

Research on the Construction of Risk Management Indicator System for Sports Industry in Guangdong Province

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Abstract

The Delphi method and hierarchical analysis are used to construct the risk management index system of the sports industry in Guangdong Province to provide reference for the risk management response strategy of the sports industry in Guangdong Province. The results show that: primary indicators of risk management of sports industry in Guangdong Province and their weights: social and cultural risk of sports industry (0.43), technical risk of sports industry (0.32), economic risk of sports industry (0.14), political risk of sports industry (0.11). Secondary indicators and their weights: political situation of the sports industry (0.03), guidelines and policies of the sports industry (0.06), political intervention of the industry (0.02), economic situation of Guangdong Province (0.03), macroeconomic policies of Guangdong Province (0.06), GDP level of Guangdong Province (0.09), consumption structure of Guangdong Province (0.07), savings and credits of Guangdong Province (0.04), savings and credits of Guangdong Province residents' values (0.06), Guangdong Province's education level (0.11), Guangdong Province's customs (0.07), Guangdong Province's residents' health awareness (0.14), Guangdong Province's residents' attitudes toward occupation and leisure (0.03), Guangdong Province's entrepreneurship (0.04), Guangdong Province's information technology changes (0.06), and Guangdong Province's sports industry's rate of technological renewal (0.03), Guangdong Provincial Government's Sports Industry Research Expenditure (0.03), Guangdong Province's Sports Industry Technology Concerns (0.02), and Guangdong Province's Sports Industry Invention and Technology Development (0.01).

Keywords

Sports industry; Risk management; Delphi method; hierarchical analysis; Guangdong Province.

1. Introduction

As an emerging industry with great development potential, sports industry has an obvious role in promoting the expansion of domestic demand, stimulating economic growth and realizing the development goal of China's modernization construction [1,2,5]. With the economic and cultural value of sports becoming more and more prominent, sports industry investment activities in the ascendant, sports industry both economic and human characteristics, its value has exceeded 3% of the world trade volume, sports industry involves a number of different players and stakeholders, sports-related dispute resolution is also getting more and more attention, and the related investment risks and dispute resolution problems have also emerged [3,4,5]. The study pointed out that in the "14th Five-Year Plan" period, the development of China's sports industry will face a more complex domestic and international environment, the new

coronavirus epidemic has triggered the global political and economic changes, and some of the internal problems in the development of the sports industry have not been given enough attention so far [5,6]. The data show that the overall amount of the scale of financial investment in China's sports industry is gradually increasing, but the proportion of China's sports industry financial expenditure in the national financial expenditure is decreasing [7,8]. Especially since the outbreak of the new crown epidemic at the end of 2019, the risks faced by China's sports industry are mainly due to the market-type chain breaks and card chains triggered by COVID-19, and the epidemic has brought about sudden damage to China's sports industry chain and its normal function [8,9]. Therefore, the identification of risk management of the sports industry in the post epidemic era is particularly important.

With the economic and cultural value of sports becoming more and more prominent, investment activities in the sports industry are on the rise, and its value has exceeded 3% of world trade, the sports industry involves a number of different players and stakeholders, and sports-related dispute resolution is receiving more and more attention, and related investment risks and dispute resolution issues have emerged [7,8,10]. Since the outbreak of the New Crown Epidemic at the end of 2019, China's industry has faced risks mainly because of the market-type chain breaks and stuck chains triggered by COVID-19, and the impact of the epidemic on the economy is in fact the sudden disruption of the Chinese industrial chain and its normal functioning by COVID-19 [11]. The development of the sports industry in Guangdong Province under the influence of the epidemic also faces many challenges. In recent years, Guangdong Province has vigorously promoted the construction of a strong sports province, endeavored to build a sports city, continuously accelerated the construction of stadiums, enriched the supply of sports services, and made progress in competitive sports, mass sports, and the sports industry in tandem [12]. The position and role of the sports industry in the economic development of Guangdong Province is becoming more and more obvious, and exploring the latest situation of the development of the sports industry and the new risks faced by the accelerated recovery of the epidemic are the issues to be addressed in this study. Based on this, this study takes the risk management index system of the sports industry in Guangdong Province as the research object, takes the risk management research results of various disciplines as the research basis, innovatively answers the specific problems of risk management in the sports industry, adopts the Delphi method and the AHP evaluation model in an attempt to find out the factors constraining the risk management of the sports industry in Guangdong Province, and enriches the theoretical system of risk management in the field of the sports industry.

2. Research Objects and Methods

2.1. Research Objects

Indicator system of risk management of sports industry in Guangdong Province and its weights.

2.2. Research Methods

2.2.1. Literature method

Literature on risk management provides a strong theoretical foundation for the upcoming research on risk management in the sports industry of Guangdong Province in this study. If you want to make a breakthrough in the existing theoretical achievements in the issue of risk management in the sports industry, you have to strengthen the understanding of risk management in other disciplines and introduce its cutting-edge concepts into the research on risk management in the sports industry, and select the index system at first.

