

# A Brief Discussion on the Impact of Sino-US Trade Barriers on the Chinese Telecommunications Industry

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## **Abstract:**

Amid the intensification of globalization and the expansion of transnational economic activities, the imposition of Sino-US trade barriers has emerged as a pivotal destabilizing element within the global economic landscape. This manuscript explores the repercussions of Sino-US trade barriers on the Chinese telecommunications sector. By scrutinizing the backdrop of the Sino-US trade conflict and its technological embargoes against the Chinese telecommunications realm, this study elucidates the distinct impacts of trade barriers on Chinese telecommunications entities. A meticulous comparative analysis of the financial datasets of key players such as ZTE and Huawei, pre and post-trade conflict, unveils the significant burdens posed by the trade war on China's telecommunications firms. In light of the strengths and vulnerabilities inherent within the Chinese telecommunications industry, this paper advocates for strategic pathways forward, including the augmentation of investment in research and development, the broadening of upstream supply channels, the exploration of both domestic and international markets, and the formalization of technological standards alongside export regulations.

**Keywords:** Trade friction, Technological barriers, Telecommunications industry, Huawei

## **1. Introduction**

As globalization advances and transnational economies grow at a swift pace, the issue of trade barriers has come to the forefront of the global economic discourse. The emergence and development of Sino-US trade barriers not only influence the economic progression of both nations but also exert a significant impact on the structure of global trade and the economic order. Since initiating economic reforms, the Chinese telecommunications sector has achieved remarkable progress, becoming a cornerstone of China's economy. Nonetheless, Sino-US trade barriers have imposed restrictions on the import and export of telecommunications equipment and technology, creating market access challenges and competitive pressures for the Chinese telecommunications industry. The uncertainty and risks associated with Sino-US trade barriers have exacerbated the operational environment for Chinese telecommunications firms, decelerating their international expansion efforts[1]. This paper aims to analyze the impact of Sino-US trade barriers on the Chinese telecommunications industry, endeavoring to thoroughly explore how these barriers influence the sector and to offer evidence-based policy recommendations for governmental bodies and corporate strategists.

## **2. Current Situation of Sino-US Trade Barriers**

### **2.1 Sino-US Trade War**

The genesis of the Sino-US trade war can be traced back to the issue of trade imbalances between the two nations. The United States has levied accusations against China regarding technology transfer, intellectual property protection, and other domains, whereas China counters by arguing that US trade protectionism is a menace to the global free trade regime. The commencement of the Sino-US trade conflict was marked in 2018. Specifically, on March 22, 2018, President Trump enacted a memorandum that charged China with violating US intellectual property and trade secrets. Under Section 301 of the Trade Act of 1974, tariffs were applied to imports from China, totaling approximately \$60 billion. Following this, the US administration proceeded to enforce tariffs and establish trade barriers. On July 6, 2018, the US escalated the dispute by imposing an additional 25% tariff on Chinese imports valued at \$34 billion. In retaliation, China implemented comparable punitive tariffs on US goods of equivalent value. In May 2019, the US escalated the tariffs further, announcing a 25% tariff on an additional \$200 billion worth

of Chinese imports, citing China's retraction of commitments made during negotiations as the cause, which led to the collapse of discussions. Conversely, China accused the US of frequent stance alterations, amplifying negotiation uncertainties, and intensifying trade tensions between the two countries.

The Sino-US trade war has reverberated through the economies of both countries, injecting uncertainty into the global economic landscape. Trade barriers have precipitated a reshuffling and reconfiguration of the global supply chain, increasing the risk of decelerated global economic expansion. Concurrently, the trade conflict has also heightened global apprehensions regarding trade protectionism, prompting a reevaluation and reform of numerous international trade systems. Presently, the trade uncertainty between China and the US has emerged as a pivotal variable in the world economy, requiring collective efforts from all stakeholders to devise solutions and safeguard the stability and prosperity of the global economic framework.

