Electric Vehicles—the pros, the cons and Tesla

Electric vehicles (EVs) are increasing their penetration of the market rapidly. Every major auto maker is investing heavily in the technology and an upstart which has a 0.2% market share is a household name. Norway wants all vehicles to be electric by 2025 and, most interestingly, China isn’t far behind. So, are we all going electric in the next decade?

Not necessarily. But there are opportunities being created for investors thanks to this transportation revolution. Ironically though, a lot of those opportunities are with the traditional car manufacturers.

The internal combustion engine is not dead yet

There are four main areas that make us sceptical about how rapidly EVs can take over the world. These are:

- the current reliance on subsidies (or “incentives” if you prefer)
- the inadequacy of battery technology
- the related problem of raw material supply for batteries
- the provision of the infrastructure needed to support EVs.

Subsidies matter a lot still for EVs

EV demand does appear to be reliant on subsidies. Smaller, richer countries without domestic auto industries tax internal combustion engine vehicles heavily but have subsidised EVs. When a Tesla costs less than a VW Passat, as it does in Norway, then it is no surprise that more are buying a Tesla. When a Tesla costs around 3x as much as a VW Passat, as it does in Italy, then the reverse is true!

Battery technology is a handicap

Battery production is still centred on the Lithium-ion battery where science has only come up with incremental improvements. Even then, successfully improving the efficacy of a battery in a laboratory does not automatically mean the improvement is scalable from a manufacturing standpoint.

Raw material availability is also an issue

At present the global reserve lives of the key commodities needed to make batteries - cobalt, nickel and copper - are 70, 39 and 36 years respectively. As EV demand accelerates, new sources of each must be found or prices must rise. Initially the latter is more likely, particularly given the long lead times between finding a new deposit and being able to mine it.

More infrastructure investment is needed

EVs need charging points. That requires investment, both at the roadside, and in the aggregate electricity grid.
Roadside charging is expensive. In Norway, where EVs have 39% market share, consumers currently pay 3x more at a charging station than the price paid at home. Here in the UK, Shell is opening fast-charging stations where pricing starts 70% higher than at home but rises to 3x more.

The EV industry expects only 10-30% of charging needs being met with roadside infrastructure. The rest can be done at home or work. People charging cars in the evening adds to demand when there are already supply constraints. Ultimately this will require significant capital expenditure by the utility companies. In Europe alone estimates range from €70-165 billion, figures which could prove extremely conservative.

Finding the winners

Despite these issues, the direction of travel, globally, seems clear. We are going to see more and more EVs. Traditional car manufacturers were slow to recognise the trend but tougher regulatory regimes over diesel in Europe, and China striving for rapid EV adoption, has encouraged many of them to fast-track EV production.

Headline targets are suggesting 25% of sales to be electric by 2025. This may be ambitious but BMW and Mercedes are now claiming they can build EVs on the same platforms and same lines that produce their internal combustion engines. We expect this to be a profitable strategy if it can be delivered.

As for the upstarts, there is much to be admired about Tesla’s model. The brand has unparalleled consumer awareness and it has created a premium product. But whether the company can produce the high volume of cars required to earn a reasonable margin remains to be seen. In addition Tesla service centres have been overwhelmed with production of just 5,000 cars a quarter. If Tesla successfully ramps up production it could create huge service issues.

In our view, the investment opportunity in the west will be to focus on finding the winners among the traditional manufacturers. In China there could be local winners too, which is one reason we will return to this theme in future reports.

By Tommy Faber & William Dinning
Risk Warnings

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