Financial Investment Risk Analysis in the Post-Epidemic Era

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Abstract. This paper investigates the correlation between the persistent impact of the epidemic on investment risk in the post-epidemic period and the response measures. A high correlation is found between market performance and policies introduced due to the ongoing impact of the epidemic. Further validation is provided by using the CSI 300 as a reference portfolio and by selecting ten stocks from the CSI 300 in the capital markets services sector to calculate the correlation coefficient between the latter and the former. It is found that placing assets in capital market services companies leads to lower investment risk, and the correlation between investment risk and the ongoing impact of the epidemic is moderately low. However, placing assets in capital markets services firms is not a better choice currently if investors want to obtain a higher return on their assets.

Keywords: Post-epidemic era; investment risk; correlation coefficient; investment advice

1. Background

With the epidemic hitting the market hard, many companies have received impacts and forced to lay off employees, and investor confidence in the market has received a serious blow. According to the World Bank Investor Confidence Survey 2021, more than half of the companies received negative impacts during the epidemic and needed to lay off employees to keep their companies running but are expected to recover gradually in 2021-2024 [1].

In the post-epidemic period, investors face not only the ongoing impact of the epidemic, but also the effects of central bank tightening, supply chain disruptions, ongoing inflation, and the war in Eastern Europe. As Morgan Stanley Chief Global Economist Seth Carpenter put it, "we are in the most chaotic, hard-to-predict macroeconomic time in decades. " [2]and their team also expressed great concern about the macroeconomics with 2022, believing that global GDP growth is likely to be only 2.9%, which is less than half of that in 2021, when GDP growth reached 6.2% with the support of a series of stimulus policies by governments [2]. Therefore, more research is needed to analyze the risks faced by investors in the post-epidemic era and to find out how governments should counteract them.

According to the existing literature, during Covid-19, the outbreak, and a series of government measures to prevent and control the epidemic had a negative impact on the economy, but at the same time, the government's measures to recover the economy also had a very significant boost to the economy [3]. In the post-epidemic era, it is crucial for investors to make decisions and for the government to take countermeasures to balance economic development and epidemic control. This paper will focus on the persistent impact of the epidemic on investors and the corresponding countermeasure suggestions from the perspective of investors and the government respectively.

2. Literature Review

Following the Covid-19 outbreak many countries took various levels of precautionary measures. The global economy was severely affected, with global inflation rising rapidly and unemployment and energy commodity indices increasing along with the number of cases and deaths from the epidemic[4]. The epidemic also had a very serious impact on the stock market and the hospitality industry. [5] In the case of the United States, the stock exchange market even dropped by 26% for four days during the March 2020 period, which also led to a 4.8% drop in the U.S. GDP and a 20% increase in the unemployment rate in the first quarter of 2020[6].

There are many experts and scholars who believe that the stricter these preventive measures the more pronounced the economic downfall is also[7, 8]. Overly stringent measures also have a very negative impact on reopening, such as the risk of a new pandemic after reopening thus putting the entire national health care system at risk and the economy at risk of further decline[7]. Some embargoes that affect the functioning of health systems can even significantly increase the risk of economic and medical collapse together[8]. The embargoes imposed by global pandemics have had long-term effects on the way individuals travel in many countries and have led to the closure of many companies, adding great uncertainty to the economic income streams of many individuals and families[9].

Here this paper uses the example of China, which has a large sample size and very stringent epidemic prevention measures compared to many countries. The Chinese government has taken very rapid and stringent measures to prevent the epidemic from the beginning of the epidemic[10]. In areas where the Covid-19 outbreak was not severe, the Chinese government took measures to control crowded areas, mask wearing recommendations, close contact tracing, a series of hygiene recommendations and extensive use of early diagnostic tools to confirm the diagnosis of patients and isolate suspected cases and close contacts[10]. Cities or areas with severe Covid-19 outbreaks have been closed and travel restrictions have been imposed on people[11]. There are 18 million SMEs （Small and Medium Enterprises） in China, and most of them have been affected by the outbreak to a greater or lesser extent[10]. In terms of import and export trade, in just the first two months of 2020, China's import trade fell by 4% and export trade fell by 17.2%. [10] As a direct result, China's GDP fell by 6.8% in the first quarter of 2020[12].