2.2.2. Delphi method

Delphi method, is in the "blind" situation by the surveyed experts according to their own knowledge, experience and independent assessment of the evaluation of the content, to obtain statistically significant results of the cluster of experts [13.14.17]. The questionnaires were distributed in the form of mutually isolated communication to solicit the experts' evaluation, so that the evaluation results of the expert group tend to be concentrated, and finally make the prediction conclusions of the construction of risk management index system of Guangdong sports industry. Among them, 7 questionnaires were issued and 7 valid questionnaires were recovered, with a recovery rate of 100%. The experts who were interviewed and surveyed are shown in Table 1.

2.2.3. Hierarchical analysis

Table 1. Experts in questionnaire survey on risk management indicator system in sports industry (n=7)

Name	Gender	Title	Work unit	Years of practice
Xx-Zhang	male	Professor	Colleges and universities	26
Xx-Yang	male	Professor	Colleges and universities	23
Xx-Luo	male	Professor	Colleges and universities	21
Xx-Liu	male	associate professor	Colleges and universities	19
		chairman of the	company	
Xx-Chen	male	board		23
Xx-Zhang	male	Deputy director	company	16
Xx-Li	male	Deputy director	company	4

Hierarchical analysis is a systematic method to decompose a complex multi-objective decision-making problem as a system, decompose the objectives into multiple criteria or many levels, and calculate the hierarchical ranking (weights) by fuzzy quantization of qualitative indicators [14.15]. In order to further establish the weight coefficients of the indicators of risk management of high sports industry in Guangdong Province, the questionnaire was designed according to the final established indicator system, which is "two-by-two comparative matrix model of risk management indicators of high sports industry in Guangdong Province". In order to further establish the weight coefficients of the indicators of risk management of high sports industry in Guangdong Province, a questionnaire was designed according to the finally established indicator system, which was mainly distributed and recovered from the experts engaged in sports industry and its related experts, college teachers and other subjects (5 questionnaires were distributed and 5 effective questionnaires were recovered, and the recovery rate of the questionnaires was 100%). The surveyed experts are shown in Table 2.

3. Results

3.1. Establishment of the evaluation system of risk indicators for the sports industry in Guangdong Province

3.1.1. Establishment of indicator system

According to the principle of comprehensiveness of indicator system screening, deep qualitative analysis based on relevant literature and theories, four first-level evaluation indicators were established, each level of risk management indicators related to the sports industry in Guangdong Province was listed, and 20 second-level evaluation indicators were established, initially constructing the initial selection of indicator system for risk management of the sports industry in Guangdong Province. In addition, in view of the principle of operability of indicator selection, there are practical problems such as a large number of indicators in the preliminary selection of indicators [16.17]. In order to accurately reflect the objective problems

of the risk management indicators of the sports industry in Guangdong Province, the Delphi method was applied to screen the preliminary selection of indicators for the second time, and 19 secondary evaluation indicators were finally established. See Table 3 below.

Table 2. Experts surveyed in the "two-by-two comparison matrix model of risk management indicators in the sports industry" (n=5)

Name	Gender	Title	Work unit	Years of practice
Xx-Zhang	male	Professor	Colleges and universities	26
Xx-Li	females	Professor	Colleges and universities	21
Xx-Zhao	male	Associate professor	Colleges and universities	19
Xx-Liu	male	Deputy director	company	23
Xx-Wang	male	deputy director	company	5

Table 3. Risk management index system of sports industry in Guangdong Province in this study

Level 1 indicators	Secondary indicators
Political Risk of Sports Industry	Political situation in the sports industry Sports industry policy Political Intervention in Sports Industry
Economic Risks in the Sports Industry	Economic situation of Guangdong Province Economic situation of Guangdong Province GDP Level of Guangdong Province Consumption Structure of Guangdong Province Savings and Credit in Guangdong Province Residents' Values in Guangdong Province
Socio-cultural risks of the sports industry	Education Level in Guangdong Province Customs and Habits of Guangdong Province Health Awareness of Guangdong Province Residents Occupation and Leisure Attitude of Guangdong Residents Entrepreneurship in Guangdong Province
Technology risk in the sports industry	Information Technology Change in Guangdong Province Speed of technological renewal in Guangdong Province Guangdong Provincial Government's Sports Industry Research Expenditure Technology Concerns of Sports Industry in Guangdong Province New Inventions and Technological Development of Sports Industry in Guangdong Province

