Case Study on Aptiv Plc (APTV)

TRAN CAPITAL MANAGEMENT

Aptiv (APTV) is a leading tier-1 supplier to the global automotive industry, providing components, solutions, and software that enable the transition to software-defined autonomous vehicles and battery electric vehicles. Aptiv designs and manufactures electrical architecture solutions, such as connectors, wiring harnesses, and electrical distribution systems, that provide signal and power distribution throughout vehicles. It also provides vehicle safety solutions, such as sensors, domain controllers, and software, that enable advanced safety and autonomous driving.

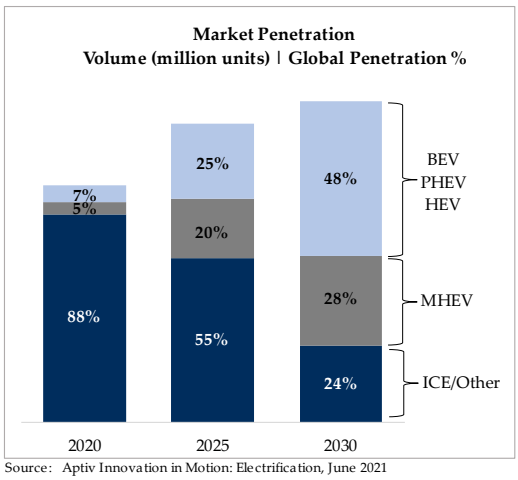
Aptiv's customers include 25 of the largest auto original equipment manufacturers (OEMs) in the world, including incumbent OEMs such as Stellantis, Volkswagen, and General Motors.[i] The company counts numerous electric vehicle companies, including Tesla, as customers as well.

RELEVANT MEGATRENDS

Reduction of global greenhouse gas emission (GHG) through the transition to electric vehicles: From consumers to world leaders, society is becoming increasingly aware of the threat of climate change. Global treaties such as the Paris Agreement have committed countries to play a role in limiting the rise in global temperatures to below 2 degrees Celsius and preferably below 1.5 degrees compared to pre-industrial levels. Reducing GHG emissions is essential to meeting these goals. In 2016, global GHG emissions were estimated at 49.4 gigatons of CO_2 equivalent with road transportation accounting for ~12% of emissions.[ii] In the U.S., the share of emission from the transportation sector and road transportation are even higher at ~29% and ~24% of 2019 GHG emissions, respectively.[iii] In response to governmental mandates and changing consumer preferences, auto manufacturers are shifting production roadmaps from gasoline and diesel internal combustion engines (ICEs) to battery electric and hybrid electric vehicles. A 2020 Boston Consulting Group study estimated that the production of battery electric (BEV), plug-in hybrid (PHEV), and fully hybrid electric (HEV) vehicles will increase from 7% of global auto production in 2020 to 25% of global production by 2025 and 45% by 2030.[iv]

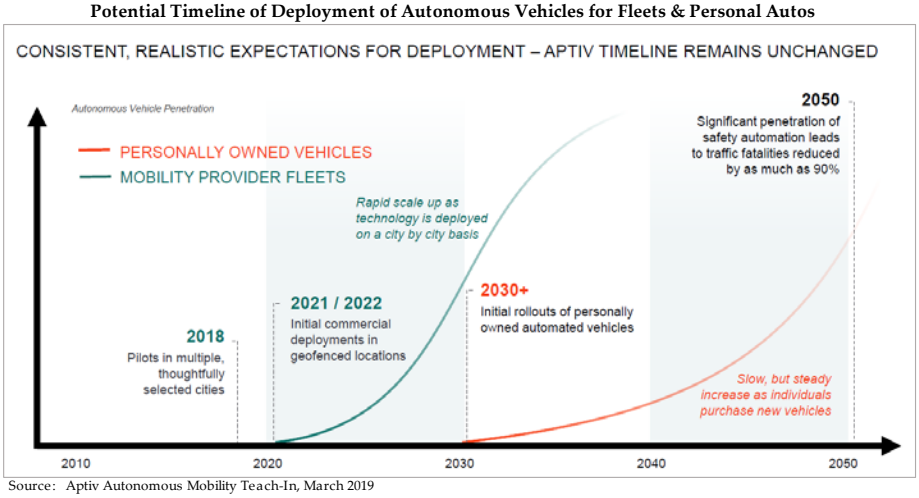
Active safety & autonomous driving reducing vehicular accidents and driver deaths: Roughly 1.3 million people die each year due to road traffic accidents with an additional 20 to 50 million people estimated to incur non-fatal injuries.[v] While a variety of factors (weather,

