Analysis of the Impact of Covid-19 on Chinese Venture Capital Industry

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Abstract. The Covid-19 pandemic has hit various industries across the world at an extremely fast pace since its emergence. This research uses real sample data, covering the status quo and attribution analysis of China's venture capital industry after Covid-19. The findings reveal that there has been a decline in early-stage investments, while investments in rounds A to C have increased since 2019. The growth rate of venture capital projects after Covid-19 has been concentrated in industries such as advanced manufacturing, healthcare, traditional manufacturing, business services, and meta-industry. Specific subsectors like biotechnology and pharmaceuticals, as well as integrated circuits, have experienced significant increases in venture capital activity. Government policies have also played a role in shaping the industry, with regulations encouraging early and small investments in technology. Additionally, the "domestic substitution" strategy has influenced venture capital investment in advanced manufacturing. These findings indicate that China's venture capital is greatly affected by policy, which is reflected in the investment industry trend, amount and rounds in recent years.

Keywords: China; Covid-19; Venture capital; Pandemic.

1. Introduction

In the first half of 2020, Covid-19, with its frenzied spread, inevitably had a profound negative impact on the global economy. The epidemic has transformed the global investment landscape: the industry landscape has changed dramatically; geopolitical influences have come to the fore, with political issues overriding the economy; the policy environment is fraught with uncertainty due to rising protectionism and regulatory constraints; environmental, social, and governance (ESG) issues are receiving increasing attention; and compliance, fraud, and dispute risks are escalating in the context of the epidemic. The venture capital market has inevitably been affected by the volatility of the global economy. The crisis in Ukraine has exacerbated geo-economic fragmentation and disruptions in global supply chains, thus adding to the global venture capital challenge to some extent. At the same time, however, venture capital is a bellwether for new economic developments. At the peak of the epidemic, widespread policy rate cuts in major developed and emerging market economies, declining investment costs, and excess liquidity contributed to the peak moment of the global venture capital market in 2021.

COVID-19 since, its impact on countries around the world has attracted the attention of a wide range of scholars. Bellucci et al. examine the impact of COVID-19 on venture capital within the world through a reallocation perspective. The study uses a text-based classification approach to identify COVID-19-related investments and analyzes the pattern of venture capital investment before and after COVID-19. The results show that COVID-19 led to a reallocation of venture capital toward companies developing technologies relevant to the environment affected by COVID-19. It is concluded that COVID-19 accelerated the shift to digital and healthcare-related technologies and that this trend is likely to continue in the post-COVID-19 era [1]. Kraemer-Eis et al. investigate the influence of COVID-19 on European venture capital using a mixed methods approach that combines expert opinion surveys with time series models. Due to the analysis, COVID-19 will have a detrimental influence on the European venture capital sector. Investment activity and values are expected to fall. COVID-19's long-term influence on the industry is unknown, but it emphasizes the significance of resilience and adaptation in the face of unanticipated circumstances [2].

Some researchers have also investigated the macro-level impact of COVID-19 on the venture capital industry, as well as the future possibilities. Ezangina and Malovichko use scientific methodologies to investigate the growth of venture capital markets and the role of venture capital in fostering innovation. The impact of the COVID-19 outbreak on the venture capital sector is investigated, as are its future possibilities. The degree of volatility, composition, and dynamics of venture capital investments was explored during the pandemic, and it was established that the pandemic influenced sectoral investment reallocation in favor of venture capital investments [3]. Arundale examines COVID-19's influence on the investing business. The report looks at investor activity throughout the embargo, with 51% investing in new ventures and 16% investing in existing portfolios. According to the survey, investors are finalizing purchases at lower valuations [4]. Gompers et al. used a survey to collect data from institutional and corporate venture capitalists and received 1,181 individual responses. To study the impact of COVID-19 on the venture capital industry. The study found that COVID-19 has led to a shift in investment strategies among venture capitalists toward more conservative and defensive investments. Venture capitalists spend more time on portfolio management and less time on new investments [5]. Howell et al. analyze the effects of economic downturns on venture capital and innovation using data from four decades of recessions. Due to the COVID-19 epidemic, early-stage venture capital activity decreased by 38% in the first two months. This indicates that this type of investment is highly susceptible to market conditions. Venture-backed companies' innovations during the recession were less widely referenced, less distinctive, broad, and less intimately associated with basic research. For businesses supported by early-stage venture capital, these benefits were more severe [6].

