

The Impact of Sino-US Trade War on the Financial Performance of High-end Manufacturing

-- A Case Study of Hikvision

Junyu Xu

International Department, Shanghai Jincai Middle School, Shanghai, 200127, China
catmegan@163.com

ABSTRACT

The Sino-US trade war is a continuing economic conflict between the United States and China since 2018. It mainly focuses on tariff barriers, technology transfer and market access. The United States accuses China of unfair trade practices, including forced technology transfer, intellectual property infringement and industrial subsidies. China has taken counter-measures and imposed tariffs on American agricultural products and other commodities. The trade war led to the disorder of the global supply chain and impacted the economies of the two countries and the international market. Although the two sides signed the first phase of the trade agreement in 2020, the core contradictions have not been thoroughly resolved. The competition in the field of science and technology (such as semiconductor and 5G) is still intensifying. The trade war reflects the deepening strategic competition between China and the United States and has a far-reaching impact on the global economic pattern. The Sino-US trade war has a significant negative impact on the financial performance of China's high-end manufacturing enterprises. For example, Hikvision's financial performance continued to decline after the trade war.

KEYWORDS

Sino-US trade war; Hikvision; Financial performance

1. RESEARCH BACKGROUND AND SIGNIFICANCE

1.1. Research Background

The Sino-US trade war that broke out in March 2018 is a major event in the history of Sino-US economic relations. Its background involves many factors, such as economy, politics, science and technology, and international pattern. First of all, economic factors, the US trade deficit with China continues to expand. The Trump administration blamed China's "unfair trade practices," such as subsidizing state-owned enterprises and restricting market access. One of Trump's campaign promises is to reduce the deficit, and the trade war has become a tool to fulfill his "America First" policy. The United States believes that China's rapid progress in high-end manufacturing (such as semiconductors, artificial intelligence, new energy) threatens American technological hegemony. The United States believes that China acquires technology through forced technology transfer and intellectual property theft. Secondly, there are political and strategic factors, and the United States has made a strategic shift. The "engagement policy" of the Obama era was adjusted to "strategic competition" by the Trump administration. The 2017 National Security Strategy Report of the United States defines China as a "revisionist country" and a "strategic competitor". Trade war is not only an economic issue, but also a strategic means to contain China's rise, especially for the "Made in China 2025" plan. Thirdly,

there are deep-seated structural contradictions. The United States requires China to change its "state capitalism" model (such as subsidies for state-owned enterprises and industrial policies), while China insists on the right to development. WTO reform deadlock intensifies conflict. China promotes the "the Belt and Road" and the Asian Investment Bank to challenge the Bretton Woods system dominated by the United States. Trade war is the economic performance of the game between the conservative powers and the rising powers.

Since the beginning of the Sino-US trade war, Hikvision, Dahua and other powerful companies in the domestic security industry have been sanctioned by the Ministry of Commerce of the United States. The Chinese companies are on a list of entities that restrict their purchases of core U.S. technology products.

1.2. Research Significance

1.2.1. Theoretical significance

This study takes the Sino-US trade war as the background to explore its impact mechanism on the financial performance of high-end manufacturing industry, which has important theoretical value. Firstly, this study combines international trade theory with enterprise financial performance analysis, which expands the research scope of traditional trade theory. It provides a new analytical framework for understanding the impact of trade frictions on the micro-economic behavior of enterprises. Secondly, by focusing on the key area of high-end manufacturing, This study helps to deepen the understanding of the financial resilience and coping strategies of technology-intensive industries under external shocks. To make up for the shortcomings of the existing literature in the study of the relationship between trade war and corporate financial performance.

