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Grab Your Popcorn – The Chip Shortage and Other Disruptions Are Expected to Continue into the Near and Medium Term

Article By:

In our April 7th article, *Vehicle Sales Continue Their Depression*, my colleague Jeff Soble provided some valuable insight into the current state of supply and demand issues impacting the automotive sector. In that article, Jeff noted how certain manufactures feel they are "riding a bit of a roller coaster due to fluctuating parts supply issues." Of all the asset classes used in the modern vehicle is this more apparent than the silicon semiconductor shortage which has become the posterchild for disruption and market share acquisition.

In our article, Jeff highlighted how General Motors improved their supply of semiconductors over previous periods and compared to their competitors, which enabled them to see significant market share acquisition in truck segments. As with most instances of capturing market share in a mature market, this is a zero-sum game and it means other manufacturers ultimately lost market share. While General Motors may have been able to see market share growth and some semiconductor supply normalization, this wasn't the case for other manufacturers around the globe. Adding into that calculation the additional geopolitical disruptions that have arisen in the first half of 2022, the issues to supply and manufacturing have only been exasperated for many.

Volkswagen Group's Porsche and BMW indicated in March 2022 that supply disruptions caused by Russia's invasion of Ukraine negatively impacted their supplier's ability to source wiring harness components. As a result, these two manufacturers have seen significant delays and production downtimes, in some instances causing production pauses. But, wiring harnesses from Ukraine aren't the only items being impacted by the Russian invasion: Neon gas production is the next frontier of semiconductor disruption.

As I'm sure is news to many of us lay-people, 45% to 54% of the world's semiconductor-grade neon, critical for the lasers used to make semiconductors, comes from two Ukrainian companies, Ingas and Cryoin. Global consumption of neon, specifically in semiconductor production, reached about 540 metric tons last year alone. As the Russian invasion has unfolded, these two Ukrainian suppliers shut operations as the Russian siege moved deeper into their country. This move increased the concerns over the semiconductor industry's ability to ramp up semiconductor production as they recovered from COVID-related production constraints.

While many semiconductor manufacturers did make “advanced preparations” and stockpiled neon, supplies in many instances were only meant to provide near-term coverage for moderate disruptions and long-term sustained disruptions will continue to impact the ability of the semiconductor industry to recover. Adding to this disruption, prices for the supply of neon from non-Ukrainian suppliers has continued to rise, leading to increased prices for raw materials. As a result, these incremental price increases along the supply chain will inevitably make their way into end products and their impact won’t be lost on consumer’s pocketbooks.

When you add into the mix that modern cars are ushering in Automotive 2.0 technologies, like electric power trains, connectivity, and autonomous features, a shortage in semiconductors is one of the last things we want to be experiencing. With smarter vehicles comes multiples more semiconductors than our traditional internal combustion vehicle. But all is not lost on the ability for vehicle supply to normalize. While some manufacturers expect the semiconductor shortage in its entirety to continue into 2024, foundry capacity for semiconductor production is back to normal capacity and with that many expect to see signs of supply normalization by the end of 2022. Of course, trying to predict anything in the modern automotive sector is a fool’s errand. That said, the years 2020 until now have shown the automotive sector is now more resilient and innovative than ever before.

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