There are also some researchers who want to find answers from the government's perspective. Bellavitis et al. used a dataset of more than 100,000 venture investments from 2017 to 2020 and used a difference-in-differences approach to estimate the impact of COVID-19. The research found that venture capital investment fell sharply in the first half of 2020, with seed-stage investments taking the biggest hit. The decline is not as severe in countries where the government has responded more strongly to the epidemic. The research underscores the importance of government responses in mitigating the negative impact of the pandemic on venture capital [7]. Mason examines the impact of COVID-19 on venture capital activity and portfolio companies. The research also examines different methods of government intervention, including co-investment programs, tax incentives, and non-dilutive financing. Mason uses a literature review to analyze previous crises and their implications for guiding current interventions. The research concludes that government intervention is necessary to protect the entrepreneurial ecosystem and suggests the need for place-based policies [8].

COVID-19 has also aroused the interest of Chinese scholars in the field of venture capital investment. Yang used a matching method to analyze the impact of venture capital on the survival of Chinese SMEs. The study uses data to compare the survival rates of SMEs that received VC investment with those that did not. The study concludes that the investment decisions of venture capital firms are closely related to the frequency and amount of investment in each Chinese province. Venture capital can significantly improve the survival rate of SMEs, especially during COVID-19 [9]. Song and Kutsuna used a sample of 1,082 Chinese listed companies and employed regression analysis to examine the impact of VC investment on IPO performance. Research shows that venture capital has a positive impact on IPO performance, particularly in sectors such as health and social work, culture, sports and entertainment, and diversified industries. The study notes that venture capital can help mitigate information asymmetry and signal IPO quality to potential investors [10].

This research focuses on analyzing a large amount of real sample data to reflect the detailed impact of Covid-19 on Chinese venture capital industry. It will analyze the changes in investment amount, investment direction, investment rounds, and other factors of the industry after Covid-19 from multiple perspectives. In Chapter 2, the authors introduce in detail the tools used in this study, as well as the scope of the selected data and the analysis methods. Chapter 3 presents the results of this study in a combination of graphs and text, including specific data and concise descriptions. In Chapter 4,

the results presented in Chapter 3 are analyzed mainly for their causes and possible influencing factors. In the end, Chapter 5 summarizes and outlines the results of this analysis, recommendations for improvement, and future outlook for the venture capital industry.

2. Method

The research data is obtained from ITJUZI, a leading provider of new economy venture capital data in China. One-third of the data is derived from technical crawling, including major news outlets, app stores, etc. One-third comes from user-generated content. The remaining part is from the partner data channels, such as regular access to job sites and developer community information. It also includes data from investment institutions, especially information on investment events. The analysis uses venture capital events in China through 2023. The total volume is 69,947 entries. These statistics are for venture capital events that occurred in China using CNY transactions during the same period.

Based on the requirements of data and variables used in this research, a total of 47,839 items of data from 2016 to 2022 are mainly selected for this research. The research uses Excel as a basic analysis tool to categorize and summarize the collected data for analysis. The main tools used include line graphs, pivot tables, and regression analysis. The variables set for the analysis include industry, sub-sector, rounds, time, and amount. The author attempts to portray the influence of the pandemic on the Chinese venture capital business by comparing and analyzing data on venture market activity in China before and after COVID-19. In the process of data processing, the research transformed the raw data into a percentage form to eliminate the effect caused by the difference in sample size between years. Changes before and after covid-19 were responded to by dividing the data into two parts before and after 2019 and averaging them to maximize the sample size and reduce bias.

