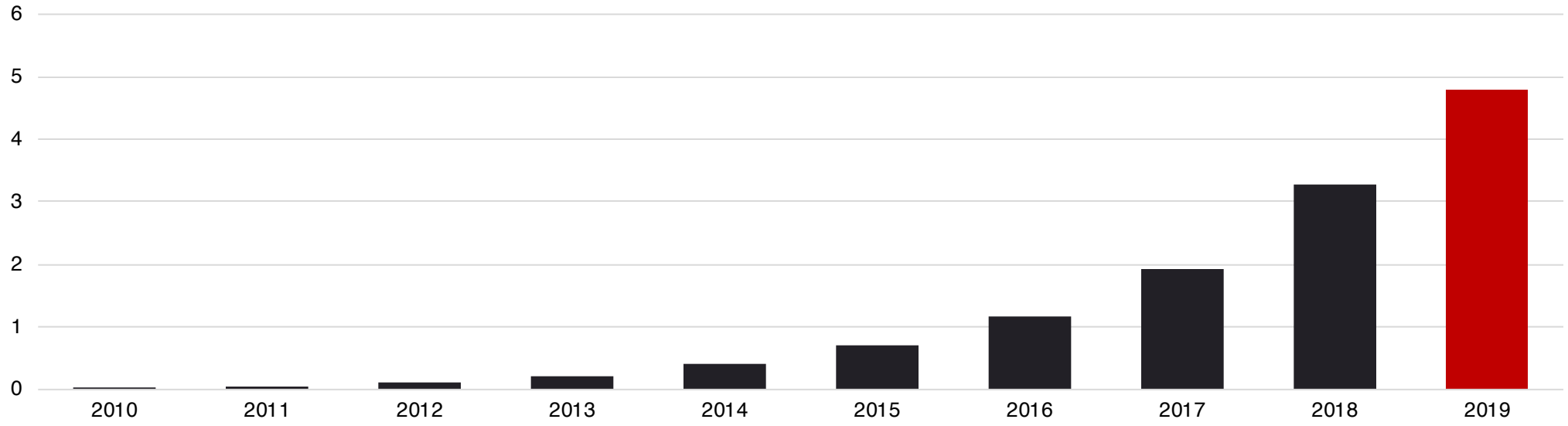
Member exclusive by  Chika Dunga

PHOTO BY BRAM VAN OOSTON UNSPLASH

A bright spot in the automobile industry

2019 was a turning point for electric vehicles. EVs captured 2.2% of the global vehicle market (despite a slowdown in growth from 30% to 6%) and automakers pledged $225 billion in electrification over the next several years. However, the industry still has its challenges, including slow adoption of EVs outside of China and Norway, and overall global decline in automobile sales. Yet, the industry is positioned to overcome these challenges as pricing becomes more competitive, countries focus on reducing emissions, and the appetite for electric vehicles continues to grow.

