Application and Improvement of Follow-up Audit in Major Public Emergencies: A Case Study of COVID-19

Zinan Song, Yan Zhao*

School of Accountancy, Anhui University of Finance and Economics, Bengbu, Anhui, China

*Corresponding author: zhaoy_ah@sohu.com

Abstract

In the process of major public emergencies, how to ensure the timely and effective distribution of relief materials and the implementation of national preferential policies is the top priority of national emergency management, and follow-up auditing plays an irreplaceable role in it. Therefore, this paper takes COVID-19, a typical major public emergency as an example, to explore the application and problems of tracking audit, and then put forward suggestions for improvement of follow-up auditing in major public emergencies.

Keywords

Follow-up Auditing; Major Public Emergencies; COVID-19.

1. Introduction

At the 20th National Congress of the Communist Party of China (CPC), the General Secretary proposed that "we should improve the national emergency management system, and improve the ability to prevent, mitigate and relieve disasters, as well as the ability to handle emergencies". This guidance is inseparable from the huge impact of various public emergencies such as the Wenchuan earthquake in 2008, the stampede on the Bund in 2014, the explosion in Tianjin Binhai New Area in 2015, and the COVID-19 in 2019. Public emergencies have the characteristics of wide range of influence and great harm, and will pose a huge threat to people's lives and even disrupt the normal operation of the entire economic and social system.

In the face of sudden major public events, governments at all levels have responded one after another, providing materials, donations and other assistance to the disaster area. How to timely and effectively distribute materials and implement policies in the short term is an urgent problem to be solved in emergency management. Therefore, it is necessary to track and audit the distribution and use of special funds and materials and the implementation of temporary policies for major public emergencies.

2. Literature Review

2.1. Research on Emergency Management for Emergencies

The research on emergency management in foreign countries started early, mainly from the theoretical and practical aspects. On the theoretical level, Steven Fink (1989) first proposed four stages of crisis management; Robert Heath (1997) and others put forward and continuously improved the organizational crisis management prevention theory. On the practical level, Robert Heath (2001) and others put forward the 4R theory of public crisis management by integrating their practical experience and management theory; Lawrence Barton (2002) mentioned that audit plays an important role in crisis management. The domestic research on government response to emergencies mainly focuses on the following two aspects: First, the research on the emergency system and mechanism of public health

emergencies. Professor Zhang Chengfu (2005) proposed to establish a fully integrated crisis management system. Xue Lan and Zhang Qiang (2005) proposed the basic framework of the modern crisis management system, that is, the government, the media, the social network and the legal system should be coordinated. The second is the research on government public relations in emergency management of public health emergencies. Huang Qiang (2020) believed that the specific crisis public relations strategies of the government in response to public health emergencies include: enhancing the popularity of information, actively guiding public opinion, etc..

2.2. Research on Application of Follow-up Auditing

Scholars' research on the application of tracking audit is mainly based on the following aspects. Yu Baochen (1996) believed that in addition to the pre commencement audit, both the budget audit and the final account audit are essentially post audit; Liu Baoyu (2002) believed that it is of great significance to carry out tracking audit on the external investment, current accounts and bank deposits of bulk items of the auditee; On this basis, Han Zhigang (2010) demonstrated the feasibility of applying follow-up auditing in foreign capital audit and put forward improvement suggestions; Tao Quanjun (2010) elaborated that the project cost audit should use the whole process follow-up auditing under the bill of quantities pricing model; Wang Lirong (2010) elaborated the importance of follow-up audit of land consolidation project implementation through the implementation study of follow-up auditing of land consolidation project; Peng Huazhang et al. (2020) believed that the allocation of large amounts of national financial funds should be combined with the technical advantages of the audit profession.

To sum up, the current research on public emergencies mainly focuses on the construction of the theoretical framework, but there is a lack of substantive improvement suggestions; In addition, although there is no lack of scholars' research on tracking audit, most of the research is still focused on government projects, which cannot be generally applied to major public emergencies, that is, the improvement of tracking audit in major emergencies cannot provide relevant suggestions.