As the number of confirmed Covid-19 cases and deaths increase in the pre-pandemic period, it increases market uncertainty and reduces asset liquidity. Studies have noted that for every 1% increase in the number of cases, stock returns and GDP growth will decrease by 0.8% and 0.56%, respectively [6]. It has also been noted that the spread of Covid-19 cases also plays a significant role in promoting a lower currency exchange rate in the country, which also contributes to the decline in the country's stock market[5].

In the wake of this, many countries have also adopted a series of economic recovery measures. Studies suggest that countries that are better established to deal with economic shocks will also recover more rapidly after the Covid-19 pandemic[13]. Although policymakers have injected more dynamism into financial markets following economic downturns, China's economic recovery measures following a severe economic downturn differ from the direct economic support measures generally adopted by Western countries such as the United States and the United Kingdom[14]. China prefers to support enterprises[13]. China's expansionary monetary policy towards SMEs also directly led to an 18.3% increase in GDP in the first quarter of 2021 relative to the first quarter of 2020[8][9]. However, this has also led to overcapacity that has increased the leverage of many firms, especially non-financial firms, making China's banking system vulnerable and exacerbating the expansion of the real estate market, leading to more risk in the Chinese economy[13]. Liu, K. (2021) argues that because of China's large economy and extraordinary influence in the world, the risks in the Chinese economic system will also increase the instability of the world economy[13].

For investors among individuals and corporations, they are more inclined to adopt a diversified portfolio in the post-epidemic era, and many investors have shown a higher aversion to risk[14]. The impact of the epidemic on companies has also provided many investors and researchers with valuable case studies and investment recommendations. Sharma et al. (2021) argue that sustainable investment strategies perform better in the face of an epidemic than traditional strategies[15]. Omura A., Roca E., & Nakai M. (2021) found that investing in companies with high ESG (Environmental, Social and Governance) and SRI (MSCI Socially Responsible Investing) scores had better results than general investments[16]. It has also been noted that companies with lower valuations and low leverage but with higher investments receive less impact from economic shocks when unexpected events strike[17]. On the fund side, fund managers have also shifted their investment preferences from riskier products to less risky ones[18]. Funds can be selected for better HCE (Human capital efficiency) performance because they also recover more quickly after receiving an epidemic shock to the period of better performance before the epidemic[19]. Mutual funds, on the other hand, need to focus on investing in human resources, which many cases have shown to enable them to perform strongly even in turbulent environments[19].

3. Methodology

In the post-epidemic era, countries have liberalized their control measures and reopening has become the consensus of all governments. The UK government decided to fully liberalize on April 1, 2022, and after this date, the entry and prevention measures of each country were also liberalized, so this study takes this date as the symbol of the official start of the post-epidemic era.

To more accurately investigate the relationship between government policies and investment risks in the post-epidemic era, China is chosen as the main study target because it is the second largest economy in the world and the control measures are still very strict during the post-epidemic period[20].

From Figure 1, it can be seen that in the post-epidemic era, each inflection point in the Chinese market is accompanied by a corresponding event. One obvious feature is that near the inflection points, there is a more significant gap between the opening and closing prices compared to other times, and there are also significant policies during these periods, indicating that the market performance of companies in China is more closely linked to policies. As this article focuses on the investment risk associated with the ongoing impact of the epidemic, this paper will focus on the correlation between the lifting of "static management" in Shanghai and the "principle home" policy in Chengdu and investment risk. Although the names of "static management" and " principle home" are different from lock down, they are roughly the same, with a series of measures that prevent residents from going out and businesses from starting work.