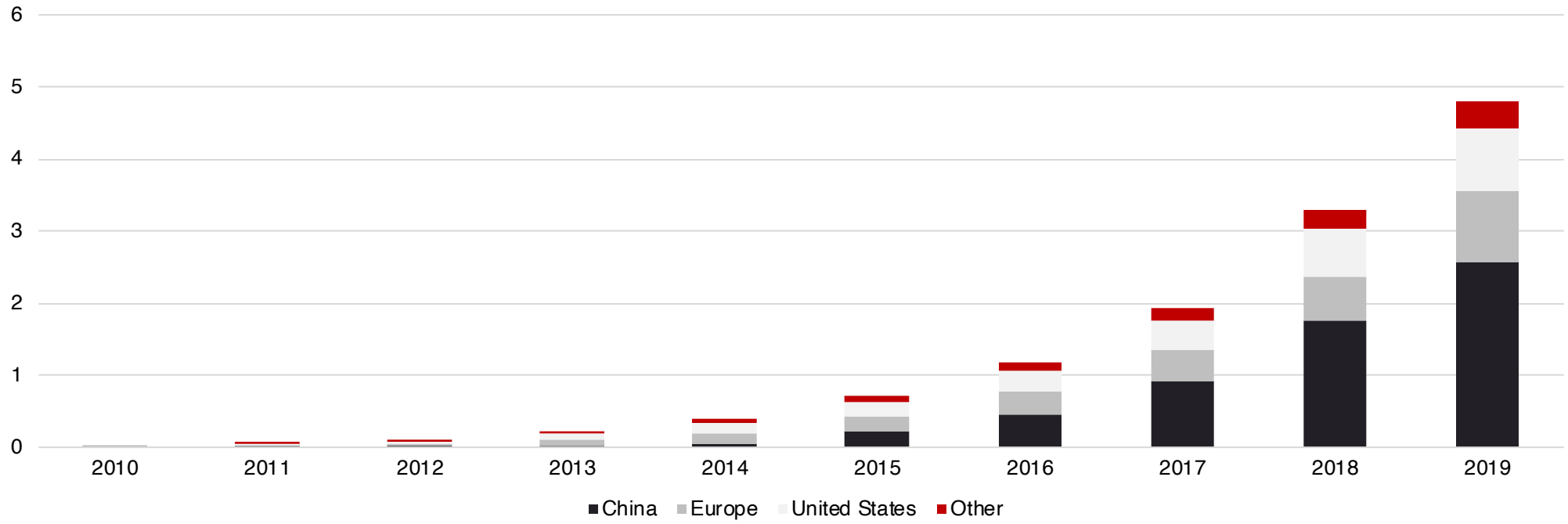
Global electric car stock, 2010 - 2019



China and Europe lead the way

Electric vehicles have long defied the slumping global auto market. As total vehicle sales cooled in recent years, EVs have resisted the pull of gravity, selling roughly a million new units every six months since 2018. Regulation is playing a major role in this growth, with subsidies implemented by the US, Europe, and China. Europe has the highest EV market by vehicle share and China by volume.

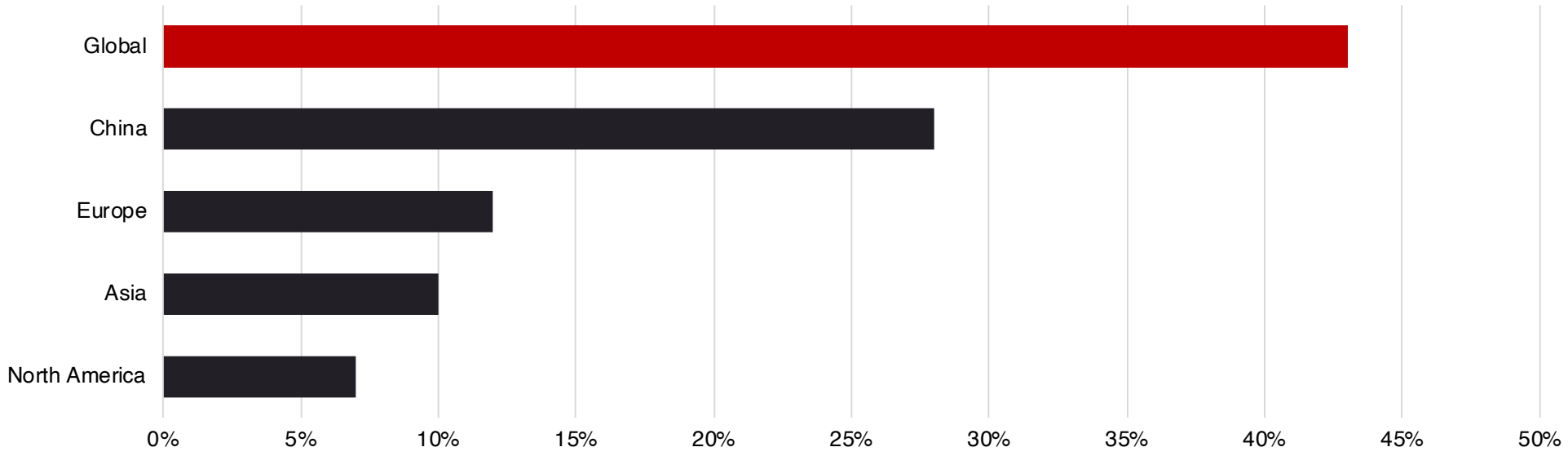
Global electric car stock per country, 2010 - 2019



Electrified ambitions

Automakers are placing major bets on electric vehicles, but they have catching up to do to in order to rival established players like Tesla. J.P. Morgan predicts that by 2025 the global share of EVs will reach just 7.7% of the market, or 8.4 million vehicles. Major automakers think otherwise. Nissan-Renault is aiming for 20% to 30% by 2025, while GM hopes to hit 10%–15% of total sales by 2026. But if demand fails to pick up the big bet may mean consolidation or bankruptcy for some.