3. Result

The charts that follow illustrate the findings of the investigation and explain the major values using analysis of a sizable quantity of industry case data.

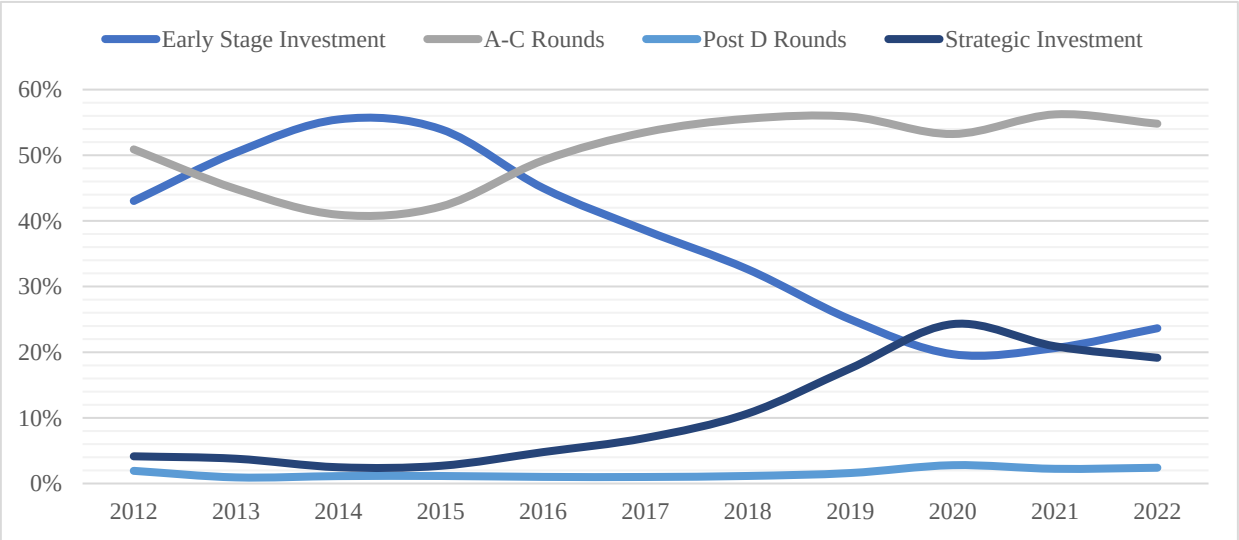

Fig. 1 Distribution of the number of investment projects in each round of China

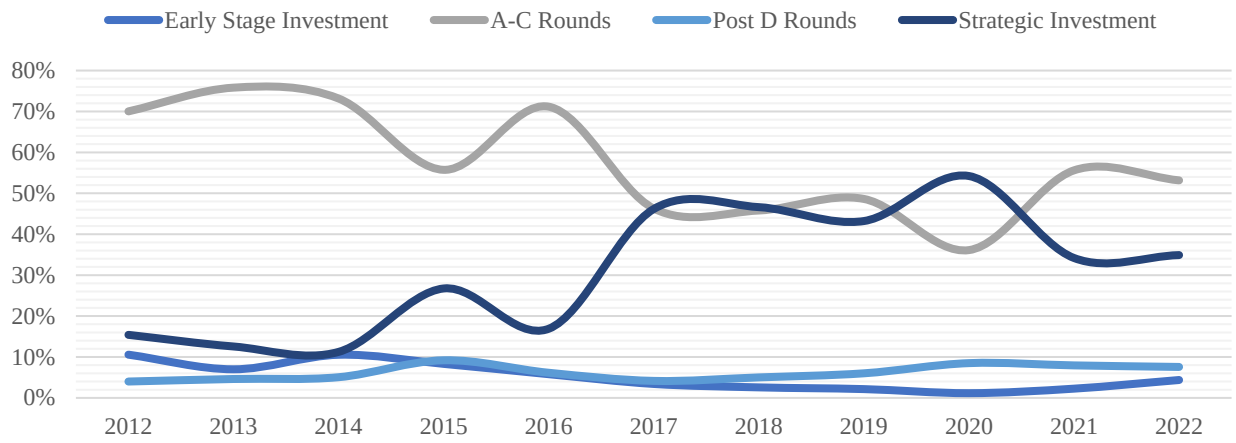

Fig. 2 Distribution of investment projects amount in each round of China.

In terms of the distribution of venture capital rounds and quantities, as shown in Figures 1 and 2, early-stage investments represented by seed rounds and angel rounds, as well as strategic funding, have demonstrated a clear declining trend in recent years. In 2020, for example, the share of the number of investment cases declined to 20%, about 1/3 of the investment peak in 2015, and the share of the investment amount also fell back by more than 50% compared with 2015. The number of investment projects from round A to round C has been climbing sharply continuously since 2019, accounting for 56% of the share of investment projects in the venture market and 56% of the share of the amount by 2022, both of which are at record highs