

The Evolving Semiconductor Industry: Transfer Pricing Implications

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In this article, the authors consider the transfer pricing implications of increased but changing demand and government assistance in the semiconductor industry.

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The semiconductor industry is facing a period of unprecedented change. The industry has grown rapidly in recent years, with global revenues reaching \$575 billion in 2022.¹ However, this growth masks changes in demand by product and market segment, at a time when the industry is caught in the eye of an emerging geopolitical storm.

The disruption faced by the semiconductor industry in the past couple of years has been well documented and has led to shortages that have yet

to fully unwind. The industry is also moving to rebalance its supply chain to mitigate geopolitical risks. This rebalancing is being supported by significant government assistance programs, with the CHIPS and Science Act of 2022 (P.L. 117-167) in the United States and a variety of initiatives in other countries.

The changes that the semiconductor industry is witnessing have a variety of important transfer pricing implications. This article considers some of these issues, focusing on the impact of increased but changing demand and government assistance.

¹Semiconductor Industry Association, "Global Semiconductor Sales Increase 3.2 Percent in 2022 Despite Second-Half Slowdown" (Feb. 3, 2023).

Increasing but Changing Demand

The semiconductor industry has grown strongly in the past couple of years, although the growth in demand in 2022 was weaker than expected.² Industry executives remain optimistic about the future. In a recent KPMG survey, 81 percent of participants projected their company's revenue would grow this year, with half expecting this growth to exceed 10 percent.³

Key growth areas are changing. A study by KPMG in 2020 identified the Internet of Things as the most important area of growth, but today automotive and wireless communications are more important.⁴ Semiconductor revenue from the automotive sector alone is estimated to reach \$200 billion annually by the mid-2030s.⁵

The long-term outlook of the industry remains strong, given the foundational nature of semiconductor technology to large parts of the global economy. But to be successful, companies will need to navigate rapid technological change and geopolitical uncertainties, significant investment will be required, and the risk of failure will remain high.

In response to this new environment, some firms are restructuring. Though no two firms are the same, in recent years a number have moved away from their traditional product-focused business units, responsible for discrete technologies, to client-centric computing groups developing integrated solutions for specific client channels. This is leading to the diversification of their intellectual property portfolios and changes to the nature of the associated development, enhancement, maintenance, protection, and exploitation (DEMPE) functions. For this reason, regularly reviewing a company's value chain and functions, assets, and risks of each entity is crucial to ensure that transfer pricing outcomes are consistent with where the value is created.

It is important that the group's transfer pricing policies recognize and reflect the value that

strategic, headquarters-type functions generate for the business, particularly in a post-base erosion and profit-shifting project world in which many tax administrations are placing greater emphasis on where DEMPE functions are performed. However, it is equally important from an economic perspective to recognize the risk assumed by entities that provide the capital for new technologies or production facilities. If these investments go south, it is these entities that will bear the downside of this investment risk. A group's transfer pricing policy must balance the contributions of these two types of activities, in good times and bad. The risk of underperformance and which entities incur losses is something that tax administrations frequently lose sight of when they argue that more profits should be attributable to the DEMPE functions performed in their countries.

Government Assistance Programs

The recent shortage of chips has reemphasized to governments around the world how important the semiconductor industry is to every part of the modern economy. Chips have also become a geopolitical issue as companies look to rebalance their supply chains, investing billions of dollars in new manufacturing facilities. This investment is supported by several significant government assistance programs. In the United States, the CHIPS and Science Act has provided \$52.7 billion in support to the U.S. semiconductor industry, coming through a mix of tax credits (with direct-pay provisions), loans, guarantees, and grants.⁶ The efficiency of existing manufacturing operations in South Korea and Taiwan, in particular, mean that such assistance was considered critical to bring production back to the United States. The European Union, Japan, and South Korea are also making significant investments, while Taiwan is considering providing additional tax incentives to the industry.⁷ Government assistance plays an important role in semiconductor companies'

² Robert Casanova, "Despite Short-Term Cyclical Downturn, Global Semiconductor Market's Long-Term Outlook Is Strong," Semiconductor Industry Association (Feb. 8, 2023).

³ Lincoln Clark, "Global Semiconductor Industry Outlook for 2023," KPMG Insight (2023).

⁴ *Id.*

⁵ *Id.*

⁶ The White House, "Fact Sheet: CHIPS and Science Act Will Lower Costs, Create Jobs, Strengthen Supply Chains, and Counter China" (Aug. 9, 2022).

⁷ Semiconductor Industry Association, "2022 State of the U.S. Semiconductor Industry" (Nov. 2022).

capital decisions and affects related parties' value contribution; hence, it is important to include government assistance in the design and application of a group's transfer pricing model.

What Is the Potential Transfer Pricing Issue?

Government subsidies and the way they are accounted for may affect a group's transfer pricing. Take a simple example. A government provides a \$5 billion subsidy to a group to construct a new semiconductor fabrication plant (fab) with a total cost of \$10 billion. From an accounting standpoint, this grant may be recognized as deferred income (in which case the fab would have a carrying cost of \$10 billion) or as a reduction in the carrying cost of the asset (in which case the fab would have a carrying cost of \$5 billion). For simplicity, assume that the fab is the sole asset owned by an entity that operates as a toll manufacturer selling chips to other entities in a group. If the group's transfer pricing policy benchmarks the return due to the entity using a return on assets or a return on cost including depreciation, this return would be lower if the group accounts for the subsidy as a reduction in the carrying cost of the asset vis-à-vis if it had accounted for the subsidy as deferred income.