Electric vehicle investments announced by carmakers by geography of investment, 2019-2023



US market drags along…

AlixPartners' global survey of customer demand for EVs asked if buyers' next car would be electric in 2018. The US had the lowest response, 19%. Answers in the UK, Norway, and Germany ranged from 22% - 29%. China topped at 55%. Range, ease of ownership, and cost were also addressed in the survey.

	US	US - California	China	UK	Norway	Japan	Germany
Buying next vehicle (expected likelihood)	19%	26%	55%	25%	29%	23%	22%
Adoption at price parity with ICE vehicle	61%	72%	81%	67%	53%	76%	59%
Would pay $10,000 (25%) premium	17%	19%	21%	13%	14%	18%	13%
Concerns: battery (driving range)	59%	50%	67%	55%	58%	56%	55%
Concerns: costs	41%	40%	15%	43%	14%	41%	46%

Most positive about EV category among all countries

Most negative about EV category among all countries

Tesla is changing US car culture

Tesla has made EVs desirable. Its model lineup starts at $37,000, making it one of the cheaper EV models with a prestigious brand. Tesla's Supercharger network has 1,636 stations in addition to its destination charging stations (with many more on the way).The number of public charging stations in the US has soared from just 506 at the end of 2010 to over 20,000 in May 2019.

Tesla market cap

"Electrification will go faster. I think it would be naïve to believe after some months, everything will return to normal, and our customers will come back into a showroom asking for diesel cars. They will ask for even more electric cars."

Håkan Samuelsson CEO, Volvo at The Global Boardroom hosted by The Financial Times, May 2020

The arrival of budget conscious EVs

Better range, more refined styles, and zippier acceleration all hit the market at or below the median cost of a car in the US: Kia's $34,000 e-Soul (280-mile range), $39,500 Niro (239-mile range), and the $36,500 Hyundai Kona Electric (258-mile range). The budget offerings join the Chevy Bolt and the Model 3 as a new class of more affordable cars.

