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# Research on the Financial Market Reaction under the Extraordinary Public Health Emergencies

**Fangyuan Cai[1], Shuyuan Zhang[2], Jiaxing Guo[2], Xinyang Zhang[1]**

[1]*School of Mathematics, China University of Mining and Technology, Xuzhou, Jiangsu 221100, China*
[2]*School of Management, China University of Mining and Technology, Xuzhou, Jiangsu 221100, China*

***Abstract: I****n the case of serious public health emergencies, it is of great significance to fully analyze the reaction of financial market and explain the mechanism behind it, so as to build or improve the relevant feasible emergency management system. In this paper, a variety of analysis methods are used to systematically explain the typical public health emergencies, based on the empirical research on the policies of China, America, Japan and Britain during the epidemic period, this paper explores the internal logic and correlation between different reactions in financial markets from multiple dimensions, and summarizes innovative interpretations of different reactions in financial markets. The results show that under the monetary policy based on ensuring liquidity, combined with effective epidemic prevention and control measures, only in this way can the economic and financial system impacted by the epidemic be saved.*

***Keywords:*** *Public health emergencies, Financial market response policy analysis, Policy recommendations*

## 1. Introduction

In the process of historical evolution and the development of human society, major public health events caused by various diseases have occurred constantly. Especially since the great discovery of navigation at the end of the 15th century, the world trade links have been continuously strengthened, regional trade barriers have been gradually broken, the process of economic globalization has been continuously advanced, and the global financial system has been gradually established and developed. At the same time, therefore, the influence and destructive power of major public health emergencies are constantly enhanced. For example, at the end of the First World War in 1918, the "Spanish flu" flu swept across the United States and then spread all over the world. Barro et al. [1] conducted a least square analysis between the mortality rate excluding World War I deaths and the change range of world GDP. It is believed that influenza caused the real GDP per capita to drop by about 6% on average in the same period. The outbreak of SARS virus in 2003 caused huge losses to China's economy in the short term, among which transportation, accommodation and catering, tourism and other industries suffered the biggest impact [2]. In May 2003, the number of inbound tourists in mainland China decreased by 31% year-on-year, tourism foreign exchange income decreased by 59% year-on-year, and domestic passenger traffic decreased by 42% year-on-year.In May 2003, the year-on-year growth rate of total retail sales of social consumer goods dropped to 3.6%, significantly lower than the annual growth rate of 9.1%. The COVID-19 outbreak at the end of 2019 caused great damage to the global economy, and the global capital market fluctuated violently. On February 3, China's Shanghai Composite Index reached a huge decline of 7.72%, and global stock indexes plummeted since March.There have been four "fuses"[3]in American stock market.

In order to minimize the negative impact of public health events, it is necessary to establish a sound financial emergency management system. However, finance is fragile. The financial system of modern countries is constructed by human beings, which consists of institutions, rules and regulations, operating systems, operating systems, etc. Any instability in any part may have an impact on the financial system.In particular, emergencies are more likely to have a destructive impact on them, seriously affecting economic and social development and stability. Therefore, by analyzing typical public health events, this study puts forward relevant development suggestions.

## 2. Interpretation of historical public health emergencies

In recent years, SARS, avian influenza and COVID-19 Covid-19 are the major public health emergencies that have influenced and impacted various fields in China.

SARS SARS: in the early stage, consumer confidence was impacted and consumer willingness was greatly weakened, which showed that the decline rate of consumer confidence index from January to June 2003 exceeded 50%; Transportation is blocked, and consumption in tourism, catering and other industries is affected; The CPI index rose rapidly, increasing by more than 3% over the same period. In the medium term, the macro economy was impacted and the GDP growth slowed down. In January 2003, China's GDP growth rate was 11.1%.It has dropped by 1 percentage point since April of the same year; From June to August, 2003, the financial market showed a situation of "double killing of stocks and bonds", and the overall increase of stock market and CSI comprehensive bonds showed a downward trend, and their values became negative from June. In the later period, the consumer sentiment improved and the confidence index returned to the normal level before January 2003; The market is expected to improve, and the exchange rate market is also improving at a slow rate.It tends to be stable around July of the same year; The reform speed of economic, political, medical and social security systems has been greatly improved.

