The Effect of US Sanctions on Huawei's Performance and Prospects

Research Note

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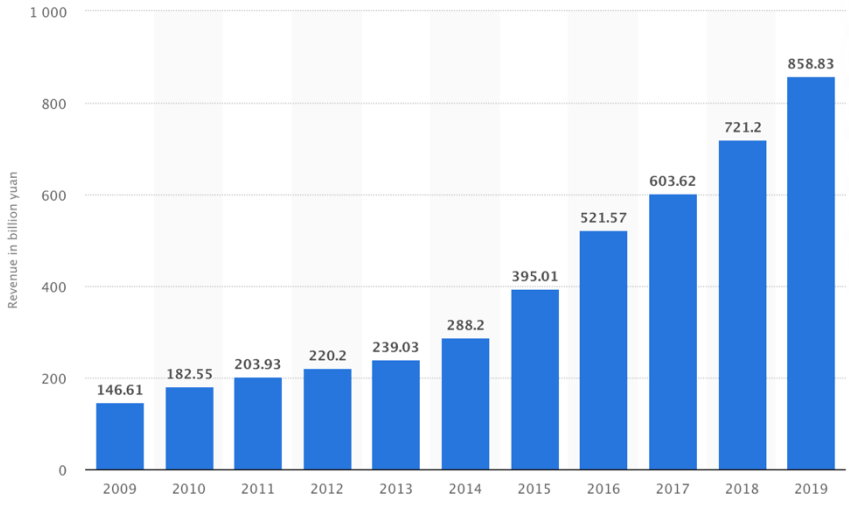
Executive Summary

Huawei is one of China's most significant tech companies. It has ties to the Chinese government and plays a key role in high tech computing and infrastructure development, particularly in the consumer goods and wireless connectivity sectors. The Trump administration's trade war against China often targeted Huawei in particular, citing its intellectual property theft and its ties to the Chinese government. These restrictions have hurt Huawei's supply chains and logistic resilience but sustained long-term pressure would require alternative measures given the size and importance of the Chinese domestic telecommunication market.

Figure 1: Revenue Growth from 2009-2019 (in billion yuan)



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I. US Policy

The US government first implemented restrictions on trade with Huawei in May of 2019.[1] Huawei, along with 70 other Chinese entities, were added to an 'entity list' which restricted the firms' ability to purchase components from the US without federal approval. In August of that year, President Trump also signed a law prohibiting the US government from using Huawei's equipment. This decision was, in large part, motivated by the US government's desire to stop illegal high-tech transfers to China, and to delay large-scale adoption of Huawei's 5G technology in Europe due to privacy and national security concerns.

The US continued to increase sanctions on Huawei and tariffs on China in the following year: "Export Administration Regulations" were expanded in May 2020, and further tightened in August.[2] The newest restrictions include a requirement for Huawei and any affiliated companies to obtain a license before purchasing any technology from the US. The government has also increased restrictions on transfers and sales of certain foreign-produced goods deemed sensitive to Huawei or any affiliated entities.[3]

The US was not the first nation to target Huawei, however. In 2018, the Australian government required telecom providers to purchase 5G equipment from companies other than Huawei.[4] All of the other Five Eyes nations as well as Japan have banned the use of Huawei equipment in their 5G projects, with an additional stipulation in the UK that the existing Huawei 5G kit be uninstalled by 2027.[5] In the wake of President Trump's loss in the US election, China has reportedly appealed the UK ban, stating that it would result in a slowdown of the country's adoption of 5G technology, putting the UK at a competitive disadvantage in the tech sector.[6]

[1] Shepardson, D., & Freifeld, K. (2019, May 15). China's Huawei, 70 affiliates placed on U.S. trade blacklist. *Reuters.*
[2] Deutsche Welle. (2020, August 17). US boosts sanctions for China tech Giant Huawei. *Deutsche Welle*.
[3] Slack, R., & Wise, S. (2020, August 25). Expansion of U.S. Huawei Restrictions: More Foreign-Made Items Are Caught By U.S. Export Controls. *US Trade Monitor*.
[4] IISS. (2019, October). Australia, Huawei and 5G. *25*.
[5] Gold, H. (2020, July 14). UK bans Huawei from its 5G network in rapid about-face. *CNN Business*.
[6] Carbonaro, G. (2020, November 19). UK decision to remove Huawei 5G risks 'putting the country in digital slow lane'. *CGTN*.

II. Operational and Financial Consequences

Amidst these sanctions, it would stand to reason that Huawei's growth would drop or plateau year-on-year. This has been the case to a certain extent, though it is also important to note that 2020 growth numbers would be heavily affected by the COVID-19 pandemic.

In the smartphone market, Huawei had become the largest manufacturer in the world by sales volume in Q2 2020, shipping 55.8 million devices. However, this changed as Huawei's shipments dropped to 51 million in Q3 2020[7], down 23% year-on-year.[8] The Q2 sales figures were also primarily (70%) composed of domestic Chinese sales, and while both Apple and Samsung increased the quantity of sold units in Q3, Huawei did not, despite a gradual reopening and market rebounds from the March/April lows.[8] This drop does correspond with the increased US restrictions on Huawei in May 2020, though Huawei's smartphone sales have historically been low in the US. Part of the US sanctions include restrictions to high-speed CPUs manufactured by Taiwan Semiconductor Manufacturing Corp., which would decrease Huawei's competitive advantage in the smartphone and 5G networking sectors.[9]

