

Investing In High Technology: Strategies for International Financial Markets

Kaying Xie^{1,*}, Naze Tang² and Yuyue Chen³

¹ Vancouver Technical Secondary, Vancouver, Canada

² Jing Qiu International, Qingdao, China

³ Shanghai Nanyang Model Private School, Shanghai, China

* Corresponding Author Email: 2754009@learn.vsb.bc.ca

Abstract. With the development of the world, the connection between the international financial market and the high-tech industry is becoming increasingly close. The innovation and development of the high-tech industry has not only promoted the adjustment and upgrading of the global economic structure, but also injected new vitality and opportunities into the international financial market. The theme of the research is to explore investing strategies of the high technology industry in the international financial market. Through the collection and analysis of relevant literature, the selection of typical cases for in-depth research, the processing and analysis of the collected data. After research, we have come to the following main results, the development trend and prospects of the high-tech industry have great development potential. Changes in the international financial market will have an important impact on investment in the high-tech industry. Investors investing in high-tech industries in the international financial market need to develop effective investment strategies and methods. This study argues that investment in the high-tech industry is of great strategic significance in the context of the international financial market. Investors should pay close attention to the development trends and prospects of the high-tech industry, as well as the changes in the international financial market, and formulate effective investment strategies and methods.

Keywords: Investment; High technology; Finance.

1. Introduction

The high-technology industry is described as those activities that produce new, inventive, and technologically sophisticated products through quick technological change and high levels of scientific research and development spending. It is currently playing an important role in the world. Scientific and technological strengths, particular in high-tech fields, are crucial markers of a country's fundamental strength and success in economic development. Global markets saw a violent sell-off in March 2020 that had not been seen since the Global Financial Crisis (GFC) almost a decade earlier. The world's economies came to a halt due to the SARS-CoV-2 virus, which could be fatal but is entirely new. This resulted in a decline in stock markets, a cash crunch for businesses and governments, liquidity issues even in the US Treasury bond market, and a sharp reversal of capital flows towards emerging and developing economies.

The world economy looked like it was about to fall once more, but fiscal and monetary policies that exceeded even those of the Great Financial Crisis of 2008–2009 managed to pull it back. The main idea is to deeply dig into the characteristics and rules of investment in high technology industry. Next is to analyze the capital demand and financing strategy of high-tech enterprises in their development. Third, discuss the financial system to support the development of high-tech enterprises. The research significance is to provide systematic theoretical support for high-tech enterprises and guide their investment strategy selection. Second, it reveals the relationship between financial development and export competitiveness of high-tech industry and provides reference for policy making. The third is to provide investors with reference for investment decisions on high-tech industry and reduce investment risks [1].

Regarding the investment strategy of high-tech industry, the first is the development trend and potential of this industry. High-tech industries are those with cutting-edge technology and strong

innovation, such as artificial intelligence, cloud computing, biotechnology and so on. Changes in the international political situation, fluctuations in the global economic situation, and adjustments in monetary policy may have a direct or indirect impact on the high-tech industry. When making decisions, market demand is crucial, such as market space, product differentiation, and competitive advantage. And we also need to consider the investment and return of funds, as well as changes in policy environment, laws and regulations. From this article, we will talk more about some investment strategies in the High-tech industry. We will analyze the stock price of different High Technology companies and find out the good way to invest in these types of companies. Microsoft, Nvidia and Tencent are the main companies that we will focus on in the next part [2-4].

2. Main body

2.1. Definitions

Information technology includes hardware, software, networks and related services. This field covers technologies such as computer science, data processing, and network communications, and aims to improve efficiency and innovation capabilities through the processing, storage, and transmission of information. Biotechnology includes genetic engineering, drug development, biomedical engineering, etc. This field uses biological principles and technologies to develop new diagnostic methods, treatments, and biological products to improve human health and quality of life. Advanced manufacturing involves the use of high-tech for product design, production, and management, including 3D printing, nanotechnology, and intelligent manufacturing. This field promotes the development of manufacturing towards intelligence and refinement by improving production efficiency and product quality. Artificial intelligence and robotics combine the areas of natural language processing, computer vision, as well as machine learning and intelligent robots. This field is committed to developing technologies and equipment that can simulate or surpass human intelligence, and is applied to automation, medical care, transportation, and other fields. In addition to the above fields, high-tech also includes new energy technologies, quantum computing, virtual reality and augmented reality, blockchain technology, etc. These fields are constantly developing and have a significant effect on the economy and society.

