



Case summary

30. March 2021

GlobalWafers' acquisition of silicon wafer manufacturer Siltronic cleared

Sector: Silicon wafers for the semiconductor industry

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The Bundeskartellamt has cleared the planned acquisition of the majority of shares in and control of Siltronic AG, Munich (Siltronic) by the Taiwanese company GlobalWafers Co. Ltd. (GlobalWafers) within the one-month first phase of merger control. The worldwide investigations have shown that the merger is not expected to significantly impede effective competition in the relevant market. The merger will enable GlobalWafers to achieve a market position comparable to those of the leading Japanese manufacturers ShinEtsu and SUMCO. However, the customers, many of which have considerably more financial power and higher turnover and can exert sufficient countervailing buyer power e.g. due to elaborate procurement strategies (such as multi-sourcing and shifts in quantity), will still have sufficient alternative suppliers to choose from after the merger. For these reasons, amongst others, the merger is also not expected to generate coordinated effects.

The parties to the merger manufacture and supply silicon wafers, an essential input product in the semiconductor industry. GlobalWafers is controlled by Sino-American Silicon Products Inc., based in Taiwan. The cleared merger concerns the intended acquisition by GlobalWafers of all the shares in Siltronic AG (including a 30.8 percent share currently held by Wacker Chemie AG) by way of a public takeover bid.¹ In the past years the Taiwanese wafer manufacturer has constantly expanded its position on the international market, also with additional acquisitions. Ranking behind ShinEtsu and SUMCO and ahead of the Korean manufacturer SK Siltron, Siltronic AG, based in Munich, has attained a market position comparable to GlobalWafers' in terms of market shares and, also according to information obtained by the Bundeskartellamt from a survey of market participants, the company is currently the technological leader in specific product segments.

¹ The minimum acceptance threshold which had been reduced to a total of 50% of the shares in Siltronic was reached within the time frame provided for in the takeover bid.

Market environment and market definition

Silicon wafers are approx. 1mm thin silicon plates with an extremely flat and even surface. They serve as base plates for manufacturing many different semiconductor components (such as processors or memory chips).

The manufacturing process of a silicon wafer can be roughly divided into three steps. In a first step, different procedures are used to grow silicon crystals into cylindrical “silicon ingots”. Thin plates with different diameters (e.g. <150, 150, 200, 250, 300 mm) are then cut from the silicon ingots and polished. The respective wafer manufacturer or third parties can finally process the surface of the silicon plates in different ways (e.g. polishing, epitaxy, annealing or composite wafer). The choice of manufacturing process, diameter and surface treatment affects the characteristics of the wafer and its suitability for the various requirements a wafer must fulfil depending on the area of application of the downstream semiconductor product. Individual processing steps may be adapted to some extent in order to fulfil specific customer requirements as to the wafer’s specification (e.g. by adding additives or adjusting the proportion of additives used).

In the vast majority of cases wafers are manufactured according to such special customer specifications which have previously been agreed between the wafer manufacturer and the customer² during an elaborate process of pre-qualification of the manufacturer and the wafer. In most cases this process takes at least 12 to 18 months. As customers place great importance on the reliability of supply and product quality, they generally qualify several manufacturers and place orders with them (multi-sourcing). The actual procurement of wafers is based on bilaterally negotiated, predominantly long-term contracts which generally provide for possible adjustments with regard to the prices and quantities agreed. In a small number of cases, depending on the market situation, demand and available options, additional wafers are bought on the spot market.

In the present case the Bundeskartellamt could leave open the question whether a single market is to be defined for all silicon wafers or whether a further segmentation of the market according to wafer diameters or specific wafer parameters is required, because none of the possible definition variations could be expected to result in a significant impediment of effective competition. The fact that the production sites of semiconductor manufacturers are usually adapted to specific wafer diameters so that switching would involve considerable time and costs could be an argument in favour of a segmentation of the market based on wafer diameter.

² Depending on the area of application of the downstream product, other third parties may also be involved.

Segmentation according to specific wafer parameters or applications or actual types of use in downstream semiconductor products could also be considered. However, it must be assumed that supply-side substitutability is generally high in the wafer manufacturing industry. According to the results of the authority's investigations not only GlobalWafers and Siltronic, but at least all the large manufacturers of silicon wafers (with their different product portfolios) are generally able to manufacture according to almost all the different wafer specifications and fulfil all customer-specific requirements; for this reason they are already active in the market with a broad range of different wafers.

The investigations have also confirmed that the geographic market is global.

Market position of the parties and effects of the planned acquisition

The results of the Bundeskartellamt's investigations at numerous well-known buyers of silicon wafers have shown that the planned acquisition raises no serious competition concerns. This applies both with regard to possible non-coordinated effects of the merger and the creation or strengthening of a possibly collective dominant position held by the remaining leading suppliers.

The parties' market shares are below the thresholds for the presumption of single firm dominance under Section 18(4) of the German Competition Act (GWB).

The parties' products are generally interchangeable with one another when it comes to relatively standardised wafers, but they are also interchangeable with wafers supplied by their large or smaller competitors. A possible additional scope of action resulting from the merger is therefore sufficiently controlled in this area by existing actual and potential alternative suppliers.

In addition, in terms of their areas of specialisation and product portfolios, the parties are not particularly close competitors. In the case of wafers with very specific characteristics, which, however, only account for a small share of the wafer market, customers may currently be facing a more limited choice of supply alternatives. In such scenarios, however, wafer suppliers and buyers are mutually dependent on one another.

Furthermore, countervailing buyer power also prevents the merger from creating scope for unilateral action. Buyers of wafers which in many cases have more (in some cases even significantly more) financial power and higher turnover than the supply side, pursue differentiated procurement strategies. These include multi-sourcing, regular bilateral price negotiations and shifts in quantity.

Due to their comparatively strong and symmetrical market position in terms of post-merger market shares, the authority's assessment also focused on the question whether the merger was likely to create or strengthen a collective dominant position of the leading suppliers. However, this risk could be ruled out based on the results of the investigation. Although the thresholds for the presumption of dominance under Section 18(6) GWB will be fulfilled both before and after the merger, the following factors suggest that the leading suppliers are unlikely to coordinate or further stabilise their market behaviour as a consequence of the merger:

In certain areas that are relevant to competition, the market is characterised by a relatively high degree of transparency. However, this transparency not only applies to the large wafer manufacturers, but also to the buyers which in many cases have substantially greater financial power. Furthermore, not all competition-relevant factors are transparent due to the fact that manufacturing processes are tailored to the customers' requirements and contracts are negotiated bilaterally. The market is also characterised by a comparatively high degree of volatility and dynamism. As suppliers specialising in the manufacture of wafers the companies concerned also do not compete with one another on other markets, and they are not interlinked with each other e.g. through significant mutual supply relationships. These facts also restrict their possibilities to react with effective sanctions to competitive action taken by individual suppliers. The suppliers also have a significant incentive to ensure maximum utilisation of their production capacities (among other reasons because their production processes involve high fixed costs). Finally, as already considered in the assessment of the risk of non-coordinated effects resulting from the merger, countervailing buyer power (see above) also had to be taken into account in this context as well as the fact that customers use multi-sourcing strategies and regularly re-negotiate purchasing prices and shift quantities between the suppliers they have qualified.

The Bundeskartellamt's clearance decision considered only the effects the merger was expected to have on competition. The Bundeskartellamt is not the competent authority for assessing the project under other legal provisions such as those of German foreign trade law.