Affordable

Kia e-Soul
$34,000 USD

280 miles

Kia Niro
$39,500 USD

239 miles

Hyundai Kona
$36,500 USD

258 miles

Chevy Bolt
$36,620 USD

259 miles

Tesla Model 3
$37,990 USD

322 miles

Luxury

Jaguar i-Pace
$69,850 USD

234 miles

Audi E-tron
$77,400 USD

218 miles

Tesla Model S
$74,990 USD

402 miles

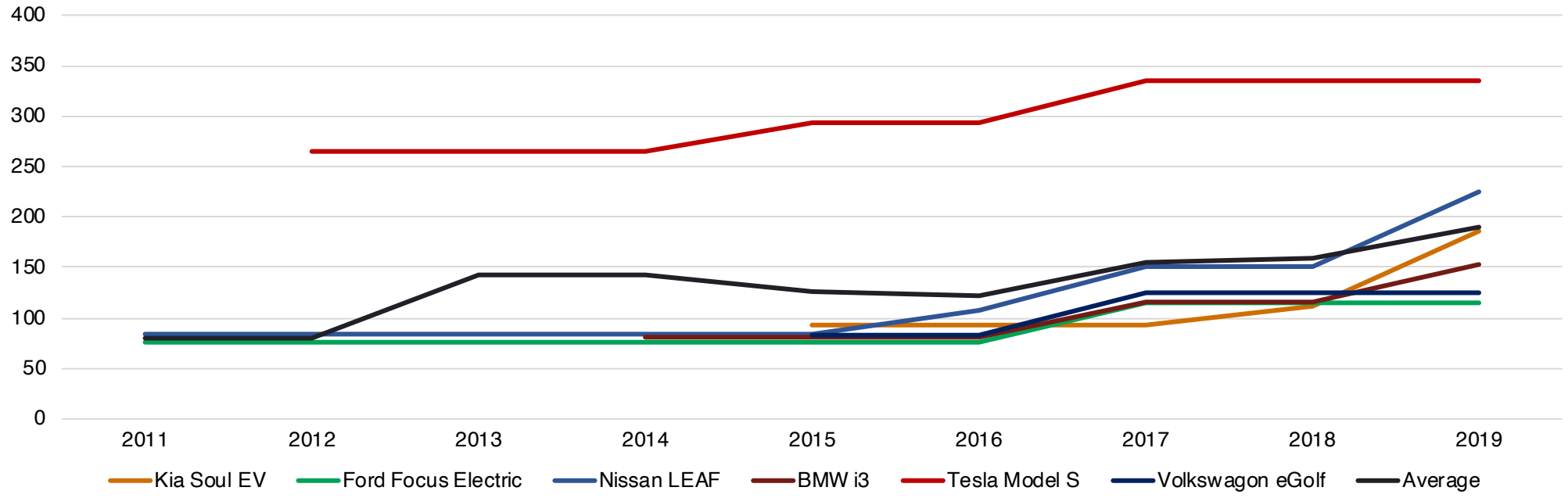
Porsche Taycan
$103,800 USD

201 miles

End of range anxiety

"It takes 300 miles of electric range for most people to feel comfortable in an EV," says GM President Mark Reuss. In 2019, 75% of EVs sold were the models with the highest range (238 miles or more) including Tesla's Model S and 3 and the Chevrolet Bolt EV. Today, the median EV range is more than 125 miles while the top end is 335 miles, according to the US Department of Energy estimates.

BEV (fully electric cars) battery range increases



Hello, e-trucks

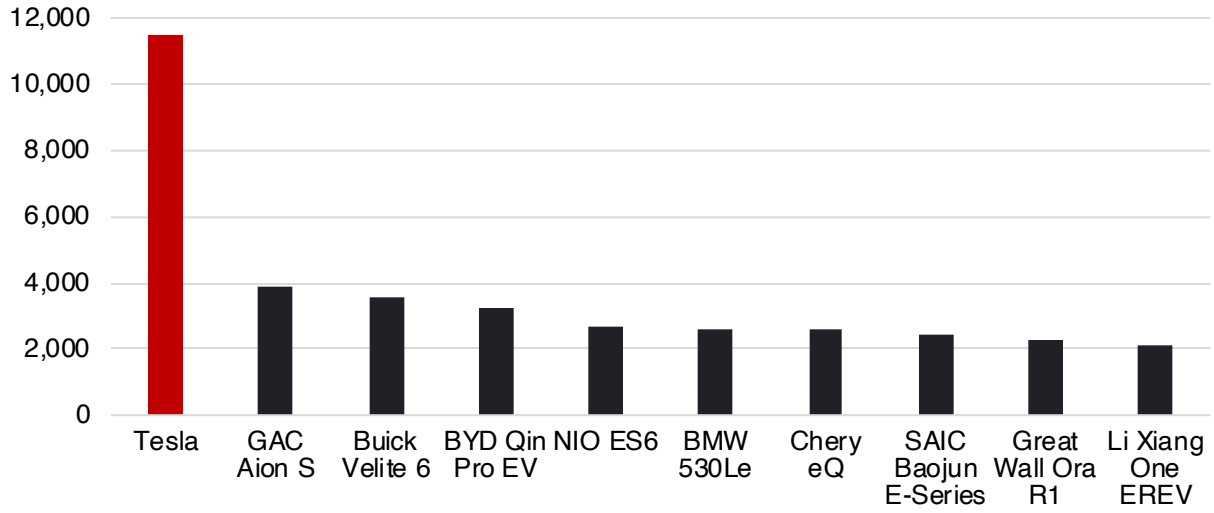
Electric buses have long been a favorite of governments, but the private sector is realizing electric delivery trucks can save them money. In the EU and North America, the biggest news was Amazon's order of 100,000 electric delivery vans from the Detroit startup Rivian. Los Angeles based startup, Chanje, already has its e-trucks on the road. In 2018, it sold 900 vans to Ryder, a trucking company, and an additional 100 to FedEx.