3. Application of Follow-up auditing in Major Public Emergencies - Take COVID-19 as an Example

In order to further refine the application of research follow-up auditing in major public emergencies, COVID-19, a typical major public emergency, was selected as the research object, and the special audit results of COVID-19 released by each province in its provincial audit office or audit bureau were taken as the data source for research.

Up to now, we have reviewed the audit reports on budget implementation and other financial revenues and expenditures in 2019, 2020 and 2021 published by the audit offices of 31 provinces (provinces or municipalities directly under the Central Government) in China. There are 38 reports on the special audit results of the COVID-19 epidemic mentioned in a separate section, including 25 reports in 2019, 9 reports in 2020 and 4 reports in 2021. Liaoning Province detailed the implementation of major policies and measures in the first quarter and the second quarter of 2020 in the follow-up auditing results. Chongqing, Jiangxi, Hubei and Beijing were not mentioned in the three annual reports.

3.1. Content Characteristics of the Announcement

Use Python to process the 38 collected announcements by word segmentation and keyword extraction, and generate a visual word cloud map. From the figure, we can see that the words "donated materials", "funds", "information", "not in time", "not in place", "rectification", "improvement", "active promotion", and "change while reviewing" are large, which means that they appear many times in the announcement. Through the word cloud picture, we can learn

that the common feature of the 38 announcements is to track and audit the "donated materials", "funds", "information" and other subjects in the special prevention and control of COVID-19, and find that there are "not in time" and "not in place" problems in their related links, and continue to "rectify".

3.2. Follow up auditing Evaluation at Different Stages in the Announcement

The evaluation of different stages of follow-up audit in the announcement is implemented around three levels: period level, indicator level and evaluation level. First of all, the period level refers to the classification of special epidemic tracking audit system through three periods of special epidemic tracking: pre epidemic audit is prevention audit, during epidemic audit is treatment audit, and after epidemic audit is aftermath audit; Secondly, the indicator layer refined the content of the announcement and extracted the key words of the audit in each period. For example, the key words of the prevention audit period were "deployment, high attention, organization and focus", and the key words of the audit process were "timely, assurance, simultaneous audit and modification, false declaration". Further classified the key words of the audit in each period as "problematic" and "effective"; Finally, the evaluation layer conducts word frequency statistics to count the number of problems and achievements in each stage.

However, the effect in the processing stage was not significant. The frequency of problematic words was up to 55.84%, 11.68% higher than that of effective words. It can be seen that there were many problems in this stage. The key to improve the epidemic situation tracking audit system is to propose solutions to the targeted audit in the processing stage. In the aftermath stage, the overall effect is relatively significant. The announcement mentions that nearly 85.29% of the content of the aftermath audit has achieved a phased victory. Of course, there are still shortcomings, which need to be improved urgently.

Table 1. Evaluation of epidemic prevention and control follow-up auditing in each period

Time layer	Indicator layer	Evaluation layer	
		Effective	Problems
Preventive audit	**Effective:** deployment, high attention, organization, focus, comprehensive coverage, advance, important support, response and continuity. **Problems:** no prevention, no deployment and no guarantee.	47 (97.92%)	1 (2.08%)
Handling audit	**Effective:** timely, guaranteed, fully used, solidly promoted, good, accelerated distribution, accelerated allocation, effective mitigation, giving play to actual results, good overall situation, orderly, simultaneous review and reform, supervision, openness and transparency, legal compliance. **Problems:** not timely, not in place, slow progress, misappropriation, false declaration, fraud, change of fund use, inconsistency, violation, and failure to perform.	68 (44.16%)	86 (55.84%)
Aftercare audit	**Effective**: improve, promote, further, strengthen, rectify, take back, standardize, improve and implement. **Problems:** correction, intervention and investigation, loss and waste, idleness, imperfection, imperfection, and potential risks.	87 (85.29%)	15 (14.71%)