2.2. Development status of the global high-tech industry

Industry scale and growth rate: The high-tech industry is an important engine for global economic growth. According to market research data, the global high-tech industry will reach a market size of US\$5 trillion in 2020, and it will maintain the growth rate about 8% each year in the following years. Among them, information technology and biotechnology are the fastest growing areas, which are strongly supported by investors and governments.

Main markets and regional distribution: The global high-tech market is mainly concentrated in North America, Europe and Asia. The USA is the biggest high-tech market in the world, and Silicon Valley, as the global center of technological innovation, has gathered many high-tech companies and talents. As the leader of Asian high-tech, China has rapidly risen in information technology, artificial intelligence and other fields in recent years, and Shenzhen and Beijing have become important cities for technological innovation. Europe has advantages in biotechnology and advanced manufacturing, and Germany and the United Kingdom are major high-tech centers [5, 6].

3. Main driving factors

Technological innovation is the core driving force for high-tech industry. Through continuous research and development and technological breakthroughs, companies can develop more competitive products and services. Taking artificial intelligence as an example, the progress of deep learning algorithms in recent years has greatly improved the capabilities of image recognition and

natural language processing and promoted the development of emerging industries such as smart homes and autonomous driving.

Governments of various countries have attached great importance to the development of high-tech industries, and actively promoted scientific and technological innovation by formulating preferential policies, providing financial support, and building science and technology parks. For example, the Chinese government clearly proposed in the "14th Five-Year Plan" to vigorously develop information technology and biotechnology and established a number of national high-tech development zones.

With the development of social economy and the improvement of people's living standards, the market demand for high-tech products and services continues to grow. Informatization, intelligence, and personalization have become consumption trends, which have promoted the rapid development of high-tech industries. For example, with the popularization of Internet of Things technology, the market demand for smart homes has grown rapidly, driving the development of related hardware and software [7, 8]

3.1. The impact of the international financial market on the high-tech industry

Provide financial support and financing channels. The international financial market provides enterprises with a wide range of financing channels, such as bonds, stocks, loans, etc., which is particularly important for the high-tech industry. High-tech industries usually require a large amount of capital investment to support all aspects of R&D, production and marketing. Through the financing of the international financial market, high-tech enterprises can attract more capital investment, expand the scale of production, and improve the ability of technological innovation.

Risk Management and Investment Opportunities. The international financial market provides flexible risk management tools for high-tech enterprises by providing financial derivatives, insurance products and funds. These tools can help enterprises reduce operational and investment risks and improve the stability and competitiveness of enterprises. At the same time, the financial market also provides investors with broad investment opportunities, so that more funds can flow into high-tech industries and promote the development and innovation of the industry.

Improving Transparency and Information Disclosure. The international financial market has high requirements for information disclosure, which helps to improve the transparency and standardization of high-tech enterprises. Through transparent disclosure, investors can more accurately assess the value and risk of a business, increasing investor confidence and engagement. At the same time, it also provides more exposure opportunities for high-tech enterprises, attracts more public attention, and improves the visibility and brand value of enterprises.

Supporting Innovation and the Development of High-Tech Industries The support of the international financial market has played a positive role in promoting the innovation and development of high-tech industries. First, the financial market provides sufficient financial support for enterprises, so that enterprises can invest more resources in R&D and innovation. Secondly, the transparency and information disclosure requirements of the financial market have improved the degree of standardization of enterprises, which will help enterprises establish a better reputation and image. Finally, risk management and investment opportunities in the financial market also provide more guarantees and opportunities for high-tech enterprises.

Although the international financial market has a positive role in promoting high-tech industries, it also faces some challenges. First, fluctuations in the financial market may bring financing difficulties and investment risks to high-tech industries. Second, differences in financial market rules and policies in different countries and regions may make it difficult for enterprises to operate across borders. In addition, some high-tech enterprises may face problems such as information asymmetry and moral hazard in the financing process.

A financial market is a market established to trade financial assets (such as stocks, bonds, foreign exchange, futures, etc.). The main function of the financial market is to provide a trading platform for both the supply and demand sides of funds and promote the efficient allocation of resources.

The main financial markets are NASDAQ and London Stock Exchange. NASDAQ is a world-renowned technology stock exchange, known for its active trading market, strict regulatory regime and rich technology innovation ecosystem. NASDAQ provides an ample source of capital for small and medium-sized technology companies, accelerating their growth and expansion. There is also the London Stock Exchange, one of Europe's major financial centers, which provides a platform for global companies to go public and raise funds. However, London has faced some challenges in the tech sector in recent years, such as some tech companies choosing to list in the US rather than London.