Company	Headquarters	Rollout plans
BYD	Shenzen, China	2020
Chanje	Los Angeles, USA	Since 2018
Daimler Trucks	Stuttgart, Germany (produced in Portland, Oregon)	2021
Nikola Motors	Phoenix, Arizona	2028
Tesla	Palo Alto, California	TBD but likely 2021
Volvo	New River Valley, Virginia	2020
Workhorse	Lordstown, Ohio	TBD
Rivian	Plymouth, Michigan	2022

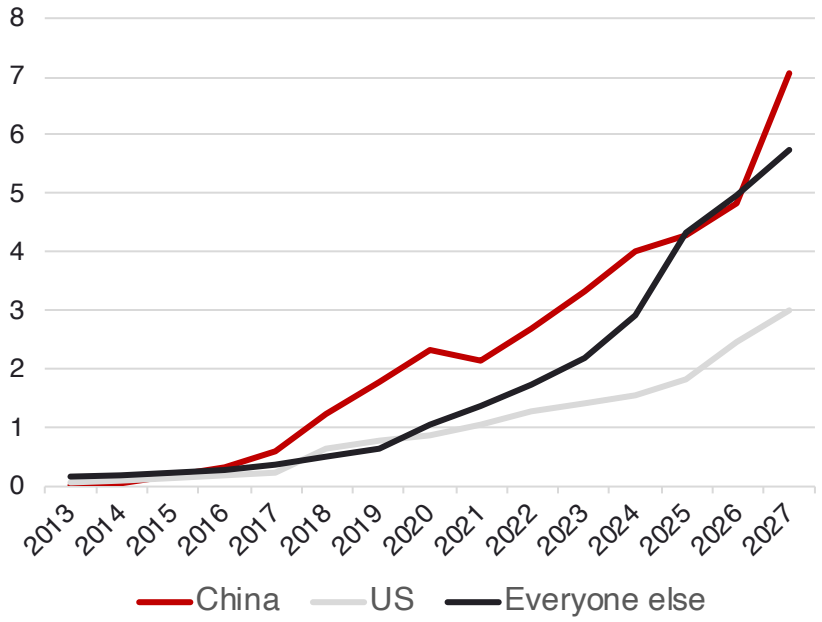
An impending shakeout in China

China has experienced a healthy EV market, accounting for slightly above 50% of global EV sales in 2019. But as its auto market slows down due to the government phasing out subsidies, multinational entrants can shake up the market. Nearly 500 manufacturers are registered to manufacture EVs in China. Foreign brands presently make up 5% of the market – with Tesla leading by volume of sales. Fierce pricing competition and superior technology could upend some of the smaller, lesser known domestic incumbents.

Top 10 China EV sales – May 2020



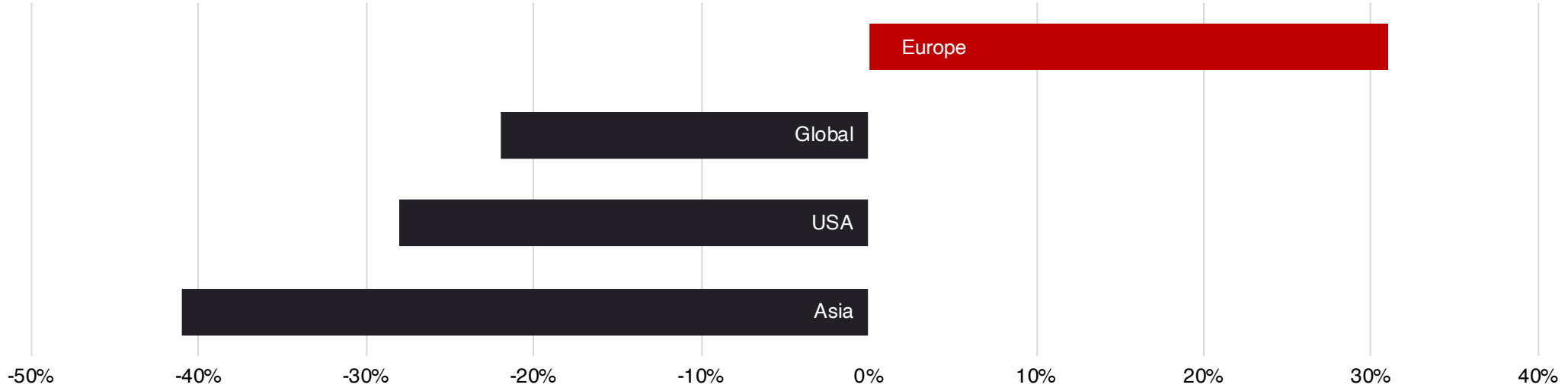
China is the leading EV market in sales



The pandemic takes its toll, but Europe tells a different story

For the first time, electric and “new energy” vehicle sales dropped in China this April even as the broader market grew. Energy research firm Wood Mackenzie is predicting a 40% drop in global EV sales in 2020 from 2.2 million units last year. But the story in Europe is different. In 2020, the continent has seen a 31% jump in EV sales compared to the same period last year, according to data from LMC, an automotive industry forecaster. Behind the rise is a concerted effort by governments to retire the internal combustion engine by using carbon policy, vehicle subsidies, and competition.

