

ESG walks into a bar, meets FOMO and TINA...

This is the second of a series of posts on the E, S and G challenges that I encounter as an investor.

This edition highlights the dilemma when thematic ESG investing begins to trump financial logic. Over the past year, certain groups of stocks have been placed on a pedestal as “ESG plays”. Their meteoric price performance perfectly illustrates a positive feedback loop. An initial rally pulls hordes of investors fearing they will miss out (FOMO) on a lifetime opportunity. The resultant spike in market cap drives these stocks into popular indexes, triggering massive amounts of passive ETFs purchases. That finally catalyses the TINA (there is no alternative) effect, when many of the hitherto resistant investors capitulate into buying this narrow bunch.

The best known ESG plays are perhaps the Electric Vehicle (EV) makers – Tesla (TSLA) and the US-listed Chinese trio - Nio (NIO), XPeng (XPEV), and Li Auto (LI). I unequivocally believe that EVs will replace ICE (Internal Combustion Engine) vehicles at a pace that could exceed most expectations. However, the overall auto market size is finite and unlikely to expand meaningfully. Thus, while annual EV sales growth will be optically high in the next few years due to the low base effect, it will then decelerate rapidly.

The EV segment is already extremely competitive. Traditional automakers had recognized the trend early and invested in R&D to create a credible pipeline of EV models. The above pure EV makers do not have a discernible competitive advantage, and the EV segment is likely to be as fragmented as its current ICE counterpart. It is early days to call out winners in the hotly contested autonomous driving technology race that has several tech heavyweights in the fray. Finally, it is critical to remember that the renewable electricity generation is essential to realize the salutary effect of EVs on greenhouse gas emissions.

The EV frenzy takes me back to the year 2000, when the long-term growth prospects of the networking industry had appeared as bright, if not brighter. To be sure, over the subsequent twenty years, networking giant Cisco Systems compounded profits at a solid 10% annually.

Yet, Cisco’s current US\$195bn market value is just over a third of its US\$532bn peak in Mar-2000. Clearly, the fault lay not with Cisco or the networking industry but the overzealous investors. Could we be looking back at these EV stocks with similar wonder at some point?

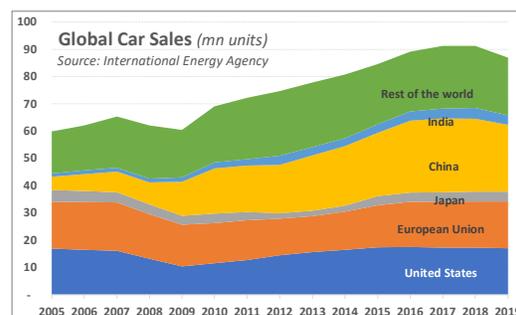
EV maker Nio’s market value (US\$108bn) surpassed that of Volkswagen on 9-Feb-21. Ironically, that was after VW sold 9.3mn vehicles in 2020 that included nearly *ten times as many EVs* than Nio (44k). Moreover, not only did VW’s US\$263bn revenue dwarf Nio’s US\$2.4bn, but it made a healthy US\$8.4bn profit even as Nio lost US\$0.8bn.

In fact, the market value of Tesla plus the Chinese trio exceeded the market value of the top 20 traditional automakers (*by units sold*) combined, on the day.

Total EV market opportunity

Global passenger car sales were stagnating even before the COVID-induced slump in

2020. 91mn new cars were sold in 2017 and 2018 each. That declined to 86mn in 2019.



It is estimated that 1.1bn passenger cars are currently in use around the world. Assuming an average useful life of 15 years, roughly 73mn cars will need to be scrapped each year. Thus, 90mn new car sales would add only 17mn (=90-73) to the global fleet each year.

That is plausible. Many consumers in developing nations are still buying their first-ever cars, but in the US, Europe, Japan, and even in China, the demand is mostly for replacement. Ride-hailing services have been a dampener on the replacement demand, especially from urban, multi-car households.

Therefore, the total addressable market for EVs is simply the 1.1bn global passenger car fleet, growing at 1-3% annually, accepting they completely replace ICE in the long-term.

The pace of substitution will be driven by:

1. government policies and regulations
2. expansion of charging infrastructure
3. supply i.e., car models and price-points on offer, and production quantities, and
4. demand from buyers

Estimates vary widely. IEA forecasts that EVs will be 16-32% of annual car sales by 2030. I am willing to assume that even the higher end of that forecast will be surpassed, with a substitution-curve even sharper than for smartphones and flat-screen TVs. Even then, annual EV sales growth in percentage terms will be optically high only for the next 3-4 years, largely due to the low 3.3mn base in 2020. Aggregate EV unit sales growth will inevitably taper down to the teens thereafter.

Competitive landscape

More importantly, Tesla, Nio, XPeng, and Li Auto have formidable competition from traditional automakers. The analogy of e-commerce overwhelming brick-and-mortar retailers does not apply to EVs. Amazon and Alibaba could achieve unassailable market leadership because entrenched retailers stuck their heads in the sand for a long time.