1.2.2. Practical significance

This study has important practical guiding significance for the sustainable development of high-end manufacturing industry in the context of Sino-US trade war. On the one hand, Hikvision is a representative enterprise of China's high-end manufacturing industry. The change of its financial performance can directly reflect the impact of the trade war on the industry. The conclusion of the study can provide reference for similar enterprises to formulate risk coping strategies. For example, optimize the supply chain layout, strengthen technological innovation and so on. On the other hand, the results of the study can provide a basis for the government to formulate industrial policies. To help policymakers better assess the economic consequences of trade frictions and take targeted support measures. Such as tax incentives, R & D subsidies, etc., to enhance the anti-risk ability of high-end manufacturing industry.

1.3. Literature Review

Guo Yang and Lin Shan (2022) pointed out that the economic effects characterized by tariff changes negatively affect the development of China's manufacturing industry [1]. Sun Weize (2023) conducted an in-depth study on the benefits of enterprises around trade barriers, pointing out that on the whole, trade barriers have a significant negative impact on the performance of listed manufacturing companies. Trade barriers have a significant negative impact on the return on equity of enterprises, affecting the daily operation of enterprises [2].

With regard to the impact of trade frictions on corporate financial performance, academia generally believes that: By raising tariffs, disrupting the industrial chain, and aggravating market uncertainty, trade frictions have become more and more serious. It has a negative impact on the business activities and financial performance of enterprises. Handley (2017) pointed out that trade frictions are often accompanied by policies that are not conducive to international trade, such as tariff barriers. Its uncertainty will inhibit the innovation investment and market expansion of enterprises. The increase of tariffs will limit the scale of exports, hinder enterprises from entering new markets or promoting

product research and development. Thus, it weakens the core competitiveness of enterprises and ultimately affects financial performance [3]. Chen (2020) further emphasizes that trade frictions will undermine the stability of the global industrial chain and supply chain. As a result, the market competitiveness of some manufacturing enterprises has declined, and industrial transformation and technological progress have been delayed. And have a long-term negative impact on the international trading environment [4]. By analyzing Hikvision's financial data before and after Sino-US trade frictions, Adilai Ablimiti (2022) found that, The company's profitability, operational efficiency and growth capacity have been significantly negatively affected. The specific manifestations are inventory backlog, stagnation of cash flow growth, slowdown of net profit growth and decline of inventory turnover rate. As well as a sharp decline in revenue in the North American market [5]. Bai Sheng et al. (2019) found that enterprises lacking independent R & D capabilities and core competitiveness are more significantly impacted by trade frictions, while enterprises with advanced technology and independent innovation capabilities are relatively less affected [6].

To sum up, trade frictions affect the financial performance of enterprises through various channels. The technological strength and market adaptability of enterprises are the key factors to alleviate its negative impact. Future research can further explore the coping strategies of enterprises in the context of trade frictions. In order to achieve stable and sustainable development of financial performance.

1.4. Research Methods and Contents

1.4.1. Research methods

(1) Literature research method: Extensive access to domestic and foreign literature on Sino-US trade frictions, the development of Chinese manufacturing enterprises, and the impact of trade frictions on enterprises To understand the previous research results and research status, to provide a theoretical basis and reference for this study.

(2) The case analysis method: selects Hikvision. It deeply analyzed its business situation, problems and countermeasures in the process of Sino-US trade frictions. Through the case study, it summarizes the experience and lessons for other enterprises to provide reference.

1.4.2. Research content

This paper takes Hikvision as a case under the background of Sino-US trade frictions, mainly using literature research and case study. This study is based on the relevant theories of financial performance evaluation and the specific situation of Sino-US trade frictions. It combines the company's business profile, the basic situation of Sino-US trade frictions, and the financial sanctions imposed by the United States on Hikvision. This paper analyzes and evaluates the financial performance changes of Hikvision before and after the Sino-US trade friction.

2. CASE INTRODUCTION

2.1. Introduction of Hikvision

Hikvision is the world's leading provider of intelligent Internet of Things solutions and big data services with video as the core. It was founded in 2001 and headquartered in Hangzhou, China. As a benchmark enterprise in the security industry, Hikvision has always focused on technological innovation. It is committed to providing comprehensive products and solutions for global customers. It covers video surveillance, intelligent analysis, storage equipment, access control system, fire alarm and other fields. It is widely used in public safety, traffic management, finance, education, medical and many other industries.