## **2.2 U.S. Technological Blockade on the Chinese Telecommunications Industry**

The U.S. technological embargo against the Chinese telecommunications sector is a multifaceted issue, encompassing numerous areas and extending over a substantial period. On April 16, 2018, the U.S. Department of Commerce initiated a seven-year export prohibition against ZTE for breaching settlement agreements. In May 2018, the Trump administration enacted an executive order forbidding U.S. firms from selling technology and equipment to Chinese telecommunications manufacturers like Huawei, labeling them as national security risks. The following year, in May 2019, the U.S. Department of Commerce added Huawei and its affiliates to the Entity List, which barred U.S. companies from supplying technology and services to Huawei. In August 2019, the Department granted several exemptions for Huawei, permitting U.S. entities to supply certain specific technologies and services to Huawei, though these did not tackle Huawei's fundamental challenges. By May 2020, the Trump administration imposed a restriction on U.S. companies from utilizing American technology in providing services to Huawei during the chip manufacturing process, thereby aggravating Huawei's predicaments within the chip supply chain. Concurrently, the U.S. has been actively hindering Chinese firms from advancing in the 5G technology arena through an array of policies and measures. These have included the implementation of new rules, limiting Chinese companies' access to the U.S. market, and exerting pressure on allies to reject Chinese 5G technology. The ongoing U.S. technological blockade against the Chinese telecommunications industry has progressively intensified,

affecting multiple sectors and enterprises, significantly impacting trade relations between China and the U.S., as well as the global communications market.[2]

## **3 Three, Analysis of the Impact of Sino-US Trade Barriers on the Chinese Telecommunications Industry**

### **3.1 The Impact of Sino-US Trade Barriers on Chinese Enterprises**

#### **3.1.1 Impact on Operations**

Trade frictions have spurred Chinese companies to acknowledge the perils of over-dependence on imported core components, particularly within the telecommunications equipment manufacturing sector, where reliance on imported essential components is prevalent. Should the exporting nations impose trade restrictions, it could gravely disrupt the standard operations of these enterprises. Following the imposition of a 25% tariff on Chinese imports by the United States, export-dependent sectors have been profoundly impacted, notably in high-tech fields such as new energy manufacturing, biopharmaceutical technology, and industrial automation. These sectors are integral to China's "Made in China 2025" initiative, and the Sino-US trade tensions have temporarily impeded China's ambition to evolve into a manufacturing superpower, presenting significant challenges to the involved enterprises. Bilateral tariffs between China and the United States have escalated the production expenses of domestic firms, resulting in increased export costs. Moreover, the United States has exerted pressure on the yuan's exchange rate to augment its share of exports, thereby diminishing China's competitive edge in export pricing. These actions have not only led to a decline in corporate earnings but also perpetuated a detrimental cycle of reduced employee wages and impeded industrial advancement.

#### **3.1.2 Financial Impact**

Sino-US trade barriers have exerted varied effects on the financial health of Chinese companies, particularly in terms of investment, financing, and liquidity. Companies are compelled to navigate the heightened investment risks within the shifting landscape of Sino-US trade tensions. This is especially true for those firms that have made investments in the United States, where their returns on investment have suffered significantly, leading to a deterioration in their financial standing. For instance, ZTE Corporation, which had established a subsidiary in the United States to expand its business, experienced a notable decline in its investment returns amid the trade tensions, adversely affecting its overall financial health. The trade frictions have also diminished corporate debt repayment

capacities, prompting financial institutions to adopt a more cautious stance in evaluating corporate debt risks and capabilities. This, in turn, has curtailed the efficiency and speed of corporate financing efforts. Taking ZTE Corporation as a case in point, faced with fines nearing 7 billion yuan imposed by the United States, its financial liquidity was severely impacted, its ability to repay debt markedly declined, and its capacity to raise funds was significantly compromised. Moreover, in terms of liquidity, trade frictions have implications not only for corporate investment and financing activities but also directly constrict the flow of corporate funds.

### 3.2 Financial Data Comparison of Chinese Telecommunications Companies Before and After the Trade War

#### 3.2.1 Company Profiles

Huawei, established in 1987, is a provider of ICT (Information and Communication Technology) infrastructure and smart terminals. The company operates across more than 170 countries and regions, employing over 207,000 individuals. In response to Sino-US trade tensions and US sanctions, Huawei has proactively pursued technological research and development. In 2022, the company's R&D

expenditures reached approximately 161.5 billion yuan, representing 25.1% of its total annual revenue. By the end of 2022, Huawei's R&D staff numbered about 114,000, constituting 55.4% of its entire workforce.

