Chips down for Autos?

October 21, 2021 I Ratings

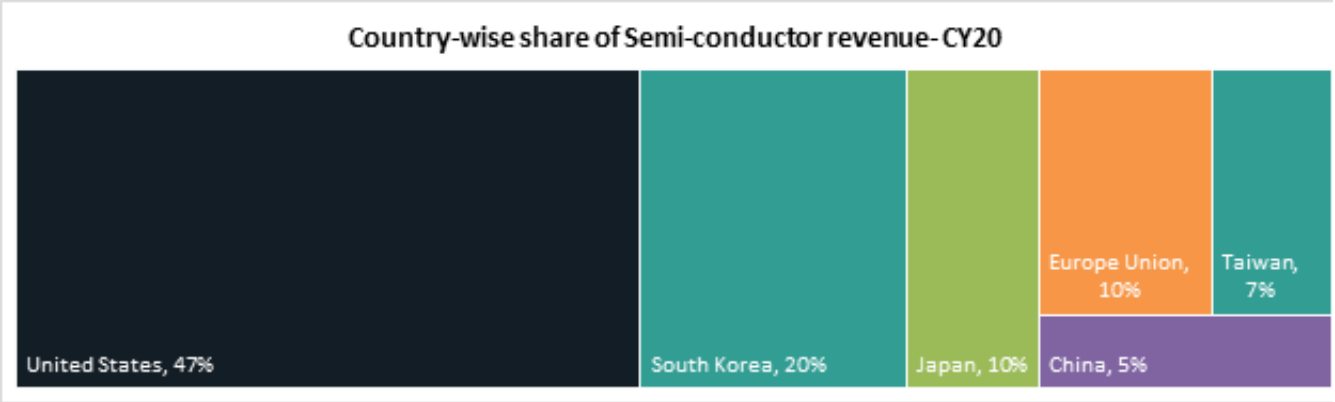
The revival trajectory of the automotive industry appears to be facing turbulence due to prolonged but recently exacerbated semi-conductor shortage. While the major regulatory challenges such as transition to BS VI, higher insurance costs, change in axle load norms and other challenges such as Covid-related disruption, liquidity crisis, general economic slowdown, etc, are under rear view mirror now, the ongoing semi-conductor shortage is keeping the industry in commotion. In this backdrop, original equipment manufacturers (OEMs) are induced to consider rollbacks in the production and explore alternatives such as shift to lower-end variants or focusing on high-margin models. Owing to higher usage of semi-conductors, Passenger Vehicles (PVs) are witnessing greater impact than Commercial Vehicles (CVs), Two-wheelers (2Ws) and Tractors. Accordingly, PV demand shall continue to outpace the supply in the near term. Top PV players viz. Maruti Suzuki and Hyundai Motors, which aggregately holds more than 50% of domestic PV market share, reported Y-o-Y decline of 36% and 27% respectively in aggregate sales volumes in Aug 21 and Sep 21. This apart, Maruti Suzuki has announced to cut the production of PVs by 40% in the month of October-21 due to chips shortage. Aggregate PV production and sales declined by nearly 20% YoY in August 21 and September 21. Global automotive players like Ford Motor Company, Daimler AG, Toyota Motor Company, Tesla Inc., General Motors Company and Nissan Motor Co. Ltd. have also witnessed YoY decline in the range of 15% to 40% in overall vehicle sales volume during Sep-21, in automotive market of United States amidst chips shortage. Although there is significant expansion lined up in global semi-conductor industry, high capital intensity and long gestation periods associated with setting up of facilities are expected to keep the ongoing chips shortage intact at least in rest of FY22. While OEMs have considered recent price hikes to off-set the impact of rising commodity prices, the increasing chips prices could induce them to take further price hikes to safeguard the margins. However, any significant price hikes may dampen the consumer sentiments considering vehicle ownership costs are already elevated due to unprecedently high fuel prices. Moreover, any changes in the product mix due to shift towards lower-end variants could also lead to lower profitability with typically low margins associated with such variants.