Avian influenza: in the early stage, the consumer sentiment fluctuated slightly, and the public consumption of poultry products decreased greatly; Poultry breeding industry has been greatly impacted, with sales falling by more than 50%; The prices of poultry substitutes such as other meat and fish products have increased by 10~20%, and consumers prefer aquatic products. In the medium term, the negative impact on poultry breeding industry is further deepened, The composition of poultry farming market has changed, and the retail farmers engaged in poultry farming have suffered huge economic losses and withdrawn from the poultry farming market; Outbound travel and poultry-related tourism in affected countries are negatively affected; Consumers' mentality is relatively stable, and the work and life order and eating habits have changed little; The impact on China's import and export is also very limited.In the later period, the macroeconomic impact was far less than that of SARS, and the GDP growth rate was affected by less than 0.1 percentage points; The poultry breeding market has gradually improved, and consumers' daily consumption of poultry has returned to the pre-influenza level.

COVID-19 covid-19: The willingness of consumers in the early stage was greatly weakened, with a drop of more than 50%. Enterprises stopped production on a large scale. By the beginning of March 2020, the business prosperity index fell below the 90 mark, which was about 30% lower than that in December last year. Foreign trade import and export suffered a major impact. The year-on-year growth value of total import and export value continued to show negative growth from January to May 2020. The cumulative value of total import and export value decreased by nearly 90% in February 2020 compared with December last year;Investors' mood, expectation and risk perception are greatly frustrated, which leads to the decrease of investment activities and real rate of return. In the medium term, the stock market fluctuated greatly and the stock index plummeted. The Shanghai Composite Index reached a huge decline of 7.72% on February 3, and more than 3,000 stocks in the A-share market fell; The macro economy has been impacted, and GDP has experienced negative growth. By the beginning of March 2020, its value has dropped by nearly 30% compared with the beginning of December last year.Various departments have suffered significant impacts, and the risk output of finance, real estate, information technology and daily consumption industries has increased significantly; The "cumulative effect" appears in industrial chain and supply chain, the capital chain of downstream departments is impacted, and the risk of financial sector rises sharply. Later, the market is expected to turn better, the exchange rate market turns better at a relatively slow rate, and the stock market tends to be stable;The trend of various departments is gradually stable, and the risk output of various industries is reduced; The trend of risk net spillover index returning to low level.

After a series of in-depth analysis and interpretation, we can clearly sum up the various impacts of the serious public health emergencies that have occurred since the new century on China's financial market. However, it must be noted that the Covid-19 outbreak not only has a tremendous impact on all aspects and departments of our country,It also has an incomparable huge negative impact all over the world, and the impact of the first three on the world is slightly smaller than the impact on China.Therefore, it is necessary to further analyze the impact and impact of COVID-19 covid-19 on the world financial market in various aspects in the whole event cycle.

In the early stage of COVID-19 in COVID-19, the product supply markets of various countries were out of balance, the capital turnover of enterprises was difficult, the credit risk increased, and the survival ability of enterprises was severely challenged. In the medium term, the global capital market fluctuated

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violently, and the stock markets of various countries experienced a huge plunge since March 2020, triggering the "fuse" mechanism many times; The interruption of the supply chain makes the risk shift, which leads to obvious cross-market transmission.In the later period, the employment markets of various countries were severely hit, and large-scale enterprise layoffs and business closures occurred. The number of employees in the sample decreased by 40% compared with November 2019, and the labor participation rate decreased by nearly 7%; The wage income of employees has dropped by more than 17%; Labor productivity of enterprises decreases, and human capital decreases with the increase of operating costs.

## 3. Based on the empirical study of the relevant policies of the major economies in the world during the epidemic period

In order to alleviate the huge impact of the epidemic on the financial markets of various countries, various countries have quickly adopted various policies to deal with the negative reactions of financial markets in various aspects. This paper takes China, the United States, Japan and Britain as examples to interpret their policies and measures in detail.