Founded in 1985, ZTE Corporation is publicly traded in both Hong Kong and Shenzhen and conducts business in over 160 countries and regions. ZTE had already been subjected to US sanctions prior to the onset of trade frictions, incurring fines exceeding 7 billion yuan. Amidst the trade tensions, ZTE has further escalated its technological research and development activities to lessen its dependency on the United States. The company has set up 11 research institutes across the country, continually enhancing its capacity for independent innovation.

#### 3.2.2 Major Financial Data Comparison

Owing to trade barriers and technological blockades, the supply chains of both Huawei and ZTE have been adversely affected, encountering heightened pressure and restrictions. This has led to an escalation in production costs and a reduction in production efficiency. Consequently, this scenario has further compounded the challenges faced by the two companies in conducting technological research and innovation in certain critical areas.

**Table 1 Key Financial Data Indicators for ZTE and Huawei from 2016 to 2022 (%)**

Year		2016	2017	2018	2019	2020	2021	2022
Gross Margin	ZTE	30.75	15.32	-8.13	6.37	4.65	6.14	37.19
	Huawei	40.3	39.5	38.6	37.6	58.6	28.6	28.2
Operating Profit Margin	ZTE	1.15	6.20	-0.72	8.32	5.39	7.58	6.92
	Huawei	7	11	10.2	9.1	8.1	19.1	6.6
Return on Total Assets	ZTE	-1.39	4.95	-8.13	6.37	4.65	6.14	6.34
	Huawei	7.1	7.9	8.23	7.30	7.25	17.86	5.54
Year	ZTE	-6.6	11.15	-17.74	16.29	11.23	14.16	13.78
	Huawei	7.1	17.27	29.04	23.71	20.66	30.53	8.14
Gross Margin	ZTE	3.62	8.56	5.09	4.27	3.24	4.41	9.40
	Huawei	-	-	10.14	8.22	7.45	12.23	-
Operating Profit Margin	ZTE	3.62	8.56	5.09	4.27	3.24	4.41	9.40
	Huawei	-	-	10.14	8.22	7.45	12.23	-
Net Profit Margin	ZTE	3.62	8.56	5.09	4.27	3.24	4.41	9.40
	Huawei	-	-	10.14	8.22	7.45	12.23	-

Examining key financial indicators, including sales gross margin, operating profit margin, sales net margin, return on equity, and return on total assets, it becomes apparent that the Sino-US trade conflict has had a varying impact on the two entities across different phases. In the initial stages of the trade conflict, ZTE experienced notable financial volatility. For example, ZTE's sales gross margin decreased from 30.75% in 2016 to -8.13% in 2018, with a gradual recovery commencing in 2019. Conversely, Huawei displayed a relatively stable sales gross margin during

this timeframe, consistently maintaining a high level. This stability underscores Huawei's superior financial management and cost control capabilities, which facilitated its adaptability to market shifts and the maintenance of a higher sales gross margin. Additionally, ZTE's return on equity and return on total assets exhibited significant fluctuations in the early phase of the trade conflict, indicating notable impacts. However, as the conflict progressed, ZTE began to show signs of recovery from 2020 onwards, marked by improvements across several financial indica-

tors such as sales gross margin, operating profit margin, sales net margin, return on equity, and return on total assets. In contrast, Huawei's financial performance saw varying levels of fluctuation post-2020, with a rise in sales gross margin and operating profit margin in 2020 followed by declines in 2021. In comparison, ZTE's financial stability appeared to improve in the later stages of the trade war.

The trade frictions and technological barriers have reshaped the competitive dynamics within the global telecommunications sector. In the later stages of the trade conflict, ZTE adapted its strategy, emphasizing market expansion and product innovation, making supply chain adjustments, and bolstering cost control measures to navigate the changes in the external environment. These efforts significantly enhanced its market position and competitiveness, leading to an uptick in financial performance. Meanwhile, Huawei continued to face challenges due to US technological restrictions, which resulted in fluctuating financial outcomes.

## **4. Analysis of Strengths and Weaknesses in the Chinese Telecommunications Industry**

### **4.1 Strengths Analysis:**

The Chinese telecommunications firms boast an extensive global market presence, with their operations spanning nearly every country and region. This widespread presence affords them substantial opportunities for growth, allowing them to broaden their global footprint and augment their market share. These entities are at the forefront of innovation in areas such as 5G, cloud computing, and big data, committed to developing cutting-edge communication technologies and products. Consequently, they secure a dominant stance in the technology sphere, driving significant progress in the industry's evolution.