Hiccups continue amidst strong recovery post pandemic

Automotive is one of the critical sectors of Indian economy and serves as one of the most important drivers of economic growth. Past few years have been a roller-coaster ride for the sector as it witnessed slew of regulatory changes in the form of transition from BS- IV to stricter BS-VI emission norms, introduction of new axle load norms together aimed at controlling vehicular emission and carbon footprint in the country. These regulatory changes took place alongside the overall slowdown in the economy, non-banking financial company (NBFC) liquidity stress, higher insurance and ownership costs, resulting into one of the steepest falls in overall volumes for PVs as well as CVs in FY20 (refers to the period April 1 to March 31). Just when the industry was attempting to overcome these challenges, outbreak of Covid-19 pandemic came as a hammer blow to the sector resulting into FY21 being one of the worst years in the automobile industry, with sales in all segments (except tractors) plummeting to multi-year lows. The second half of FY21 was though not as disruptive as the first half, and contrary to majority sentiments, the automotive industry witnessed faster-than-anticipated recovery owing to greater preference to personal mobility post Covid, pent up demand, festive and wedding season, and uptick in the rural demand for two-wheelers. At the beginning of current fiscal, the outbreak of second wave of Covid-19 pandemic attempted to stall the automobile industry again. However, resilient demand and consumer sentiments drove the sector back on track, with only May 2021 remaining subdued in terms of sales volumes. While the current demand seems robust and sustainable, the latest addition in the list of disruption is semi-conductor shortage which has kept the global auto supply chain in turmoil for last few months. Owing to shortage of such tiny silicon chips, most of the global and domestic OEMs have announced significant production cuts. Going forward, CARE Ratings believes that chip shortage is expected to keep the production similarly subdued and dispatches impacted for the next few quarters. Accordingly, underlying demand is likely to spread to forthcoming quarters.

Semiconductor and its usage in auto industry

Semi-conductors are critical components used in the manufacturing of automobiles (mainly PVs). A typical passenger vehicle is an assembly of more than 25,000 parts, ranging from most critical engine components to transmission and steering, from body to chassis, from suspension to braking systems, and other electrical components. Amongst such parts, a modern vehicle, has hundreds of semiconductor chips installed depending on the level of automation and electrification to serve various functions like navigation control, heads-up displays, collision detection systems, infotainment systems, other sensors, etc. With progressive shift towards electric vehicles and increasing automation in vehicles, the usage of semi-conductors is going to increase steadily. As per the Semi-conductor Industry association, around 12% of the total chips manufactured globally were applied towards the automotive industry in CY20 with major application towards safety and body segment. Based on CY20 (refers to the period January 1 to December 31) revenues, United States of America (USA) has been the largest manufacturer of semi-conductors with nearly 47% market share followed by South Korea, Japan, and Taiwan. Infineon Technologies, a German manufacturer holds the largest market share in the automotive segment.



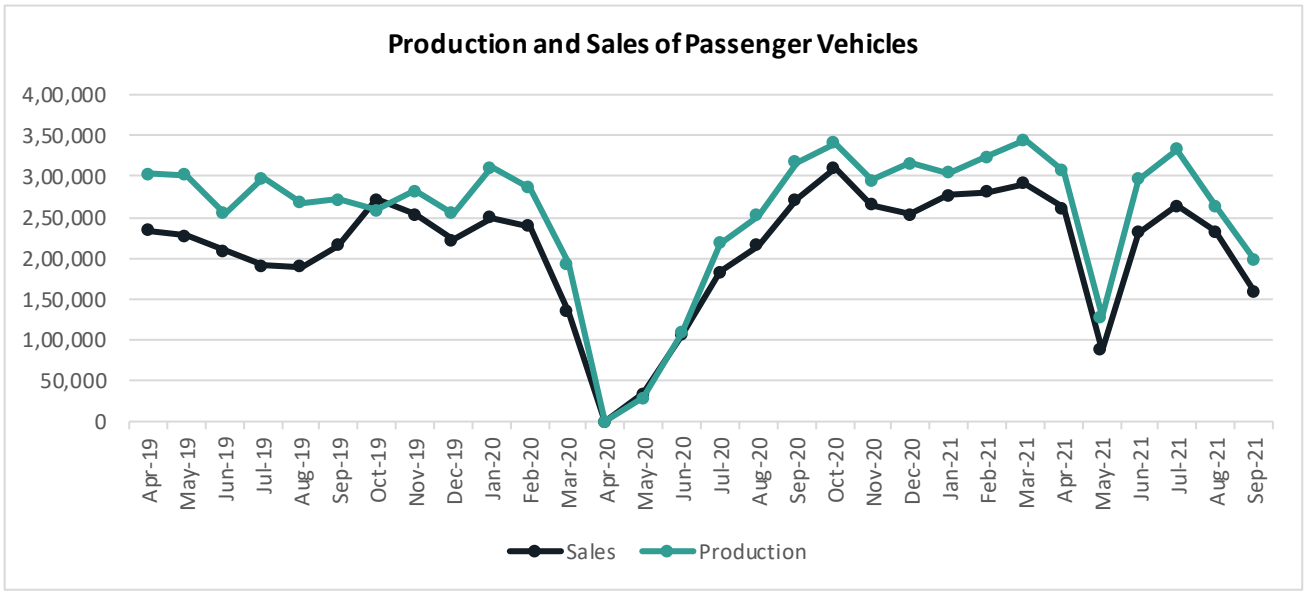
Source: Semiconductor Industry Association (SIA); CARE Ratings