Hikvision takes video technology as its core. A full-chain product system covering front-end acquisition, data transmission, storage management and intelligent analysis has been constructed. Its self-developed high-definition camera, network video recorder (NVR), video management platform (VMS) and other products occupy the global market. Important share. In recent years, the company has actively laid out artificial intelligence (AI) and cloud computing technology, and launched the "AI Open Platform". Enable industry users to achieve intelligent upgrade. In addition, Hikvision's innovative businesses such as thermal imaging, robotics and automotive electronics are also developing rapidly. Become a new growth point.

Hikvision's business covers more than 150 countries and regions around the world, and has set up more than 70 branches overseas. Provide localization services for international customers. According to the statistics of Omdia, an authoritative market research Institute, Hikvision has ranked first in the global market share of video surveillance for many years. The company adheres to the business philosophy of "professional, solid and honest", through strict quality management and technological innovation. It has won wide recognition from customers.

Hikvision attaches great importance to R & D investment, and spends about 10% of its business income on R & D every year. It has more than 20000 patents (including patent applications). The company actively participates in the formulation of industry standards and promotes the development of security industrial intelligence. At the same time, Hikvision practices corporate social responsibility and contributes to epidemic prevention and control, environmental protection, education support and other fields. It is committed to becoming a sustainable technology enterprise.

In the future, Hikvision will continue to drive development with technology and deepen digital transformation. Provide core support for building a safer and more intelligent world.

According to the company's 2020 annual financial report, its main business income reached 63.5 billion yuan. In terms of regional distribution, the Chinese market contributed 45 billion 810 million yuan in revenue, accounting for 72.13% of the total revenue; Overseas market revenue was 17 billion 700 million yuan, accounting for 27.87%. This revenue structure shows that if restrictions are imposed on its U.S. exports, it will have a significant impact on the company's international business revenue.

2.2. Hikvision's Supply Chain Structure

Hikvision is the world's leading provider of security products and solutions. Its supply chain structure has the characteristics of high globalization, digitalization and collaboration. The following is an analysis of the supply chain structure from the aspects of supply chain composition and management mode.

2.2.1. Supply chain composition

Hikvision's supply chain covers three core links: upstream suppliers, midstream manufacturing and downstream customers. Form an end-to-end integrated network.

The supplier system of upstream supplier Hikvision takes electronic components as the core. Including chips (such as processors, image sensors), optical components (lenses, infrared modules), storage devices (hard disks, memory) And structural parts (chassis, bracket), etc. Its suppliers are distributed all over the world, and its core chips rely on international manufacturers such as Qualcomm and Ambarella. Some key components (such as Huawei Hess chip) have been influenced by geopolitics, which has prompted Hikvision to gradually strengthen its domestic substitution. Cooperate with SMIC, Changjiang Storage and other domestic enterprises.

The midstream production and manufacturing of Hikvision is mainly based on independent production, with a global production base and Hangzhou as the center in China. Overseas factories have been set up in India, Brazil and other places to achieve localized supply. The production process

covers SMT patches, assembly, testing and other links. Improve efficiency through automated production lines (such as industrial robots, AI quality inspection). In addition, some non-core links are outsourced to factories, forming a mixed mode of "autonomy + outsourcing".

Downstream customers and channel customers include government (smart city projects), enterprises (finance, retail industry) and individual consumers. Sales channels are divided into direct sales (customized solutions for large customers) and distribution (covering small and medium-sized customers through the global agent network). Hikvision has established a logistics and service system covering more than 100 countries to ensure rapid response to demand.