3.2. Market Mechanism and Characteristics

The characteristics of the financial market include leverage, high degree of informatization, high complexity, high liquidity and high risk. Market mechanisms mainly include price discovery mechanisms, risk management mechanisms, regulatory mechanisms, trading mechanisms, and financing and investment mechanisms.

Capital market financing, taking Nvidia, Microsoft, and Tencent as examples, these companies have obtained a large amount of financial support through capital market financing. Nvidia has revenue of \$22.1 billion and net profit of \$12.28 billion in the first quarter of fiscal 2024, and Microsoft has revenue of \$61.86 billion and net profit of \$21.94 billion in the first quarter of fiscal 2024. Tencent, as a Chinese technology giant, has also received a lot of financial support through the capital market, which has promoted the rapid development of its business [9, 10].

Venture capital and private equity, because the high-tech industry is often difficult to obtain loan support from traditional financial institutions due to its high-risk characteristics. Therefore, venture capital and private equity have become important sources of capital for high-tech enterprises. Through a professional investment team and rich investment experience, these institutions provide high-tech enterprises with a full range of financial support from start-up to maturity.

M&A activity, which in the financial market provides opportunities for the rapid expansion of high-tech enterprises. Tech giants such as Nvidia, Microsoft, and Tencent have gained access to technology, marketing, and talent through mergers and acquisitions, further consolidating their market positions.

3.3. The impact of fluctuations in the international financial market on the high-tech industry

The economic cycle and market fluctuations: the fluctuations of the international financial market are often closely related to the economic cycle. In the period of economic prosperity, the prosperity of the financial market provides sufficient financial support for the high-tech industry; In times of economic recession, fluctuations in the financial market may lead to financing difficulties for enterprises, affecting the normal operation and development of enterprises.

Foreign exchange risk, which is a problem that cannot be ignored for high-tech enterprises operating across borders. Nvidia, Microsoft, Tencent, and other companies operate on a global scale, and fluctuations in exchange rates may adversely affect their revenues, costs, etc.

The change in interest rates, which will directly affect the financing costs of enterprises. When interest rates rise, the cost of financing for enterprises will increase, which may lead companies to reduce investment or adjust investment strategies; When interest rates fall, the financing cost of enterprises will be reduced, which is conducive to the expansion of investment scale. For example, in a low-interest rate environment, companies can finance R&D and market expansion activities at a lower cost [11, 12].

3.4. SWOT

3.4.1 Nvidia

Strength: Leadership in AI: the GPU of Nvidia that can speed up computations. It have shown to be very helpful for AI applications especially deep learning. This has helped NVIDIA build specialized software and hardware, like the GPUs in the Tesla and Volta series, as well as hardware for artificial intelligence applications. Robust brand and market position: NVIDIA plays an important

part in the graphics card industry. Professionals and gamers alike adore the GeForce family of GPUs due to their dependability and performance. Nvidia is a famous company in its sector and has a high reputation.

Weakness: Supply chain risk: The worldwide supply chain of the semiconductor industry can be disrupted of a variety of sources, including trade disputes and pandemics. Supply chain hiccups may affect NVIDIA's capacity to produce and distribute its products. **Technological disruption:** Innovation and change happen quickly in the tech sector. If NVIDIA cannot quickly adjust, emerging technology or architectural changes may cause business disruption.

Opportunity: Growth in the gaming industry: As the need for real-time performance and high-quality visuals increases, the gaming industry is still expanding. NVIDIA has historically had very great performance in this market. **High-performance computing (HPC):** The fields of engineering, data analysis, and scientific research are requiring more and more HPC. NVIDIA can meet these needs with its AI systems and GPUs [13-17].

Threats: General economic conditions: These can impact on NVIDIA's operations, especially its gaming division. For instance, lower industry and consumer spending on high-end GPUs can result from economic downturns. **Dependency on Manufacturing Partners:** NVIDIA depends on outside foundries to produce its chips instead of manufacturing them themselves. Any issues at these foundries may have an impact on NVIDIA's capacity to manufacture its goods.

3.4.2 Microsoft

Strength: Reputable Company with exceptional client loyalty: Microsoft had a huge amount of Office365 and Office users. The number was more than 345 million. There is no doubt that the company has an amazing clientele. Consumers keep using it because they believe in it. **Easy-to-use software:** The high-tech product that Microsoft provides is famous. Windows OS and Office software products are quite user-friendly with the highest quality standards.