Beginning of shortage

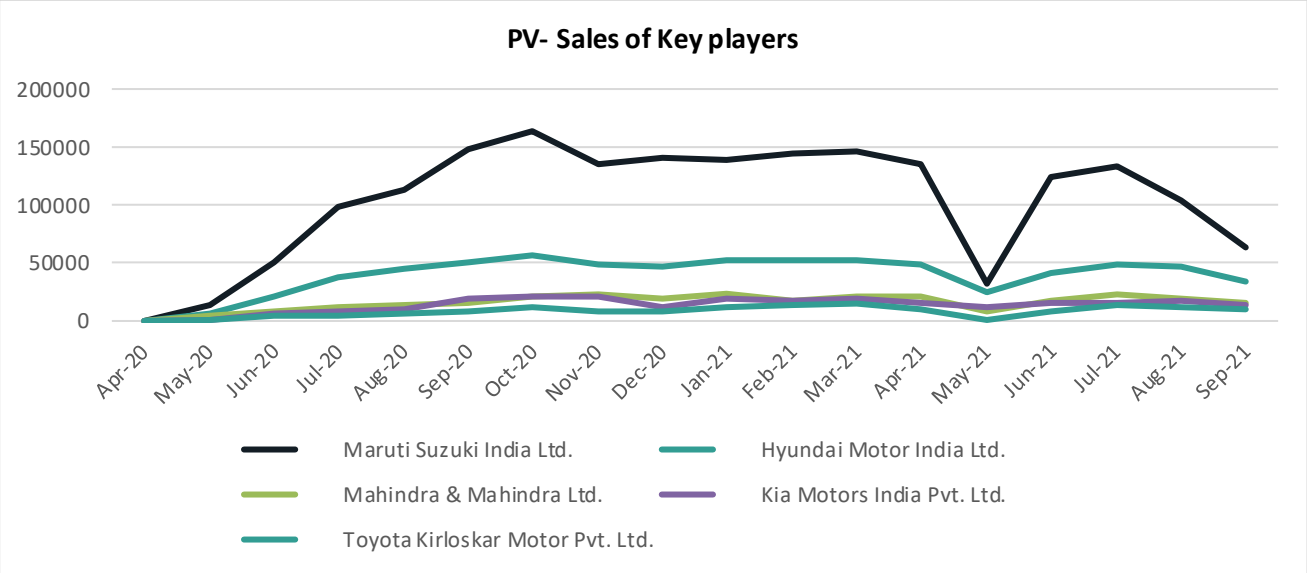
The signs of global semi-conductor shortage began to appear in the second half of FY21 just after reopening of economies post abatement of the first wave of Covid-19. With outbreak of Covid-19, the auto sector witnessed significant decline in demand globally, whereas the demand for electronic gadgets and devices was on upward trajectory due to greater usage of laptops, smartphones, gaming consoles, and other electronic devices. The uncertain demand scenario in the automobile sector induced carmakers to continue relying on 'just in time' approach for procurement, resultantly, the semi-conductor industry had to make opportunistic shift to cater to other applications. Post reopening of economy, a faster-than-anticipated surge in automotive demand and continued buoyant demand from electronics segment led to significant jump in semi-conductor's demand. This apart, power outage in Texas, USA, fire blaze at factory of Renesas Electronics, one of the key suppliers of semi-conductors to the automotive sector, and water scarcity in Taiwan due to drought, created substantial supply constraints thereby creating a global semi-conductors demand supply mismatch. Lately, lead time for tiny silicon chips also increased considerably with dearth of containers coupled with surge of Covid-19 cases in some of the Asian countries.