3.3. Problems Identified in the Announcement

Starting from the three periods of the epidemic tracking audit system (namely, the prevention period, the treatment period, and the late rehabilitation period), the problems mentioned in the provincial announcements are summarized, as shown in Table 2. In the prevention period,

there was only one province in Qinghai Province. As there was no special storage warehouse for health emergency materials, the supply of emergency materials could not be guaranteed in case of epidemic. There were many problems identified during the processing period and the number of provinces involved was large, and 24 provinces, including Shanxi, Jilin, Heilongjiang, Zhejiang and Anhui, had problems in raising, using, allocating or managing funds in a timely manner; 14 provinces, including Xinjiang, Inner Mongolia and Liaoning, have problems with prevention and control materials, such as inconsistent accounts, delayed distribution and inadequate procurement management; The untimely and inaccurate publicity of epidemic related information is a common problem in 15 provinces such as Gansu and Shandong during the epidemic tracking audit processing period. In general, there are many problems in the epidemic tracking audit processing period, which are concentrated in three aspects: funds, prevention and control materials, and information publicity. The problems in the later stage of the reform were mainly the imperfect system, involving 6 provinces.

Table 2. Problems Identified in Epidemic Prevention and Control Follow-up auditing in Each Period

Time layer	Problems identified	Provinces involved
Preventive audit	Failure to implement the epidemic protection policy	1
Handling audit Preventive audit	Fund problems (such as untimely collection, use, distribution, management, etc.)	24
	Prevention and control of material problems (such as inconsistent accounts, delayed distribution, inadequate procurement management, etc.)	14
	Information transparency (the publicity of epidemic related information is not timely and accurate)	15
Handling audit	Incomplete system	6

Through the word frequency statistics of the report contents, it is found that 31 of the 38 reports mention the word "rectification", involving 22 provinces in total. Among them, the rectification rate mentioned in the audit reports of Jiangsu Province, Shandong Province, Xinjiang Province and Hebei Province is 100%, and the rectification rate of 10 provinces, including Henan Province, Guangdong Province and Inner Mongolia, is more than 80%, It can be seen that the overall rectification rate of each province for the audit problems raised in the follow-up audit of COVID-19 prevention and control is quite high.

4. Suggestions on Improvement of Follow-up auditing of Major Public Emergencies

4.1. Prevention Period: Play the Role of Audit "Immune System" and Intervene in Advance

(1) Establish emergency follow-up audit talent pool. The development form of major unexpected public events is unknown, and the audit process is complicated. Auditors without professional training are likely to have "no way to start" when encountering emergencies. Therefore, it is particularly important to establish a professional emergency tracking audit talent pool. In addition, emergency tracking audit personnel should be trained regularly to enable them to constantly master the emergency audit process, so that they can calmly deal with major public emergencies. During the special audit of the COVID-19 epidemic, the audit

work of each province was carried out in an orderly manner, which was inseparable from the coordination and cooperation of emergency follow-up audit personnel.

(2) Formulate a follow-up audit plan for major emergencies. Each province should first formulate a complete and flexible audit plan before the occurrence of a major emergency, so that when a major emergency really occurs, it can be properly handled and flexibly adjusted according to the actual situation. The contents of the plan can include how to timely distribute or convey funds, materials, information, etc. in emergencies, how to dispatch audit personnel, and how to coordinate and cooperate with each part of the audit to maximize efficiency.

4.2. Processing Period: Innovate the Dynamic "Whole Process Follow-up Auditing Mode", and Make Changes While Reviewing

(1) Pay attention to whether the capital rights and responsibilities are separated. During the audit of the COVID-19, the auditors found a large number of discrepancies between the accounts and the reality, and traced back to the source that most of the relevant provinces were under the same management responsibility for fund registration and allocation. The emergence of this phenomenon gives a warning to the follow-up audit of major public emergencies in the future. In the audit process, we can focus on whether the fund raising, allocation, distribution, use, management and other links have achieved the separation of capital rights and responsibilities in different links.

(2) Make full use of big data monitoring materials and strengthen off-site audit mode. The traditional audit mode is characterized by large audit workload, cumbersome procedures and a large number of auditors, while the major public emergencies have the characteristics of abruptness and urgency. The traditional audit mode is obviously not applicable. However, making full use of big data monitoring materials and improving the off-site audit mode have the advantages of speeding up the audit and reducing the cost of human resources, which can greatly improve the audit efficiency.