in recent years. The proportion of late-stage investment deals in round D and later rounds tends to decrease steadily, and the proportion of the deal value floats in the range of 4% to 9% for a long time. The number of strategic investment cases declined from 24% in 2020 to 19% in 2022. The share of the amount of money fell back from nearly 54% to about 35%. From the number and number of investments by round, it can be seen that in recent years China's venture capital organizations have continued to use their capital mainly to lay out mature startups of a certain scale. While the investment tendency continues to converge towards the early stage, the number and amount of early seed and angel round investments are at a low level. On the one hand, it shows that the capital that has been active in the field of venture capital over the past decade has fully tapped the initial investment value. On the other hand, it demonstrates that the risk of early-stage investment is increasing while the rate of return is decreasing.

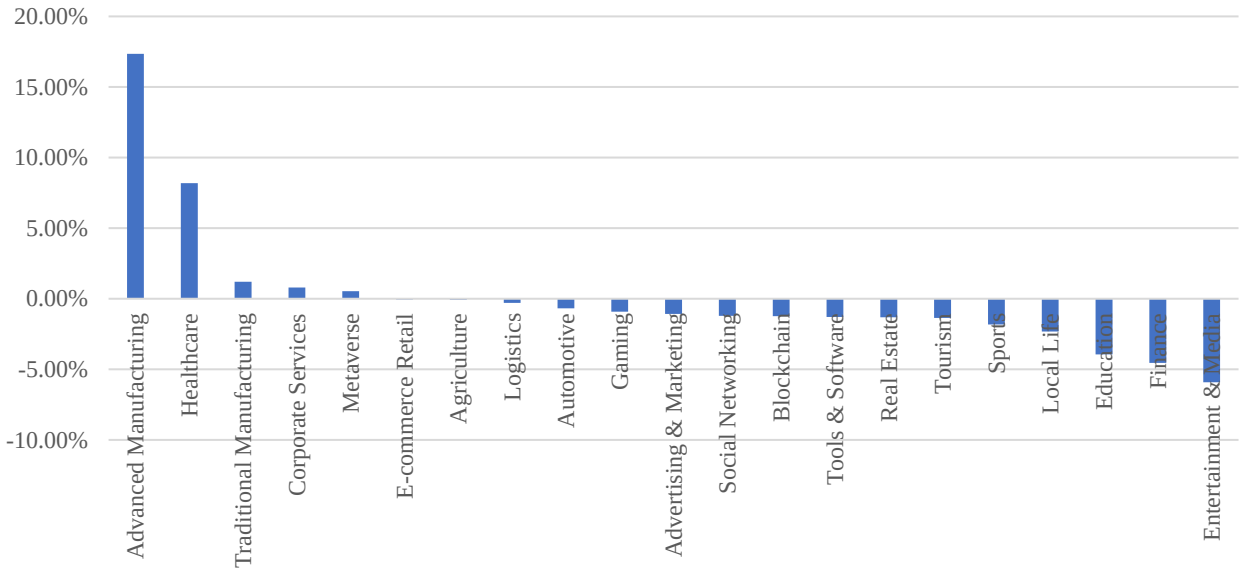

Fig. 3 Venture Capital Industry Growth Rates After Covid-19 (2020-2022)