(1) China

As shown in Figure 1 below, with the support of various policies, M2 maintained steady growth and effectively maintained market liquidity. Under the basic background of stable, reasonable and abundant liquidity, with the promotion of investment and export recovery, China's economy has realized V-shaped reversal. Data show that China's economy declined by 6.8% year-on-year in the first quarter and increased by 3.2% year-on-year in the second quarter.The main reason why China's economy has realized V-shaped reversal is that liquidity has always remained at a reasonable and abundant level. This makes domestic and foreign investors dare to trust and invest in the Chinese market. In the current quarter, the national investment in fixed assets reached 19.74 trillion yuan, an increase of 0.12% year-on-year, driving economic growth by 5.01 percentage points. On the demand side and the supply side, Although China's business confidence index and consumer confidence index fell sharply during the worst epidemic period (the business confidence index reached a record low of 35.70). However, it quickly recovered to the pre-epidemic level and maintained a stable situation.

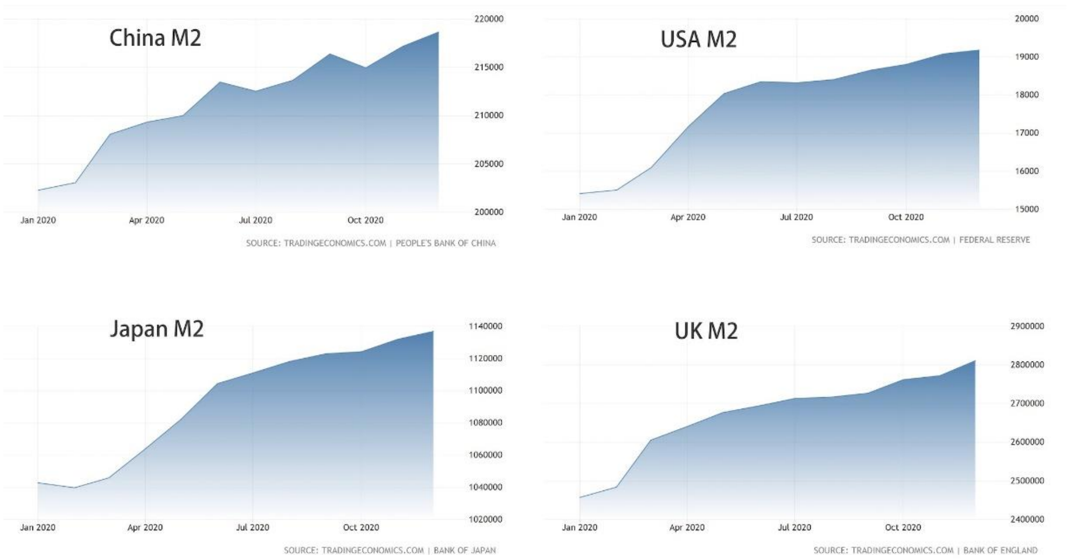


*Figure 1: M2 Index of China, America, Japan and Britain*

(2) United States

During the epidemic, the United States actively took measures to implement the liquidity policy, which made M2 grow rapidly from February to May 2020 and then remained stable at a high level. Compared with the index in February of the same year, the M2 index in May 2020 increased by more than 20%, which effectively maintained the liquidity of the market.

When the effective policy was not implemented in April 2020, the American business confidence index went down all the way. Compared with January, the index in April fell by nearly 20%, and it was

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in a transitional state from the end of April to May. The promulgation of the policy effectively eased the decline of business confidence. From the end of May to mid-June, the business confidence index was greatly improved and returned to the level above 50.

(3) Japan

The macro-policies adopted by the country have a long time-span impact on the change of Japan's M2 index. After reaching freezing point in February 2020, the M2 index showed a rapid upward trend under the positive influence of policies. The index grew by more than 8% in June of the same year, and then kept the index growing steadily at a high level at a relatively low growth rate, thus effectively maintaining the normal liquidity of the market.

Affected by the epidemic, Japan's business confidence index fell to negative value in January 2020, and the index plunged to -34 in the first half of 2020. A series of policies implemented by the Japanese government saved Japan's economic and financial market well, and the index returned to positive value by the end of December of the same year under the effective incentive of policies.

(4) Britain

It is not difficult to find from Figure 1 that shortly after the policy was issued, M2 in the UK rose rapidly and market liquidity increased significantly. On the stock market, the stock market has been violently turbulent since March, and on March 23rd, FTSE100 index fell to the annual minimum of 5005.639. However, with the steady implementation of monetary policy, the stock market soon recovered on March 26th, and kept rising during the fluctuation.However, due to the fact that the epidemic prevention and control is weak, the stock market has never recovered to the level before the epidemic.