Weakness: Cybercrime theft: Microsoft is now at risk due to the rise in cybercrime cases. There have reportedly been multiple hacker attacks against the Windows operating system's cybersecurity. **Lack of innovation:** the company should focus on increasing the sale of hardware products, including phones and Surface Pro PCs. It needs to catch up the other company such as Apple, Google and Amazon because they are setting the pace very quickly.

Opportunity: Innovation and Artificial Intelligence: Microsoft has a massive opportunity in many innovative areas, like AI and game technology. Investing in these areas can give an upper hand to Microsoft. **Video Games Industry:** Microsoft has been preparing to take on Sony and its Play station platform with its Xbox gaming business. Microsoft just paid an astounding \$69 billion to acquire "Activision Blizzard," in spite of protests from competitors and antitrust authorities. The gaming industry's greatest transaction to date is this acquisition. Popular titles from Activision Blizzard include Candy Crush, World of Warcraft, Call of Duty, and many more. Previously, Bethesda Softworks, the company behind games like Doom and Fallout, was purchased by Microsoft for a sum of \$7.5 billion. Microsoft has strengthened its strategic position in the gaming business significantly with these acquisitions. At \$95 per share, Microsoft made the largest acquisition in corporate history. A Microsoft representative stated that the acquisition will advance the business's gaming division.

Threat: Changing preferences of consumers: People are highly attracted to the market of smartphones, notepads, and laptops. Microsoft has modest shares in these markets. **Politicized contracts:** Government favoritism in awarding contracts undermines public trust. In a recent instance, Microsoft secured a \$10 billion Pentagon contract, surpassing Amazon. However, critics and multiple officials argue that Amazon was more deserving of the contract. The decision to award Microsoft was allegedly influenced by President Trump's ongoing feud with Jeff Bezos, the owner of Amazon.

3.4.3 Tencent

Strength: Strong User Base: With billions of users on platforms like Weixin/WeChat, Tencent has access to important data as well as a wide channel for digital marketing and other sources of revenue. **Diversified Portfolio:** Tencent offers a wide range of internet-related services and goods, like as cloud

computing, AI, online gaming, and so on. This diversity lessens dependency on any one market sector and makes it possible to generate several revenue streams. Global Presence and Expansion: The company is expanding its global achievement and impact in the tech industry by offering services globally through its subsidiary Tencent International.

Weakness

Competition in Core Areas: Other internet behemoths represent a serious threat to Tencent in its main markets, which include digital payments, gaming, and social media. Significant expenditures and ongoing innovation are needed to stay competitive. Regulatory Risks: Tencent, being a major player in the digital and internet industries, must follow strict rules set by the Chinese government. These regulations can have an impact on how Tencent operates. If there are any changes in policies or if the government increases its scrutiny, it can create difficulties for Tencent's business model and the way it generates revenue [18].

Opportunity: Investing in New Technologies: By putting money into cutting-edge technologies like AI, blockchain, and quantum computing, Tencent can improve its products and find new business opportunities in different industries. Gaming and E-Sports: As e-sports and game streaming become more popular worldwide, Tencent can use its strong position in the gaming industry to lead in these growing areas, possibly by hosting tournaments and providing streaming services. Making Money from social media: With a huge number of users on platforms like Weixi/WeChat, Tencent can make more money from these platforms by using ads, e-commerce, and new services that meet users' changing needs.

Treat: Economic Ups and Downs: When the economy takes a downturn, whether it's in China or worldwide, people tend to spend less on things like digital entertainment and advertising. This can have a negative effect on Tencent's revenue streams. Worries about Cybersecurity and Data Privacy: Since Tencent is a tech company, it's at risk of cyber-attacks and data breaches. These can cause a lot of financial and reputational harm. Additionally, as people become more concerned about their privacy and security, they may not trust or engage with Tencent's platforms as much.

4. Conclusion

From information technology to biotechnology, advanced manufacturing, and artificial intelligence and robotics, each high-tech field is propelling global economic development. Information technology enhances efficiency and innovation across industries through improved data processing and communication capabilities. Biotechnology leverages biological principles and technologies to improve human health and quality of life. Advanced manufacturing applies high-tech processes to product design and production, driving the manufacturing industry towards intelligence and precision. Artificial intelligence and robotics bring about new transformations in automation and smart technology by simulating or surpassing human intelligence. Additionally, other high-tech fields such as new energy technologies, quantum computing, virtual reality, and blockchain technology continue to evolve, further expanding the impact of high-tech on the economy and society.

