

MARKET VIEW

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“When the chips are down”



Laurent DENIZE,
CIO Asset Management



Jan VIEBIG,
CIO Private Wealth Management

How the shortage began

The global economy is currently being hit by an unprecedented shortage of electronic components. Automakers and other manufacturers are no longer being properly supplied. The beginnings of the shortage go back to the second quarter of 2020.

After a very strict lockdown in the first quarter of 2020, industrial demand in China suddenly took off in the second quarter, squeezing a large number of global manufacturers.

Meanwhile, the main Chinese smartphone manufacturers (Oppo, Vivo, and Xiaomi) launched a pitched battle to supplant Huawei on the market via “double dose” orders of chips and electronic components, thus drying up the supply available to their direct competitors.

In the fourth quarter, automotive demand, in turn, revived, with an additional boost to semiconductor demand coming from the transition from internal combustion engines to electric ones.

And, lastly, during this “stay-at-home” time, there was never any slackening in semiconductor demand for PCs, smartphones, video games and so on.

More recently, in February 2021, bad weather made things even worse, with the partial shutdown of components factories. Blackouts caused by the great Texas freeze of February 2021 hit major production facilities of Samsung Electronics, Infineon and NXP, while an earthquake in Japan shut down Renesas’ Naka fab for two days.

The semiconductor market is dominated by a duopoly: TSMC (of Taiwan) and Samsung Electronics (of South Korea), which have relegated other companies (Global Foundries, UMC and SMIC, for example) to satellite roles. TSMC and Samsung fabs are clearly where the bottleneck of the entire global

What exactly are semiconductors?

“Semiconduction” is the property of a base material used in making integrated circuits. When we talk about the semiconductor industry, by extension we also talk about the industry that makes integrated circuits, an industry that took off in the 1980s with the advent of the personal computer and has now become a basic component of the digital revolution.

semiconductor chain is happening. With their order books stuffed full, they can raise their prices and, most of all, choose their customers and focus on the “leading edge” (the most profitable part of the market), mainly customers like Apple, Qualcomm, Nvidia, AMD and Mediatek, leaving the less profitable “the lagging nodes” to their Greater China competitors, such as UMC and SMIC, for example. However, the race is far from being over. Intel recently announced it would invest 20 billion dollars in semiconductor fabs, the opening salvo in a “tech war” with the leaders.

Macroeconomic impacts

As semiconductors account for about 12% of US GDP, the shortage could raise goods inflation (significantly) and undermine growth prospects. By how much?

Goldman Sachs estimates that the impacts could be as much as 40bp more core inflation and 60bp less global GDP in 2021. As for inflation risks, elasticity of demand tends to be rather high for semiconductor-dependent products, such as consumer electronics and cars. The market remains highly inflation-sensitive, and this will inevitably exert pressure on

central bankers. Even so, we continue to see this as a transitional skewing of supply and demand (although we may be emerging from a disinflationary cycle) that is unlikely to have a serious impact on global growth.

The repercussions are likely to vary from sector to sector.

According to Goldman Sachs, smartphone makers like Apple, for which semiconductors are a major component in production costs, are being hit head-on by higher prices of these components (for their memories, modems, 5G SoCs, antennae, and RFs). Apple will be unable to pass on all of the higher component prices in its sale prices, due to stiff competition from “Android world” (Samsung, Vivo, Oppo, and Xiaomi), and it has foregone price hikes on its iPhones.

Automakers, for whom semiconductors account for a smaller portion of production costs, will be able to pass on this higher cost more surreptitiously into their final vehicle prices.

At this writing, semiconductor inventories are once again being squeezed, and lead times (i.e., the time between when a microcontroller is ordered and when it is delivered to, say, the automaker) are still being stretched out. Distribution chains (involving manufacturers, distributors and end-customers) are just now beginning to return to normal, a process likely to last several quarters.

Geopolitical impacts

Taiwan has long been the subject of a diplomatic ambiguity. On the one hand, Beijing believes that there is just one China and that Taiwan is a rebel province. On the other hand, Washington “politically” has a “one-China” policy but “economically” considers Taiwan as an entity in its own right.

It so happens that Taiwan is a crucial player in the global semiconductor industry. According to IC Insights (the industry’s leading market research firm), as of the end of 2019, it hosted 21.6% of global semiconductor production capacities (with fab owners from many different countries), ahead of South Korea (20.9%), Japan (16%), mainland China (13.9%), North America (12.8%) and Europe (5.8%). TSMC and Mediatek are the global semiconductor stars, but Taiwan also houses dozens of other players in the semiconductor value chain, such as Realtek, Novatek, Phison and Silicon Motion.

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ODDO BHF

12, boulevard de la Madeleine - 75440 Paris Cedex 09 France - Phone: 33(0)1 44 51 85 00 - Fax: 33(0)1 44 51 85 10 - www.oddo-bhf.com

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Taiwan thus plays a key role in Sino-US relations, and a conflict would have serious repercussions. Although no treaty is in place requiring the US to defend Taiwan (not even the Taiwan Relations Act), US passivity would de facto, make Beijing the dominant power in Asia. Most importantly, the very concept of Pax Americana in Asia would collapse, as US allies realised that they could no longer count on the US to defend them. Another motivation for US intervention would be the fact that, based on data from research provider Gartner, TSMC manufactures more than 50% of the semiconductors of leading US companies, such as AMD, Nvidia, Qualcomm, Intel, etc.

The United States (in consultation with Taiwan) must ensure that war would be too risky for Beijing. Deterrence will require more intense cooperation in areas such as global healthcare, the economy and regional security. Safeguarding supply capacities or – let’s just come out and say it – economic supremacy has overshadowed traditional weaponry-based deterrence as a policy of defense. The ultimate weapon now is a component measuring a few nanometres, and any shortage will make tensions worse.

How should portfolios be adjusted?

We have chosen to steer clear of tech companies whose products are heavy in electronic components. Regardless of how much they can raise prices, in such a competitive environment they will be unable to transfer the full cost to the consumer. However, the auto and industrial sectors are, on the whole, able to pass on higher prices in a less obvious way. This makes these two sectors attractive, especially as in our view, valuations remain reasonable, particularly in Europe.

Investors could seek value creation exposure to semiconductor players themselves. But, in our view, “pickaxes” (i.e. suppliers) are a better investment than “shovels” (i.e. chipmakers), where barriers to entry are too high.