The situation is clearly different in the auto industry. Toyota, VW, BMW, GM et al identified the EV trend very early, and invested aggressively in R&D to create a credible pipeline of EV models in both premium and mass segments.

Put simply, the EV segment of the car market is shaping up to be a fierce battleground, despite superior growth prospects relative to the ICE segment. The ICE market has been highly fragmented over its long history, with the largest player accounting for less than 12% share. I have found no compelling argument for it to be any different for EVs.

From a hardware perspective, there is no greater scope for product differentiation in the case of EVs than there was for ICE cars.

- Performance specs for EVs are constrained by battery technology, and everyone buys batteries from the same

suppliers – LG Chem, Panasonic, CATL, Samsung SDI, and SK Innovation.

- The body design and aesthetics for each car model needs to appeal to fickle consumer tastes. That is no different for an EV than for an ICE car.
- The traditional automakers, with their extensive service networks have a distinct edge in after-sales service and repairs.
- Any innovation such as Nio's "battery-swapping", if successful, will be inevitably copied by competitors as has been the wont in the ICE era.

Autonomous driving the saviour?

Can autonomous driving be a competitive advantage for the Chinese trio - Nio, XPeng, and Li? Highly unlikely. Nokia's Symbian and Samsung's Bada/Tizen are rude reminders that hardware expertise does not necessarily translate into OS/software nous.

Among the currently available Level 3 (Conditional Automation) and early Level 4 (High Automation) systems, GM, Ford, BMW et al have remarkably similar capabilities and offerings as Tesla, Nio and X-Peng.

In the advanced Level 4 and Level 5 (Full Automation) arena, Alphabet's Waymo, Baidu, and Cruise (owned by GM) lead the way. Argo AI (Ford + VW), Otto (Uber), Mobileye (Intel) and Tesla are the other notable mentions at this point.

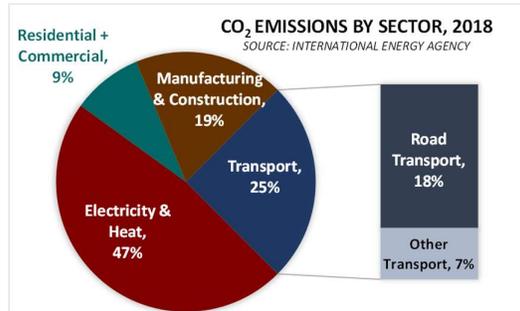
Apple is widely expected to throw its hat in the autonomous driving ring. In fact, rumours of Apple partnering with Hyundai/Kia for an autonomous vehicle had sent the latter companies' stock soaring in early Feb-21. Those talks apparently broke off as Hyundai/Kia did not want to turn into another Foxconn (assembler for iPhones) for Apple.

Just a few weeks prior to that, both Baidu and Tencent had announced autonomous driving partnerships with leading Chinese automaker Geely Group (who also owns Volvo). Details on the Geely deals are sketchy at best.

However, both instances underscore the prevailing fluidity and thus the challenge in pronouncing winners.

Environmental analysis of EVs

EVs have nearly zero tailpipe GHG/CO₂ emissions. However, EVs require electricity not only to run but also at the manufacturing (especially battery) and disposal stages.



The above chart helps illustrate the complexity in comparing lifetime emissions between EV and ICE vehicles. 18% of CO₂ emissions are attributable to ICE vehicles on the road. On the other hand, 70%+ of all electricity in 2020 was generated from burning coal, gas, and biofuels, which contributed to nearly half of all CO₂ emissions.

Thus, in Europe, especially in Norway and Iceland with their low-carbon power supply, EVs have considerably lower life-time emissions than ICE vehicles. But in countries such as China that have coal-intensive electricity generation, EVs have similar lifetime emissions to ICE.

Only when countries decarbonise their electricity generation to meet national climate targets, will driving emissions fall for existing EVs and manufacturing emissions for new EVs.

Finally, the waste challenge posed by EV batteries combined with the demand for cobalt, lithium, manganese, and nickel creates a significant opportunity to develop a circular economy.

Disclaimer: This is not a recommendation to buy or sell any security. All opinions are expressed in a personal capacity and not attributable to my current or any past employer.

Note: There are nearly 0.4bn commercial vehicles (CVs) registered around the world in addition to 1.1bn passenger cars.

Trivia

"There is no alternative," often abbreviated as "**TINA**," is a phrase coined by the Victorian liberal philosopher Herbert Spencer (1820-1903) as a response to critics of capitalism, free markets, and democracy. The slogan regained popularity in the 1980s when Margaret Thatcher invoked it frequently to defend her market-oriented policies.

FOMO, or the "Fear of Missing Out", was coined by Patrick McGinnis in a 2004 op-ed titled McGinnis' Two FOs: Social Theory at HBS in The Harbus, the magazine of Harvard Business School. The article discussed the role of FOMO and a second related condition, Fear of a Better Option (FoBO), in the school's social life.

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