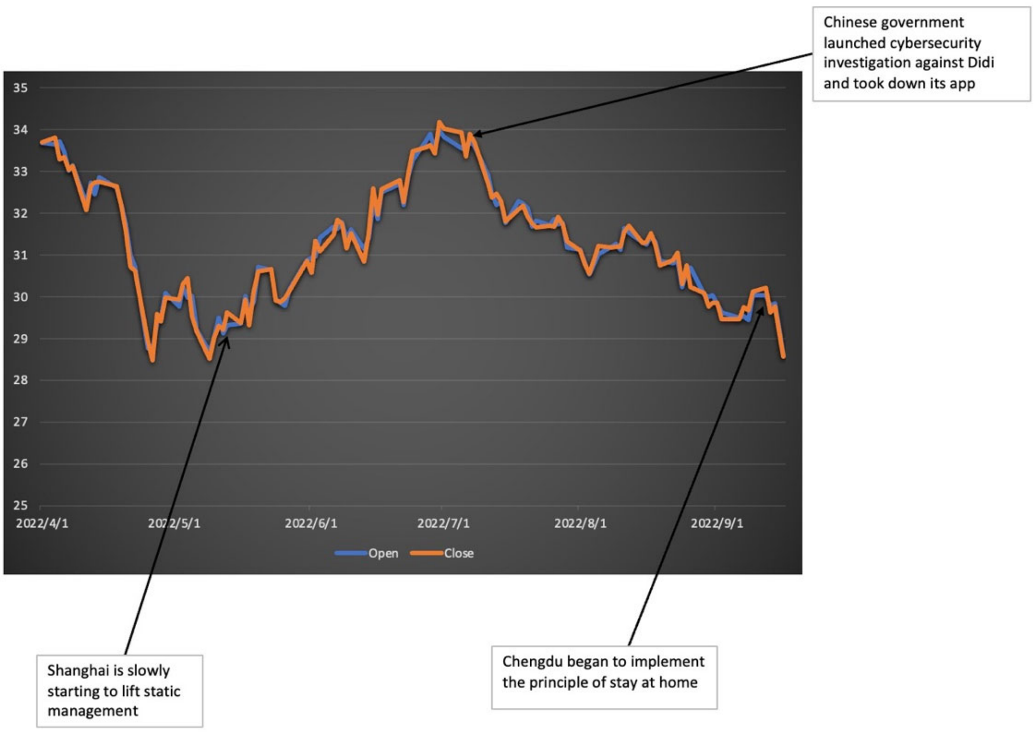

Fig. 1 Market performance and corresponding government policies

Then, the daily opening and closing prices of the CSI 300 portfolio were selected after April 1, 2022, as the top 300 stocks in China ranked by average daily trading price for the past year, which is a more accurate reflection of the overall situation of the Chinese market. Afterwards, this paper looks at the fluctuations of the charts to find the link between them and specific policies.

Regarding the impact of the epidemic on the continuity of investment risk, this study uses the CSI 300 as a reference, with total market capitalization and average daily trading volume for comparison, and selects 10 stocks in the capital market services sector for portfolio analysis, with stock codes 600030, 600061, 600109, 600621, 600909, 600918, 600958, 600999 The companies in the capital market services industry can well reflect the warm and cold of the investment market, and the macro level reflects investors' investment confidence in the current period, specifically the better its trend, the higher the investors' investment confidence[21].

The average daily return μM of the portfolio made in the post-epidemic period based on CSI 300 and the average daily return μS of the stocks based on the 10 capital market services sectors are derived, respectively.

The formula is: $\mu = \Sigma$ (closing price - opening price)/closing price/x

x is the number of trading days from April 1st

Table1. Average Daily Return Comparing

Average Daily Return μM
-0.0002564
Average Daily Return μS
0.0006913

The calculated μM = -0.0002564, μS = 0.0006913, indicating that companies in the capital market services sector outperformed the overall post-epidemic period in terms of average daily return, further indicating that investors still have confidence in the Chinese market despite the overall poor performance of the Chinese stock market in the post-epidemic era.

The beta of the 10-stock portfolio can be estimated by substituting the average daily return into the formula. beta reflects the correlation between the capital market services sector and the overall market trend. When the beta value is less than 1, the correlation is lower, while when the beta value is larger and 1, the correlation is higher.

The formula is: $\beta S = Cov(rS, rM)/Var(rM)$

Table2. Correlation coefficients between portfolio of selected stocks and CSI 300 portfolio

βS
0.86526969

The calculated βS = 0.86526969, indicating that the sensitivity of investment risk to market risk is moderate and slightly low, and investor confidence does not have a strong correlation with the market's trend. After further comparing the market performance with government policies the link between investors' confidence in the market and government policies can be derived from the analysis.

Finally, the information is used to further predict the future direction of the macro market to analyze the warm and cold of the investment market, as well as to give corresponding policy recommendations based on the degree of correlation between investor confidence and policies.