From the fiscal policies of various countries during the epidemic period, it can be found that all major economies attach great importance to liquidity. In the early days, the United States took drastic measures against the liquidity problem, and it was still able to maintain a long-term decline in the economic field under the realistic background of weak epidemic prevention and control; Other major economies have also helped the financial market on the basis of maintaining liquidity, with remarkable results. It is enough to see the important position of liquidity problem in solving the problem of risk transmission in financial market. In the middle and late period, the effectiveness of epidemic prevention and control is the core factor of economic recovery. China has benefited from the great achievements in the prevention and control of the previous epidemic. After the first peak of the outbreak, orderly resumption of work and production can be realized, and the production and consumption of the whole people tend to be normal, so the economic recovery can be achieved well; On the other hand, in Europe and America, the further spread of the COVID-19 epidemic has greatly interfered people's production and life, and it is difficult to hide the decline under the fierce quantitative easing policy.Under the condition that the epidemic situation cannot be effectively controlled, there is no way to restore the catering, tourism, aviation, energy and other industries that rely on offline operations to normal only by loose monetary policy (mainly used to cooperate with fiscal stimulus policies), and thus it is impossible to restore the investment confidence of enterprises and the consumption willingness of residents. Therefore, for consumption-driven European and American countries, loose monetary policy is relatively effective in stabilizing the stock market, but its effect on restoring economic growth is relatively limited. Therefore, under the monetary policy based on ensuring liquidity, combined with effective epidemic prevention and control measures, the economic and financial system impacted by the epidemic can be saved.

## 4. Policy recommendations

### *4.1 Improve the national financial emergency management mechanism*

1) Perfect crisis identification and early warning mechanism should be established. As mentioned above, serious public emergencies often have common regular characteristics in the early stage of occurrence. It is suggested that the financial detection system should be organically combined with the system of the National Emergency Management Department to share key crisis event information in real time and set up a stable financial firewall.

2) Build a crisis buffer mechanism. Finance, as the general hub of social capital movement, is an important regulator of national economy and the general gate to control money supply. Therefore, we can formulate relevant measures and systems, fully integrate the important functions of finance, and reduce the impact of emergencies. Specific measures include:

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(a) It can be initiated by the state department, designated by large commercial banks and led by policy banks to set up special development funds to support the construction of public health emergency response system.

(b) Encourage competent backbone enterprises to issue joint special bonds, and encourage commercial banks to subscribe for corporate bonds or special bonds, so as to promote the construction process of public health strategic reserves.

### *4.2 Improve the monitoring and support of the dual-pillar macro-prudential policy and monetary policy system, and establish a more adequate and timely mechanism to supplement market liquidity*

In view of the current situation of insufficient liquidity and even a sharp fall in the financial market under severe emergencies, in terms of overall policy direction, the state should implement a sound and neutral monetary policy, adjust and improve macro-prudential policies in a timely manner, and strengthen pre-adjustment, fine-tuning and expectation management. In terms of specific measures, first, a national financial liquidity risk tracking group can be established. Pay close attention to the changes in the international and domestic economic and financial situation, and be able to detect the changing trend of financial market liquidity at any time efficiently and quickly; Second, the deposit reserve ratio of some financial institutions can be lowered to replace the medium-term loan facility (MLF) and increase the stability of the banking system funds; Third, the long-term base currency should be released, so as to weaken the tension of mismatching of bank deposit and loan terms.Guide them to release loans more calmly and orderly.

## 5. Conclusion

By enumerating the serious public health emergencies at home and abroad since the 21st century, and explaining the main features and specific appearances of each serious public health emergency, this study sums up the main financial market risk transmission paths under the above emergencies. Then comb, this paper summarizes and analyzes the economic policies of major economies in the face of the epidemic, and finally concludes that under the monetary policy based on ensuring liquidity, the economic and financial system impacted by the epidemic can be saved with effective epidemic prevention and control measures. The research results can play a certain reference role for the formulation of relevant policies.

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