Impact of chips shortage

With acute shortage of chips, many domestic and global OEMs, have started announcing substantial rollbacks in their production. PV segment remains the most impacted segment due to typically high usage of semi-conductors as compared to 2Ws, tractors or CVs. Domestically, production and sales volumes of PV segment are on declining trajectory since August 2021, after increasing in June 2021 and July 2021 due to upsurge in demand. Accordingly, domestic PV industry has witnessed YoY decline of 20% and 19% in aggregate sales and production volumes of August 21 and September 21, respectively. Top players viz. Maruti Suzuki India Limited and Hyundai Motors India Limited, which aggregately holds more than 50% of domestic PV market share, reported Y-o-Y decline of 36% and 27% respectively in aggregate sales volumes of Aug 21 and Sep 21. This apart, Maruti Suzuki has announced to cut the production of PVs by 40% in the month of October-21 due to chips shortage. Global automotive players like Ford Motor Company, Toyota Motor Company, Tesla Inc., General Motors Company and Nissan Motor Co. Ltd. have also witnessed YoY decline in the range of 15% to 40% in overall vehicle sales volume during Sep-21, in automotive market of United States.



Source: CMIE, CARE Ratings

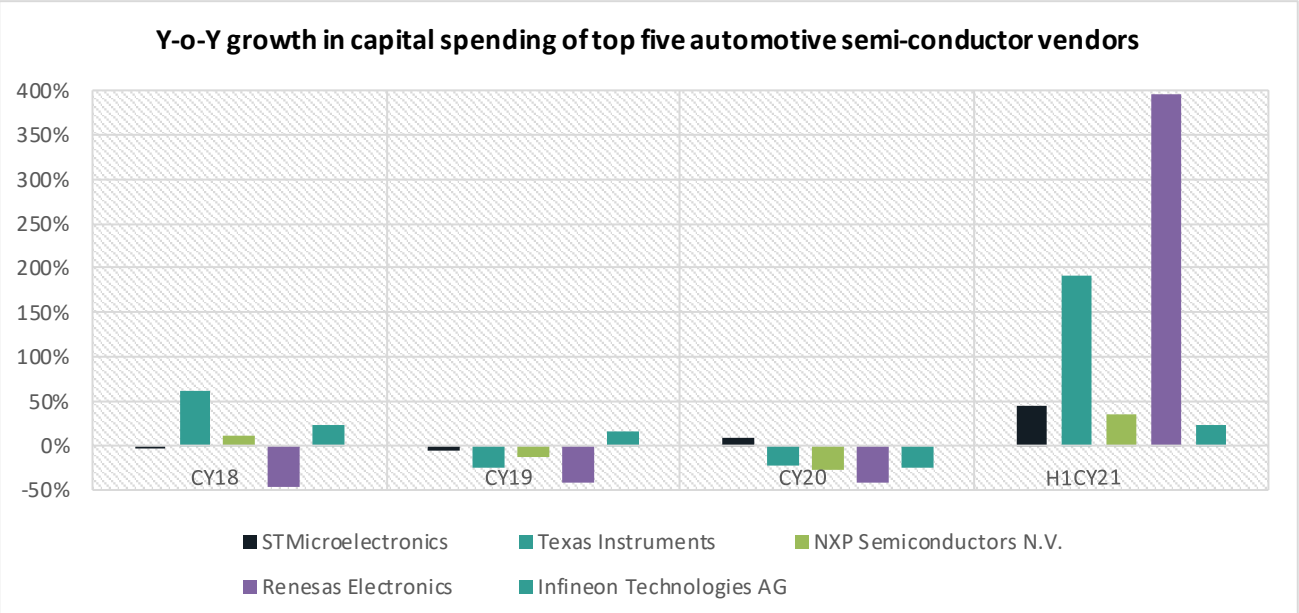


Source: CMIE, CARE Ratings

For regular PVs, the chip content ranges from US$400 to $600 per vehicle, while chip content is higher by 7-10 times for highly automated and electric vehicles. Considering higher content, PVs are expected to have a greater impact, especially ones in the premium segment. To counter this challenge, the Indian PV OEMs are exploring alternatives to manufacture the lower-end variants of vehicles which consists of limited number of chips. Nevertheless, the production volumes of PVs are likely to remain subdued and waiting period for higher-end variants of PVs is expected to remain long. Furthermore, since the auto component production is largely reliant on OEMs, the auto ancillary industry players especially which caters to PVs are also expected to witness similar headwinds till the time chips shortages persist. While OEMs have considered recent price hikes to off-set impact of rising commodity prices, an increasing chips prices could induce them to go for more price hikes to maintain the overall profitability. However, any significant price hike may dampen the consumer sentiments considering vehicle ownership costs are already elevated amidst high fuel prices. Moreover, changes in the product mix with higher shift towards lower-end variants could also lead to lower profitability with typically low operating margin associated with such variants.

Capex in semi-conductor industry to deal with the shortages

The persisting shortage of chips has led the semi-conductor manufacturers to consider undertaking massive expansion of the existing capacities in current year. As can be inferred from the below chart, top five automotive semi-conductor players have registered significant YoY growth in capital spending in the H1CY21 following subdued spending in the past three fiscals.



Source: Companies Reports & Presentations; CARE Ratings Note: Above period (calendar year) for Infineon Technologies AG refers to October 01 to September 30, Y-o-Y growth in H1CY21 refers to growth in capital spending with respect to first half of previous calendar year (CY20)