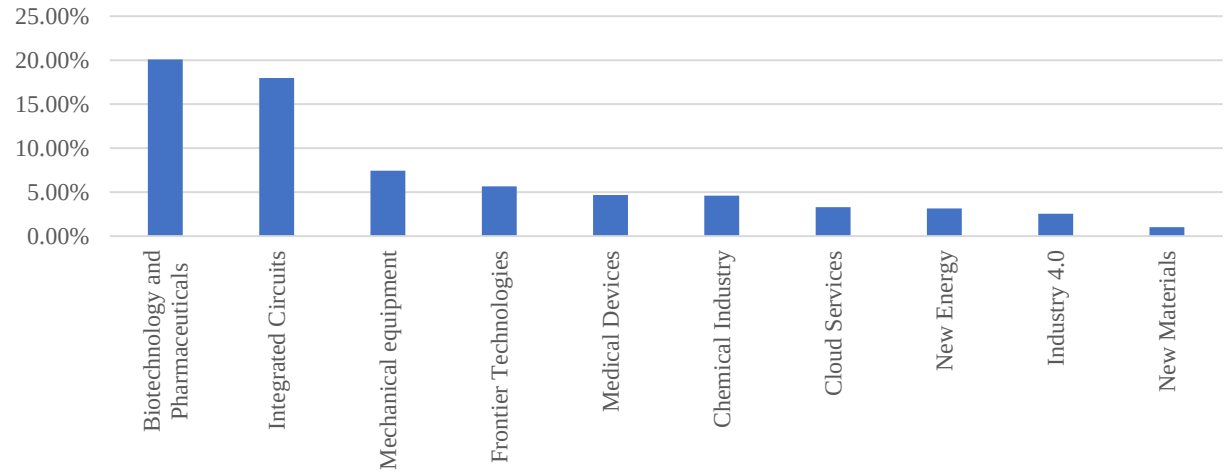

Fig. 4 Top10 Venture Capital Subsector Growth Rates After Covid-19 (2020-2022)

As shown in Figure 3, after Covid-19, the top five industries in terms of the growth rate of the number of venture capital projects are advanced manufacturing, healthcare, traditional manufacturing, business services, and meta-industry in that order, accounting for 29.76%, 19.38%, 3.44%, 14.27% and 0.62% of the total investment in all industries, respectively. Figure 4 illustrates that in terms of sub-industry size and number of investment projects, there has been a significant increase in venture capital activity in the biotechnology and pharmaceuticals sector after Covid-19, with the three-year average number of investment projects in 2020-2022 accounting for as much as 20.08% compared to the 2016-2018 average. At the same time, the global chip supply-side shortages in the past two years have made China pay more attention to the development of semiconductor own technology and products, investment in the integrated circuit sub-sector rose by 17.98% during the preceding three years on average.