(3) Establish and improve the information communication mechanism to ensure the openness and transparency of information. Timely, accurate, open and transparent information transmission is the basic guarantee for the next audit work. During the handling of major public emergencies, a sound information communication mechanism should be established, such as the establishment of a relevant information platform to publish audit information in real time, so as to ensure the timely and consistent transmission of information and ensure the timely and effective handling of major public emergencies.

4.3. Improve the Later Stage: Improve Relevant Laws and Regulations and the Evaluation Publicity System, Which is Effective

(1) Improve relevant laws and regulations. At present, the state has not clearly formulated relevant standards or regulations for the follow-up audit of major public emergencies, which makes it difficult to evaluate the audit process and audit effectiveness, and has no clear guidance for the improvement direction of follow-up audit in the future. Therefore, it is necessary to formulate and improve relevant laws and regulations on tracking audit of major public emergencies. The National Audit Office or relevant departments can be made for major public emergencies tracking audit early audit prevention stage, intermediate processing stage, late perfect stage related evaluation index, the evaluation of each stage of each major public emergency, so as to find out the weakness of the audit, facilitate the subsequent continuous improvement.

(2) Publicly evaluate the rectification. In the late stage of follow-up audit of major public emergencies, we should strengthen the supervision of the rectification of audit problems raised during the handling period. For example, the implementation of the rectification evaluation

system, on the one hand, measures the audit rectification, and on the other hand, promotes the completion of the audit rectification to a certain extent.

5. Concluding Remarks

To sum up, the introduction of tracking audit in major public emergencies has an important impact on ensuring the timely and effective delivery of relief materials and effective implementation of national policies. Therefore, it is necessary to strictly control the prevention period, treatment period and follow-up period of tracking audit of major public emergencies from the aspects of fund raising and management, procurement and release of prevention and control materials, and information transparency, so as to find out potential risks and problems, urge relevant units to correct and improve the work, and evaluate the effect of rectification.

Acknowledgments

References

[1] Kleboth J.A., Kosorus H., Rechberger T. et al. Using data mining as a tool for anomaly detection in food safety audit data[J]. Food Control, 2022, (3):9-13.

[2] Edwin Soedarmadji, Helge S. Stein, Santosh K. Suram et al. Tracking materials science data lineage to manage millions of materials experiments and analyses[J]. Computational Materials, 2019, (1):62-68.

[3] Pawde Aditi, Vaishampayan Sushodhan, Shinde Akshada et al. Needle in a Haystack: Generating Audit Hypotheses for Clinical Audits of Hospitals[J]. SN Computer Science, 2022, (5):43-50.

[4] Li Lu, Li Xinyi. Major Public Health Emergency tracking Audit Study — takes the special audit of COVID-19 epidemic prevention and control as an example [J]. Audit Monthly, 2021 (4): 8-11.

[5] Zhu Zhihong. Inquiry on emergency audit of public health emergencies: Take COVID-19 as an example [J]. Accounting Monthly, 2020 (7): 92-96.

[6] Cao Qingzi, Li Yangzi. Research on the application of tracking audit in public health emergencies: Take COVID-19 as an example [J]. Financial supervision, 2020 (8): 94-99.

[7] Zheng Xiaorong, Dong Xin. Follow-up and audit study of epidemic prevention and control policies [J]. Accounting Monthly, 2020 (22): 98-104

[8] Zhang Na. Exploration of the tracking and audit of materials donated by public hospitals under the outbreak raid [J]. Friends of the Accountants, 2020 (19): 137-142

[9] Huang Qiang. Analysis on measures to effectively organize and manage the mass wounded to deal with emergencies [J]. International Nursing, 2018, (37): 11.

[10] Peng Huazhang. Research on the role of audit in economic physical examination [J]. Audit Research 2020, (05): 3-9.

[11] Zhou Rongbing. Follow-up audit of policy implementation in the "post-poverty alleviation Era": a literature review [J]. Modern trade industry, 2022 (21): 126-128.