While, the industry players are focusing on expanding their capacities, the Governments across the world are also proposing initiatives to support semi-conductor manufacturing in their respective countries. The United States Senate approved a bill to invest USD 52 billion for semi-conductor research, design, and manufacturing. The Japan Ministry of Economy, Trade and Industry announced a 'national project' to provide aid to the industry and in line with the plan, Japan has also recently signed a deal of JPY 37 billion with Taiwan Semi-Conductor Manufacturing Company (TSMC) to develop high-tech chip capacity in the country. South Korea has also announced in current fiscal, a plan to invest USD 451 billion in semi-conductor industry over the next 10 years. China, which is the biggest consumer for semi-conductors, has also build up a plan to become self-sufficient, driven by global chip shortage and US sanctions on Chinese tech entities. India, which is nearly fully dependent on imports, is also emphasizing on manufacturing of semi-conductors in India. Indian conglomerates, such as the Tata group, have also expressed interest in venturing into high-tech manufacturing. With greater level of planned capital spending, the global wafer capacity is expected to witness double-digit growth in the medium term. Although there is significant expansion lined up in the semi-conductor industry, capital intensive nature of the industry and long gestation associated with setting up of facilities are expected to keep the ongoing chips shortage intact in the immediate future.

Concluding remarks and credit impact

The chips shortage has disrupted the end-user industries since November 2020. While there are no immediate signs of abatement of the crisis in the near term, the situation is expected to gradually improve in next financial year as global supplies improves from disrupted levels and electronics and automotive demand moderates post festive season. Accordingly, PV production and sales shall continue to remain hampered by semi-conductor shortage in the remaining period of FY22. Owing to shortage of semi-conductors and delays in dispatches due to shortage of containers, waiting period has already crossed a quarter for some of the prominent models and it might increase further. Retail inventory levels for PVs are significantly down to 15 days as against 35-40 days usually during festive season. The same may keep festive discounts and bargain deals muted this year. The impact on other segments is limited and CVs shall continue to register considerable growth due to low base effect and growing infrastructure and capex spending. Two-wheeler demand is also expected to witness an upside in coming months due to the festive seasons and gradual reopening of educational institutions with personal mobility gaining significance after Covid-19.

Riding on the back of strong demand driven by increased infrastructural, consumer discretionary spending, preference for personal mobility, cost optimization measures and low base of FY21, CARE Ratings estimates most of its rated auto and auto ancillary companies to report improvement in their earnings profile during FY22. However, uptick in earnings is likely to remain constrained due to high metal prices and limited ability of the companies to consider frequent price hikes. Furthermore, semi-conductor shortage induced shift towards lower-end variants may further limit the profitability of industry players. However, liquidity for majority of the players is likely to remain adequate for FY22 characterized by healthy cash accrual generation and limited capital expenditure requirement due to deferment of non-essential capex. Resultantly, improved trend in overall credit quality of auto and auto ancillary companies in H1FY22 is expected to sustain in short to medium term.

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