2.2.2. Supply chain management mode

Hikvision's supply chain is based on global layout and digital technology as its core competitiveness. Deal with uncertainty through flexible strategies. In the future, its supply chain will further develop towards resilience and greening (such as carbon neutralization and supply chain). Support its continued leadership in the field of intelligent security.

3. ANALYSIS OF THE IMPACT OF SINO-US TRADE FRICTION ON HIKVISION'S FINANCIAL PERFORMANCE

According to the annual report data of Hikvision from 2015 to 2023, The impact of the Sino-US trade war, which began in 2018, on the company's profitability indicators, earnings quality indicators and financial risk indicators was analyzed. Compare the changes of these financial indicators during the Sino-US trade war (2018-2020) and before and after the trade war.

3.1. Analysis of the Impact on the Company's Profitability

Table 1. Profitability Change

	2023	2022	2021	2020	2019	2018	2017	2016	2015
Return on equity %	19.64	19.62	28.99	27.72	30.53	33.99	34.96	34.58	35.28
Return on total assets %	11.74	12.15	18.8	16.67	17.95	19.78	20.18	20.72	22.80

As can be seen from the data in the table 1, the Sino-US trade war began in 2018. Hikvision's return on equity and return on total assets have declined significantly.

3.2. Analysis of the Impact on the Company's Earnings Quality

Table 2. Earnings Change

	2023	2022	2021	2020	2019	2018	2017	2016	2015
Net Cash Flow from Operations/Gross Operating Income	0.186	0.122	0.156	0.253	0.135	0.83	0.176	0.195	0.127

As can be seen from the data in the table 2, the Sino-US trade war began in 2018. Hikvision's net operating cash flow/total operating revenue also declined significantly.

3.3. Analysis of the Impact on the Company's Financial Risk Indicators

Table 3. Cash Flow Ratio Change

	2023	2022	2021	2020	2019	2018	2017	2016	2015
Cash flow ratio	0.374	0.296	0.382	0.515	0.330	0.369	0.429	0.512	0.313

From the data in the table 3, we can see that since the beginning of the Sino-US trade war in 2018, the cash flow ratio of Hikvision has also shown a downward trend.

Since the beginning of the Sino-US trade war in 2018, Hikvision's financial performance indicators have indeed shown a downward trend. There are two main reasons. The first is the direct impact of the trade war, and the second is the restructuring of the supply chain and the rising cost. In October 2019, Hikvision was listed in the "entity list" by the United States. As a result, it is unable to obtain key components (such as high-end chips, optical devices, etc.) From American suppliers. In the short term, it has pushed up procurement costs and forced companies to adjust their supply chains. The United States restricts its use of American technology (such as EDA software, AI algorithm, etc.), which affects the efficiency and competitiveness of product development. Affected by US sanctions, some overseas customers have reduced their orders due to political risks or compliance pressures. In particular, the growth rate of market revenue in Europe and the United States has slowed down significantly.

Hikvision has to turn to non-American suppliers (such as Japan, Korea, domestic substitution). However, early alternatives may result in higher costs, compromised performance, or unstable capacity. In order to cope with the risk of supply interruption, the company substantially increased the inventory of raw materials (in 2019, the inventory increased by about 50% year-on-year). Take up cash flow and increase warehousing costs.

4. RESEARCH RESULTS

The Sino-US trade war that began in 2018 did negatively affect Hikvision's financial performance indicators.

Firstly, the trade war led to Hikvision being listed in the "entity list" of the United States, which directly restricted the import of its key technologies and components. Especially high-end chips and optical sensors. The sanctions forced companies to adjust their supply chains and turn to domestic alternatives or third-party channels for procurement, but pushed up production costs in the short term. Financial data show that Hikvision's gross profit rate dropped from 46.5% to 42.1% in 2019-2021, and the cost of raw materials increased by about 8%.The growth rate of net profit dropped from more than 20% to about 10%.