4. Results

With the lifting of the static management in Shanghai on May 6, this paper can see in Figure 1 that the economic situation immediately reversed and showed an upward trend. Previously, the 28 million local residents in Shanghai, including 160,000 expatriates, were generally anxious, frustrated, and angry when schools were closed, and businesses were shut down during the "static management" and "principle home" periods[22]. China has a unique collectivism developed from its agrarian culture, where individuals can look to society, neighbors, family, and friends to take care of them[22]. This is a culture that many expatriates cannot understand and integrate into. Furthermore, according to The Economist, expatriate holdings of Chinese stocks fell by 20 percent in the first three months alone, and many expatriates in Shanghai have decided to return to their home countries after experiencing cultural differences, frustration with the government, and concerns over economic losses. A study by the Chinese University of Hong Kong showed that a two-day blockade of Shanghai alone would cost China 2 percent of its GDP for the month, or about 190bn yuan ($27bn). However, this paper see an immediate improvement in the stock market after the lifting of the "static management" and then a decline after the introduction of the "principle home" in Chengdu, indicating a strong correlation between investor confidence and government policy.

The average daily portfolio return μM based on CSI 300 and the average daily return μS based on 10 stocks in the capital market services sector during the post-epidemic period are μM=-0.0002564 and μS=0.0006913, respectively, reflecting that investors prefer to place their assets in investment companies despite the bad market performance and suggesting that companies that focus on risk management (e.g. investment firms), can better cope with risk[23]. To further verify the association between investors' confidence in the market and market performance, this paper finds the portfolio correlation coefficient βS for 10 stocks in the capital market services sector to be 0.86526969. verifying that firms in the capital services sector are not highly sensitive to the market and reflecting that investors' investment confidence is not highly correlated with market trends as well, and the correlation between the two is moderately slightly low. Combined with the previous study which concluded that the Chinese market is highly correlated with the policies of the Chinese government, it can be inferred that investor confidence in the Chinese stock market is probably moderately low and not highly correlated with the policies of the Chinese government. This further reflects that when investors place their money in companies in the capital market services sector, the correlation between investment risk and government policy is moderately low and not high.

According to J.P. Morgan's forecast, in order to reach China's stated target of 5.5% GDP growth, the subsequent seasonally adjusted annual rate (SAAR) would need to reach at least 6.5% to cover the previous lower growth rate[24]. Therefore, despite the current "principle home" in Chengdu, it is likely that the Chinese government will take a series of stimulus measures to bring the SAAR to 6.5% afterwards. In the post-epidemic period, since capital services firms are moderately insensitive to the market, placing assets in capital services firms may not be an option for most investors to maximize investment returns due to the impact of the epidemic, but placing assets in capital services firms is a measure that can reduce investment risk.

5. Conclusion

This paper found a high correlation between market performance and government policies by examining market performance in the post-epidemic era in China and combining it with the policies issued due to the ongoing impact of the epidemic. To further explore the correlation between the performance of the capital market services sector and the market trend, ten representative stocks in the capital market services sector were selected from the CSI 300 for the portfolio, and the μM of the CSI 300 and the μS of the portfolio of ten stocks in the capital market services sector were calculated. It is found that the "static management" in Shanghai and the "principle home" in Chengdu both have impacted the market but not the companies in the capital services industry, and investors' confidence in investing in them remains unabated. For investors placing assets in companies in the capital services sector, there is no high correlation between investment risk and policies issued due to the ongoing impact of the outbreak.

To further verify the association between the two, this paper calculates the correlation βS between the portfolios of ten capital market services sector stocks and the market and concludes that the correlation between the two is moderately low and does not have a high correlation. Combined with previous studies, it is inferred that placing assets in companies in the capital markets services sector is not highly correlated with policies issued due to the ongoing impact of the epidemic and makes the investment less risky. However, due to the economic downturn caused by the epidemic, the Chinese government is likely to introduce measures to stimulate the economy afterwards, so placing assets in companies in China's capital market services sector is not an option to achieve higher investment returns.

This article examines the investment risks in the post-epidemic era for the benefit of policy makers and investors as well as companies in the capital market services industry and provides some ideas for other investment risk researchers. However, since this paper only examines investment risk due to the ongoing impact of the epidemic, more accurate forecasts and investment risk analysis will require further study by subsequent researchers.

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