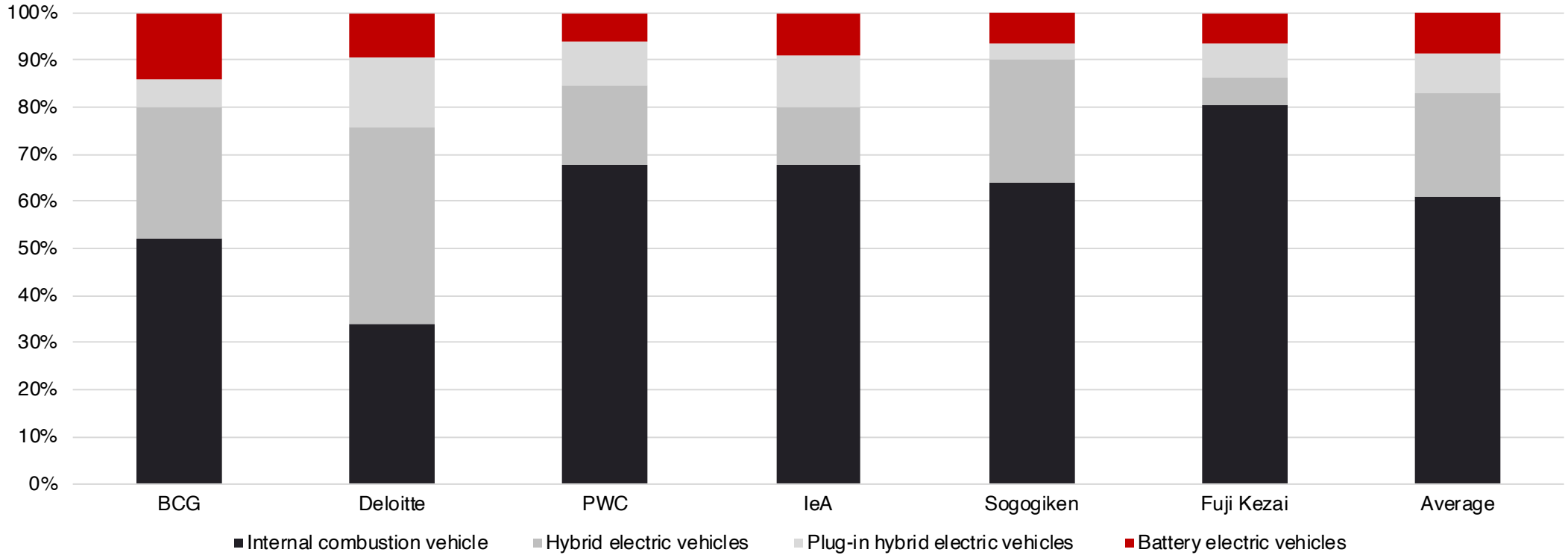
EV sales in Europe this April surged 31% above the same period in 2019 while the rest of the world experienced a decrease



The future

Various consulting firms estimate that by 2030, EVs and hybrids will account for 40% of the global automobile market. Global automakers have little choice but to go along with looming policy pressures. At least $200 billion of investments in EVs are in the books. The winners of this market will be those with the cash and funding to weather the pandemic's impact on the automobile industry and focus on innovation and usability.

EV forecasts by 2030



Want to know more? Read Quartz coverage of electric vehicles.

- 2019 was the year electric cars grew up – to learn how EVs leapt into adulthood.
- Electric cars got crushed in 2020, but next year could be their best – More on the pandemic's impact on the industry and its plan to reboot itself in 2021.
- Tesla's success during the coronavirus in charts – Tesla's proven it can grow and make money at the same time.
- Quartz Presents: Everything you need to know about Elon Musk's plan to change everything – If you want to understand Elon Musk's vision to remake the world.
- Quartz Presents: How batteries will power the future – Learn how batteries are on track to replace fossil fuels and power the world.

You'll also enjoy our member-exclusive field guide on The future of electric cars is China.

Have questions about this presentation, or suggestions for us?
Send us a note at members@qz.com.