Market Penetration of Electric Powertrains



Source: Aptiv Innovation in Motion: Electrification, June 2021

Potential Timeline of Deployment of Autonomous Vehicles for Fleets & Personal Autos



Source: Aptiv Autonomous Mobility Teach-In, March 2019

road conditions, and speeding, etc.) can play a role in these accidents, so too do human error and distracted driving. Today, advanced driver assistance systems (ADAS) are becoming increasingly commonplace in new vehicles through features such as collision warning, automatic emergency braking, lane assists, blind spot detection, and rear cameras. Over the next decade, the auto industry will move from the Level 2/2+ systems today that provide partial assisted driving toward Level 4 & 5 systems that are considered fully autonomous with no human interaction.

HOW IS APTIV POSITIONED

Aptiv enables the transition to hybrid and battery electric vehicles and increased autonomous development through its unique set of components, systems, and software. Through its Active Safety & User Experience business, Aptiv provides auto OEMs with sensors, perception systems, electronic control units, and domain controllers used by today's advanced safety features and tomorrow's driverless vehicles. In addition, Aptiv provides the application software used for its products and, through the acquisition of Wind River, the middleware sitting between its application software and vehicle operating systems as well as a platform for real-time management of edge devices (e.g., autonomous vehicles). We believe that Aptiv's win rate in Level 2/2+ active safety systems in north of 70%, positioning the company well for future levels of autonomous driving.

These components, however, require electrical power to run and a means of transmitting signals and data for compute. Aptiv's Signal & Power Solutions business provides wiring harnesses, cables, connectors, power distribution boxes, and battery disconnect units that not only distribute high voltage power throughout the vehicle but also provide the signal distribution and computing power backbone needed for increasingly software-defined vehicles. Given Aptiv's leadership position in electrical architectures and wire harnesses, we believe the company will continue to capture share. Aptiv notes that it has content on 1 out of every 3.5 low voltage vehicles today but has content on 1 out of every 2 battery electric vehicles being launched between 2020 and 2022.

We expect that these megatrends will not only allow Aptiv to increase its market share *of vehicle platforms* but also its share of *content on vehicle platforms.* Aptiv estimates that the dollar value of content sold for BEVs is ~2.5x that of traditional ICEs ($500 vs. $1,200 per vehicle). Meanwhile, Aptiv sees an exponential increase in content with more advanced ADAS systems, estimating ~$500 of content in Level 2 systems compared to $750 to $1,000 for Level 2+ and $4,000 to $5,000 for Level 3.

With the first step in autonomous driving likely coming from mobile fleets such as ridesharing, Aptiv also formed a joint venture with Hyundai aimed at developing Level 4 & 5 autonomous vehicles. The joint venture, named Motional, has partnered with Lyft to test fully driverless vehicles in Nevada with the goal of launching driverless robo-taxis in multiple U.S. cities in 2023.

ESG MATERIALITY

We believe that Aptiv's leading position as a key supplier of components, systems, and technology that enable the transition to electric vehicles and autonomous driving will allow the company to achieve its targeted goal of growing 8% to 10% above global auto production. We believe that market share gains combined with growing content per vehicle will translate to above industry revenue growth along with an expansion in margins and cash flow generation over the long term.

[i] Stellantis was formed through the merger of Fiat Chrysler with PSA Peugeot Citroën in 2021
[ii] Climate Watch, the World Resources Institute, 2020
[iii] United State Environmental Protection Agency, 2019
[iv] Bostic Consulting Group Analysis via Aptiv's Innovation in Motion: Electrification event, 2021
[v] World Health Organization, 2021

Important Disclosures

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Aptiv was chosen for this case study as an example of an investment with positive ESG characteristics that create a positive financial opportunity. This is not representative of all the securities in the strategy. The entire portfolio is available upon request.