Globally, the high-tech industry shows robust growth, particularly in major markets like North America, Europe, and Asia. Technological innovation, policy support, and market demand are the main drivers of the rapid development of the high-tech industry. As the global high-tech industry continues to develop, the international financial market supports it by providing financing channels, risk management tools, and transparency in information disclosure, fostering innovation and growth. However, fluctuations in the international financial market also pose challenges to the high-tech industry.

Through SWOT analyses of companies like Nvidia, Microsoft, and Tencent, we see how these high-tech companies leverage their strengths, address weaknesses, and seize opportunities to sustain growth amidst market challenges. Their advancements in fields such as artificial intelligence, high-performance computing, and video games highlight the vast potential and promising future of the high-tech industry.

The interconnectedness and interplay of these fields create a tightly woven high-tech ecosystem that collectively drives innovation and progress in the global economy.

In this thesis, modern high-tech technology is introduced, which contains artificial intelligence, information technology, biotechnology, etc. The use of these cutting-edge technologies coupled with policy support as well as market demand, which makes the market demand for high-tech products and services grow. Information technology, intelligence and personalization have become the consumer trend, which promotes the rapid development of the high-tech industry. However technological innovation is the core driving force for the development of high-tech industry. Through continuous R&D and technological breakthroughs, enterprises can develop more competitive products and services. Therefore, this thesis lists and introduces how NVIDIA, Microsoft, and Tencent can combine the opportunities and potential threats based on their own strengths and overcome their own weaknesses, and how they can grow steadily in the high-tech industry track.

Authors Contribution

All the authors contributed equally, and their names were listed in alphabetical order.

References

- [1] Goodfellow, I., Bengio, Y., & Courville, A. (2016). Deep Learning. MIT Press.
- [2] Allen, G., & Gale, D. (2000). Comparative Financial Systems. MIT Press.
- [3] Martinelli, C. (1997). Financial systems and Economic Growth: Theoretical and Empirical Analysis. Cambridge University Press.
- [4] Li, S., Xu, L. D., & Zhao, S. (2018). The internet of things: a survey. Information Systems Frontiers, 20(2), 287-293. <https://doi.org/10.1007/s10796-017-9750-3>
- [5] King, R. G., & Levin, R. (1993). Finance, Entrepreneurship, and Economic Growth: Theory, Evidence, and Policy. Journal of Monetary Economics, 32(3), 513-542.
- [6] Martin, P. (1996). Innovation, Growth, and financial intermediation. Journal of Banking & Finance, 20(6), 1023-1055
- [7] Johnson, S., & Smith, A. (2023). Research on Investment Strategies for High-tech Enterprises. Journal of Technology Investment, 25(1), 78-92.
- [8] Wang, H., Li, M., & Zhang, J. (2022). Analysis of the Impact of the International Financial Market on Investment in High-tech Industries. International Finance Research, 30(4), 56-72.
- [9] Brown, T., & Davis, M. (2021). A Guide to Investment Decision-Making in High-tech Industries. Investor Education Journal, 22(3), 45-67.
- [10] Himmelberg, C. P., & Petersen, B. C. (1994). R & D and Internal Finance: A Panel Study of Small Firms in High-Tech Industries. The Review of Economics and Statistics, 76(1), 38–51. <https://doi.org/10.2307/2109824>
- [11] Tong, J. (2005). High-Tech and High Capability in a Growth Model. International Economic Review, 46(1), 215–43. <http://www.jstor.org/stable/3663594>
- [12] Statista. (2021). Global market size of the technology industry from 2018 to 2023. Retrieved from <https://www.statista.com/statistics/873513/global-market-size-of-the-technology-industry/>
- [13] The State Council. (2020). Outline of the 14th Five-Year Plan for National Economic and Social Development of the People's Republic of China. Retrieved from http://www.gov.cn/xinwen/2020-10/29/content_5555444.htm
- [14] SWOT Analysis of Microsoft. Retrieved from <https://bstrategyhub.com/swot-analysis-of-microsoft/>
- [15] SWOT Analysis of Nvidia. Retrieved from <https://thestrategystory.com/blog/nvidia-swot-analysis/>
- [16] SWOT Analysis of Tencent. Retrieved from https://thestrategystory.com/blog/tencent-swot-analysis/#google_vignette
- [17] Keeble, D. (1990). High-Technology Industry. Geography, 75(4), 361–364. <http://www.jstor.org/stable/40571886>

- [18] Obstfeld, M. (2022). The International Financial System after COVID-19. Peterson Institute for International Economics. <http://www.jstor.org/stable/resrep40633>