4. Discussion

4.1. Policy as a Key Factor Influencing Venture Capital

As shown in Figure 1 and Figure 2, since 2019, the proportion of early-stage investment in venture capital and amount has been increasing year by year. It has changed the trend of annual decline in the number of investments since 2015. This demonstrates that Covid-19 has influenced the investing choices of venture capital firms and venture capitalists. Since 2019, geopolitical turmoil, the economic impact of the pandemic, and the competitive nature of venture capital have led investors to prioritize early, small, and high-tech investments. They are also connected to the majority of the top ten growth rate sub-industries indicated in Figure 4. Before the outbreak of Covid-19, the macro situation and policies were more of a background for industry research and consideration, because the overall environment had relatively little change. Today, geopolitics and macro policies are increasingly influencing specific investments and decisions, so the order of consideration is higher. On July 3, 2023, Premier Li Qiang of The State Council of China signed Order No. 762 of The State Council and promulgated the Regulations on Supervision and Administration of Private Investment Funds. The regulation clarifies the meaning of venture capital funds and encourages "early investment and a small investment in technology". In addition, the policy also determines the support for venture capital funds, governmental funds, and other private funds with reasonable demand for expansion. With the introduction of this policy, the attention of China's venture capital will be more focused on the early stage of investment in various industries. In the future, under the strategic background of "Carbon Neutral, Carbon Peak", new energy vehicles will not only continue to attract investment activities in the automotive and parts industry but also continue to drive the demand for new energy and new materials R&D and manufacturing to enhance further. In addition, machinery manufacturing, the chemical industry, cloud services, and other sub-sectors in the post-epidemic era are also more

favored by venture capital, as opposed to the once-hot Internet, media, and other tracks in recent years has gradually cooled down, the focus of domestic venture capitalists from the business model innovation gradually shifted to scientific and technological innovation.

4.2. Domestic Substitution Becomes the Main Direction

Combined with Figure 3 and Figure 4, the advanced manufacturing industry and its related capital industry have become the hot spot of China's venture capital investment after Covid-19. This trend is closely associated with China's future development strategy. The chip semiconductor industry is a vital component of China's scientific and technological development, and the biggest impediment is the necklace problem; therefore, accelerating the realization of domestic substitution is the unavoidable way out of the chip semiconductor industry's foreseeable growth. The preference for venture capital for advanced manufacturing can be attributed to the relevant "domestic substitution" policies introduced by China. That strategy has played out in other industries with higher growth rates late in the pandemic. Take medical devices as an example, some regions of China have issued policies to encourage domestic substitution of medical devices, and domestic devices have a broad prospect. First, the state encourages the construction of public hospitals to release the market demand for medical devices. And some regions have issued policies to encourage the priority procurement of domestic equipment, and domestic manufacturers benefit. Second, the bidding price of some manufacturers is still above the ex-factory price, which has little impact on profits, and the price of imported products is high. Domestic enterprises are expected to achieve rapid product volume, rapidly improve the market share of products, and accelerate domestic substitution. Third, the importance of core data security protection has been paid more and more attention, and the level of intelligence and informatization of medical equipment is improving day by day, which is conducive to accelerating the entry of domestic devices into medical institutions. In general, "domestic substitution" will become an important policy driver and impact the growth of China's venture capital business.

5. Conclusion

Using actual sample data, this research project examines how Covid-19 has affected China's venture capital market. The findings reveal several key insights. First, since 2019, China's "domestic substitution" strategy has increased investment enthusiasm in sectors such as advanced manufacturing, healthcare, traditional manufacturing, and business services. Venture capital activity in specific segments such as biotechnology and pharmaceuticals and integrated circuits has increased significantly. Second, government policies, such as encouraging early-stage and small-scale technology investments, have played a role in shaping the industry, and early-stage investments have increased since Covid-19. The influence of COVID-19 changes in geopolitics, and the competitive character of venture capital are all reflected in this shift in venture capital preferences. Looking forward, the Chinese VC industry is expected to continue to focus on early-stage investments across industries, driven by government policies and national strategic directions. With the introduction of policies to support venture capital funds and the emphasis on technological innovation, the focus on industries such as new energy vehicles, machinery manufacturing, chemicals, and cloud services will increase. The chip semiconductor industry, in particular, will be a key area of focus as China aims to accelerate domestic substitution and overcome the challenge of necklace issues. Chinese venture capital firms should focus on the importance of considering geopolitical changes, government policies, and industry trends in their investment decisions.

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