Moreover, the Chinese telecommunications sector has forged strategic alliances with several of the world's leading technology enterprises, creating a powerful collaboration network. These alliances equip Chinese telecommunications companies with advanced technological backing, market resources, and channel benefits, facilitating market expansion and product competitiveness enhancement. This, in turn, reinforces their standing in the international telecommunications landscape.

### **4.2 Weaknesses Analysis:**

The Chinese telecommunications sector is highly reliant on external supply chains, particularly for essential components like critical chips and technological parts, which are sourced internationally. This reliance makes Chinese

telecommunications entities vulnerable to risks associated with international trade frictions and disruptions in supply chains, impacting their product manufacturing and delivery, and escalating operational risks.

The sector is also affected by the unpredictability of global political climates and trade conflicts, which present challenges including market access limitations, policy constraints, and trade impediments, thereby diminishing their competitive edge in the global arena. Furthermore, the industry is influenced by sanctions. For instance, actions taken by countries such as the United States, which include prohibitions on the sale of vital technologies and products to Chinese telecommunications firms, hinder their global market expansion, presenting formidable obstacles. Such sanctions result in complications like product scarcities, reduced market share, and tarnished reputations, adversely affecting the long-term growth and competitiveness of these companies.

## **5. Development Strategies for the Chinese Telecommunications Industry**

### **5.1 Increase R&D investment and output:**

The trade frictions between China and the United States have introduced uncertainties in the supply of technology and products within the Chinese telecommunications sector. To counteract this, it is crucial for companies to increase their R&D investments to boost their capacities for autonomous innovation, thereby lessening their dependency on external technologies and products and reducing associated risks. Elevating R&D investments will spur technological advancements, propel continuous improvements in products and services in the telecommunications field, and improve market competitiveness.<sup>[4]</sup>

### **5.2 Broaden Upstream Channels to Mitigate Costs:**

The trade disputes between China and the United States have led to either disruptions or increased costs in the supply chain of raw materials for the telecommunications industry. Consequently, by broadening upstream channels, specifically through establishing partnerships with a more diverse group of raw material suppliers, companies can decrease their dependence on any single supplier and lessen the risks posed by trade disputes.

### **5.3 Diversify Domestic and International Market Engagement:**

With export challenges mounting, prioritizing the domestic market expansion becomes critical. The Chinese telecommunications industry can accomplish this by intensifying its focus on domestic market development, widening the reach of product sales, and increasing mar-

ket share to offset the limitations faced in international markets. Venturing into international markets, the Chinese telecommunications sector should pursue new avenues for growth, expand its product export volume, reduce dependence on a singular market, and mitigate the impacts of trade restrictions.

### **5.4 Standardize Technical Norms and Export Protocols:**

The standardization of technical norms can significantly boost the international competitiveness of Chinese telecommunications products and lessen the effects of technological barriers. The Chinese telecommunications sector ought to strengthen collaborations with international standard-setting bodies, actively engage in the creation and revision of global standards, ensure compliance of Chinese telecommunications products with these standards, and raise the market entry barriers for competing products.

### **References**

[1] Hu, R., & Zhang, H. (2018). Identification Study of Opinion

Leaders in Sino-US Technological Trade Friction: A Case Study of ZTE. *China Economic and Trade Guide* (in Chinese), (23), 11-13.

[2] Chen, X. (2018). The Continuous Impact and Countermeasures of Sino-US Trade Friction from the Perspective of the Development of Large-scale Integrated Circuits. *Modern Management Science* (in Chinese), (10), 48-50.

[3] Zhang, Y. (2019). The Impact of US Trade Protectionism on China's Communication Manufacturing Industry (Master's thesis). University of International Business and Economics.

[4] Xie, R. (2019). Discussing the Development Status and Future Trends of the IT Industry under the Current Economic Situation: Starting from the "ZTE" and "Huawei" Incidents in Sino-US Trade Friction. *Economic Research Guide* (in Chinese), (18), 170-171.

[5] Chen, L., Zhang, L., & Qiu, W. (2020). The Impact of Sino-US Trade Friction on Guangdong's High-tech Industry: A Case Study of the US Sanctions against Huawei. *Strategic Study on Science and Technology Innovation and Development* (in Chinese), 4(06), 54-60.