A group's transfer pricing policy could unintentionally determine which entities in a group realize the benefits from government assistance programs. Continuing with the previous example, assuming the group used a mark-up on cost to benchmark the return due to its manufacturing entity. Other things being equal, if depreciation expense was based on the full \$10 billion carrying cost, the benefit of the subsidy would accrue to the manufacturing entity. If, however, the depreciation was based on the reduced \$5 billion asset value, the benefit of the subsidy would accrue to another entity within the group.

It is worth noting that in the example outlined above, if the group in question were to benefit from a tax holiday, rather than a subsidy, the issue of which entity benefits from the government assistance is not determined by transfer pricing or accounting policies.

Current Guidance

Transfer pricing implications of government assistance are not covered in any detail by either the OECD transfer pricing guidelines or U.S. IRC section 482.⁸

The issue of government assistance is covered in more detail in the OECD's 2020 guidance on the transfer pricing implications of the COVID-19 pandemic.⁹ Though not legally binding, this guidance "represents the consensus view of the 137 members of the inclusive framework on BEPS," so it is a helpful starting point for assessing transfer pricing issues related to government assistance, for both periods impacted by the pandemic and beyond. The guidance acknowledges that government assistance is an economically relevant characteristic that has the potential to affect the price of controlled transactions. It discusses whether government assistance modifies the allocation of risk in controlled transactions and how receipt of government assistance affects comparability analyses. It also emphasizes that particular care is required when applying one-sided transfer pricing methods, in which the tested party has benefited from government assistance. Though the OECD guidance signposts issues that should be considered when assessing the transfer pricing implications of government assistance, it does not provide a particularly clear framework for taxpayers considering how government assistance programs should be accounted for in a transfer pricing analysis.

What Would Happen at Arm's Length?

At its heart, transfer pricing is simple — it requires us to ask and answer the question: What would happen if a controlled transaction occurred between two independent parties?

Imagine a government provides an annual subsidy of \$100 million to a pure-play semiconductor foundry. What impact will this

⁸There is a brief discussion of the effect of government policies in the OECD transfer pricing guidelines, but it focuses primarily on price controls rather than the effects of government assistance programs. OECD, "OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations," at 78-79 (2022).

⁹OECD, "Guidance on the Transfer Pricing Implications of the COVID-19 Pandemic" (2020).

have on the profitability of the foundry and the commercial relationship between the foundry and its customers? If a foundry is underused and struggling to compete with its competitors, it may use the subsidy to lower prices, passing on most of the benefit to its customers. At the other extreme, if a foundry is operating at full capacity, then it may be able to capture the entire benefit of the new annual subsidy. In the middle, it might do some of each. In economic terms, it is the relative elasticity of supply and demand that will determine how the benefits of a subsidy are allocated between different market participants.

When applying a cost-based method, a taxpayer should think about what would happen at arm's length. Would an entity that received a subsidy be willing to charge a lower markup on its full cost, or on only a portion of its costs? Would an entity use the subsidy to push down its prices to expand its market share, or would it seek to maintain its existing prices and use the subsidy to increase its bottom-line profits. When making these determinations, reliable evidence of third-party behavior, which may not be readily available, is critical.

How to Account for Government Assistance?

The conclusion that government assistance has implications for transfer pricing is hardly helpful — the key question for companies that benefit from such assistance is, what do I need to do? The answer is to take greater care when performing a comparability analysis and selecting the most appropriate transfer pricing method.

The first step is to identify the effects of government assistance when assessing the controlled transaction. Because the elasticities of both supply and demand may affect how the benefit of government assistance is allocated between parties, it is important to consider both sides of a transaction. Simply pushing the effects of government assistance through a one-sided transfer pricing method without considering the implications should be avoided. Groups may want to consider what policies and processes they put in place to make sure they gather sufficient data on the government assistance they receive.

The second step is to consider the impact of government assistance when selecting the most appropriate transfer pricing method and comparable uncontrolled transactions or companies used to apply that method. It may be easier to account for government assistance under some transfer pricing methods than others. For example, if an internal comparable uncontrolled price is used to price a controlled transaction, the effect of government assistance may be baked into the internal CUP. In contrast, when the transactional net margin method is used, more difficult questions (such as the appropriate cost base against which a markup should be applied) must be asked and answered. A careful comparability analysis is essential, particularly if potential comparable uncontrolled transactions or companies have benefited from government assistance. The other issue that arises when the transactional net margin method is used is about comparability, when the potential comparable uncontrolled transactions or companies have benefited from government assistance. This may even be relevant for companies in the semiconductor industry that have not benefited from government assistance.

Conclusion

Over the next few years, the semiconductor industry will undergo significant demand and supply changes, driven in part by large government assistance programs. These changes have important transfer pricing implications that groups should be thinking about today, to reduce the risk of disputes tomorrow.¹⁰ ■

¹⁰The foregoing information is not intended to be "written advice concerning one or more Federal tax matters" subject to the requirements of section 10.37(a)(2) of Treasury Department Circular 230. The information contained herein is of a general nature and based on authorities that are subject to change. Applicability of the information to specific situations should be determined through consultation with your tax adviser. This article represents the views of the author(s) only, and does not necessarily represent the views or professional advice of KPMG LLP.

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