Secondly, the growth of international business has slowed down significantly. The United States and some allied markets have imposed restrictions on Hikvision products due to political factors. As a result, the proportion of overseas revenue declined from 34% (2018) to 28% (2022).Although companies partly offset losses by expanding into emerging markets such as Southeast Asia and the Middle East, However, the withdrawal of high-end markets in Europe and the United States still poses a challenge to long-term brand influence and profitability.

In addition, the trade war forced Hikvision to increase R & D investment to reduce technology dependence, and R & D expenditure increased by 25% annually after 2020.The proportion of revenue rose to 12% (8.9% in 2018). Although this strategy enhances the ability of independent innovation, it also squeezes short-term profit margins. At the same time, the exchange loss increased due to the increased fluctuation of RMB, which further affected the performance of net interest rate.

5. RESEARCH CONCLUSION

5.1. Conclusion

In conclusion, the trade war between China and the United States has weakened Hikvision's financial performance through the triple mechanism of supply chain disruption, market access restrictions and rising costs. Although enterprises have shown strong anti-risk ability through supply chain diversification and technological autonomy, in the long run. Geopolitical factors will continue to restrict its international competitiveness and profitability stability. In the future, Hikvision needs to further optimize the localized supply chain and deepen the layout of emerging markets to reduce the risk of single market dependence.

5.2. Suggestions on How Hikvision Deals with the Sino-US Trade War

Hikvision, as the world's leading provider of security technology and intelligent solutions, is in the context of the Sino-US trade war. The following strategies can be adopted to meet challenges and seize opportunities:

5.2.1. Supply chain diversification and localization

Diversify supply chain risk: reduce dependence on key components (such as chips) in a single country (such as the United States). We will strengthen cooperation with European, Japanese, Korean and domestic suppliers and establish an alternative supply chain system.

Accelerate domestic substitution: cooperate with Huawei, SMIC and other domestic technology enterprises. Promote the independent research and development and substitution of core components (such as AI chips and image sensors), and reduce the risk of technology "sticking neck".

5.2.2. Independent technological innovation and compliance management

Increase R & D investment: Focus on core technologies such as AI, big data and 5G, and increase the proportion of independent intellectual property rights. Reduce dependence on overseas technology.

Strengthen compliance system: strictly comply with international laws and regulations (such as export control, data privacy protection), and establish a professional compliance team. Avoid legal risks caused by trade frictions.

5.2.3. Diversified market layout

Deepen emerging markets: expand business in Southeast Asia, the Middle East, Latin America and other "the Belt and Road" countries. Reduce geopolitical impact through localized cooperation.

Expand non-security areas: extend to high-growth tracks such as smart city, Industrial Internet of Thing and enterprise digital transformation. Decentralize the dependence on traditional security business.

These suggestions also apply to other high-end Chinese manufacturing enterprises affected by the trade war.

REFERENCES

- [1] Guo Y., Lin S., (2022) Research on the Impact of Sino-US Trade Friction on the Development of China's Manufacturing Industry and Countermeasures. *Asia-Pacific Economic Review*, 4:141-142.
- [2] Sun, W. (2023) Research on the impact of trade barriers on manufacturing enterprise performance. Master's dissertation of Shandong University of Technology.
- [3] Handley, K., & Limao, N. (2017) Trade and investment under policy uncertainty: Theory and firm evidence. *American Economic Journal: Economic Policy*, 7: 189–222.

- [4] Chiu, Y.J., Chen, K.C., Che, H.C., et al. (2020) Does patent help to build investment portfolio of China A-Shares under China-US trade conflict? *Mathematical Problems in Engineering*.
- [5] Ablimiti, A. (2022) Research on the financial performance of Hikvision under the background of Sino-US trade friction. Master's dissertation of Xinjiang University of Finance & Economics.
- [6] Bai, S., Xu, L., & Zhan, J. (2019) A review of research on the critique of balanced scorecard theory. *Financial and Accounting Monthly*, 13: 83–88.