Examining the company's revenue, when sanctions were first imposed in 2019, the company missed its revenue goal for the year by $12 billion for a total of $123 billion, with year-on-year revenue growth down to 14.8% from 19.5% in 2017-18.[10] In the first two quarters of 2020, revenue growth was down to 13.1% from 23.2% in 2019.[11] Looking at a breakdown of Huawei's revenue, carrier network business (which includes 5G connectivity projects) accounted for 34% of revenue in 2019. However, that number has remained relatively stable for three years, and is slightly down in absolute revenue, $45.1 billion from $45.2 billion in 2017.[12] The main source of Huawei's revenue growth has been its consumer goods sector, growing from 39.8% of total revenue in 2017 to 54.5% in 2019. While US sanctions have targeted Huawei's smartphone

[7] An estimate as Huawei did not report figures for Q3
[8] Canalys. (2020, October 29). Global smartphone market Q3 2020. *Canalys*.
[9] Pham, S. (2020, August 14). New US sanctions could slowly strangle Huawei's smartphone business. *CNN Business*.
[10] Kharpal, A. (2020, March 31). Huawei says US blacklisting led to $12 billion revenue shortfall in 2019 as profit growth slowed. *CNBC*.
[11] Nikkei. (2020, July 14). Huawei reports 13% revenue growth despite US pressure. *Nikkei Asia*.
[12] Buchholz, K. (2020, January 2). Huawei Continues Steep Global Rise. *Statista*.

supply chain, this is a relatively recent development, and is not reflected in these lagging figures. Overall, Huawei's revenue growth has been hurt by US sanctions, though its consumer goods division has continued to grow, buoyed by domestic demand.

III. Prospects

US sanctions have seemed to hurt Huawei's revenue, with Huawei's Chief Strategy Officer directly attributing the $12 billion revenue shortfall in 2019 to US sanctions.[13] The additional restrictions in the latter half of 2020 may further slow Huawei's growth in the 5G and smartphone sectors. However, Huawei has developed plans for a chip manufacturing plant in Shanghai that would operate without the use of any American technology. They plan to manufacture 28nm chips by the end of 2021—this scale manufacturing process is still a few generations behind current techniques, as large-scale manufacturing already exists at the 14nm, 7nm, and 5nm scales in other countries.[11] These chips are still suitable for use in 5G networking equipment and, as the manufacturing process improves, eventually smartphones. Huawei's early planning for a domestic manufacturing facility (which received financial banking from the Shanghai municipal government) hints that the company is already looking at ways to secure their supply chain and become self-reliant. The global semiconductor market took 15 years to refine the process from 28nm to 7nm, but with the technology already in place, domestic production capability is likely to reach parity with the global market within the decade.[11]

It is also important to examine the 5G equipment market: at 42% market share in 2019, Huawei's largest competitors Nokia, Ericsson, and Samsung making up a combined 56% of the global 5G market.[14] Samsung has also signed a $6.64 billion deal with Verizon US to supply 5G networking equipment this year, adding to its current client roster which includes AT&T, Sprint, and US Cellular.[15] Increasing competition in the 5G area, coupled with Huawei's lack of access to current-generation manufacturing technology, means that Huawei is likely to face a stiff headwind in the international market. Increasing resistance to Chinese technology in the EU also a bad sign for Huawei. It is likely that carrier network sales will remain stable for the coming years, while the

[13] Hille, K., Yang, Y., & Liu, Q. (2020, October 31). Huawei develops plan for chip plant to help beat US sanctions. *Financial Times*.
[14] The Economist. (2020, November 7). Is there an alternative to Huawei? *The Economist*.
[15] Seung-yoon, L., Sung-yong, H., & Hyo-jin, K. (2020, September 8). Samsung Elec's network equipment market share to jump thanks to Verizon deal. *Pulse*.

5G segment of those sales will also remain stable or slowly decline, Huawei's strong partnership with the CCP will play a large role in its fortunes. It is unlikely that the Chinese government will allow the premier domestic technology company to go under; Huawei's domestic 5G contracts are also a large part of its overall 5G revenue stream. Domestic demand for Huawei smartphones is a large component of smartphone sales, though Huawei will have to develop its own software as it is not allowed to receive updates for Google's Android operating system. 5G adoption in lower-income countries could be a source of growth for Huawei, as those countries are less likely to care about the privacy or technology transfer than higher-income countries do. If the CCP were to subsidize 5G technology sales (or offers loans) as they have done for BRI construction projects, it would be possible for Huawei to have a pricing advantage relative to other 5G companies.

IV. Conclusion

US sanctions have had a net negative effect on Huawei's bottom line and have hampered its ability to procure high-tech components. However, Huawei is already exploring alternatives to US technology for their manufacturing processes, and while US sanctions may hurt the company in the short term, in the long term it is inevitable that Huawei will catch up to the rest of the world. Domestically, it makes sense for the US to target Huawei due to technology transfers and Huawei's ties to the CCP. For these reasons, US restrictions will likely stay in place. However, the US must do more than simply sanction Huawei to maintain global information security and technological primacy; cultivating technological integration between the US and its allies, as well as increasing the competitive advantage for other high-tech companies, is crucial to maintaining pressure on Huawei. It would also be helpful to expand technology transfers to developing nations; early adoption of technology from the US or an international ally would be both a commercial success and a way to establish a working relationship that could expand to other sectors and offset potential Chinese influence. While sanctioning Huawei has had measurable effects, it is not a panacea, and a truly effective strategy must confront China on multiple fronts at once. Otherwise, 6G network contracts might end up in Huawei's pocket.

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