3.1.2. Establishment of Indicator Weights

Through the hierarchical and organized processing of the Guangdong Province sports industry risk indicator problem, the sports industry risk management indicator hierarchical structure model has been constructed. Therefore, the next step is the need to construct all the judgment matrices of each hierarchical factor, in order to determine the weight size of each factor in the main factor [17]. Based on the above formula principles, calculation steps, and so on, to find out the experts in this study about the assignment of the indicators (see Table 4). As can be seen from the table, the first-level indicators and their weights are ranked as follows: social and cultural risk of the sports industry (0.43), technical risk of the sports industry (0.32), economic risk of the sports industry (0.14), and political risk of the sports industry (0.11). The secondary indicators contain 17 specific indicators: the political situation of the sports industry (0.03), the guidelines and policies of the sports industry (0.06), the political intervention of the sports

industry (0.02), the economic situation of Guangdong Province (0.03), the macroeconomic policies of Guangdong Province (0.06), the level of the GDP of Guangdong Province (0.09), the consumption structure of Guangdong Province (0.07), the savings and credit of Guangdong Province (0.04), values of residents in Guangdong Province (0.06), education level in Guangdong Province (0.11), customs and habits in Guangdong Province (0.07), health awareness of residents in Guangdong Province (0.14), attitudes towards occupation and leisure of residents in Guangdong Province (0.03), entrepreneurial spirit in Guangdong Province (0.04), changes in information technology in Guangdong Province (0.06), the speed of technological update in the sports industry in Guangdong Province (0.03), Guangdong Provincial Government's Sports Industry Research Expenditures (0.03), Guangdong Province's Sports Industry Technology Concerns (0.02), and Guangdong Province's Sports Industry Inventions and Technology Development (0.01).

Table 4. Weights of risk management indicators of sports industry in Guangdong Province in this study

Level 1 indicators	Secondary indicators
Political Risk of Sports Industry (0.11)	Political situation in the sports industry (0.03) Sports industry policy (0.06)
Economic Risks in the Sports Industry (0.14)	Political Intervention in Sports Industry ((0.02) Economic situation of Guangdong Province (0.03) Economic situation of Guangdong Province (0.06) GDP Level of Guangdong Province (0.09) Consumption Structure of Guangdong Province (0.07) Savings and Credit in Guangdong Province (0.04) Residents' Values in Guangdong Province (0.06)
Socio-cultural risks of the sports industry (0.43)	Education Level in Guangdong Province (0.11) Customs and Habits of Guangdong Province (0.07) Health Awareness of Guangdong Province Residents (0.14) Occupation and Leisure Attitude of Guangdong Residents (0.03) Entrepreneurship in Guangdong Province (0.04)
Technology risk in the sports industry (0.32)	Information Technology Change in Guangdong Province (0.06) Speed of technological renewal in Guangdong Province (0.03) Guangdong Provincial Government's Sports Industry Research Expenditure (0.03) Technology Concerns of Sports Industry in Guangdong Province (0.02) New Inventions and Technological Development of Sports Industry in Guangdong Province (0.01)

4. Discussion

In this study, the index system of risk management of sports industry in Guangdong Province and its weights were constructed through Delphi method and hierarchical analysis method, and it was concluded that the university health index contains 4 primary indicators and 17 secondary indicators. The index system well describes the overall dimensions of the risk management of the sports industry in Guangdong Province in the post epidemic era, and provides reference for researchers and sports industry workers to identify and respond to the risk management of the sports industry. The study shows that the importance of risk management in the sports industry The development of the sports industry in Guangdong Province has become a bright spot of economic growth. As a new industry in the market, the sports industry has a lot of room for development in terms of market regulation and policy guidance [5,18,19]. Therefore, the government should establish a sound information platform for

the sports industry in Guangdong Province to reduce the occurrence of market risks, continuously improve the relevant laws and regulations of the sports industry [6,20,21], actively guide individuals or relevant organizations to establish a mechanism for evaluating the sports industry in Guangdong Province, so as to reduce the investment risks of the practitioners of the sports industry in Guangdong Province, and increase the scientific research input into the sports industry in Guangdong Province, so as to reduce the technical risks of the sports industry. At present, the sports industry in Guangdong Province in the sporting goods manufacturing for new materials and other technologies in high demand, the Guangdong Provincial Government and practitioners of enterprises to increase the scientific research investment in new technologies to reduce the technical risk, to increase the financial support for the sports industry in Guangdong Province, the construction of sports industry investment, financing insurance system [22]. In addition, for risk response, the academic system points out that the key to risk response of sports industry investment and financing projects lies in the management of risks involved in the investment and financing process, so as to achieve the purpose of not being affected by risks or mitigating the losses caused by risks [23]. Secondly, a portion of the loss is transferred to the person or organization that has the ability to bear or control the project in the event of a risky incident once it occurs. This is subdivided into financial risk transfer and non-financial insurance [24]. Third, the development of some project risk contingency measures that reserve risk [25].

In summary, therefore, this topic takes the risk management of sports industry in Guangdong Province as the research object, takes the research results of risk management of various disciplines as the research basis, answers the specific problems of risk management of sports industry, adopts the Delphi method and the AHP evaluation model to find out the main factors restricting the risk management of sports industry in Guangdong Province, and achieves the scientific identification of the risk of management of sports industry, and enriches the risk of controlling and avoiding the risk of the development of the sports industry for the purpose of controlling and avoiding the risk of the development of sports industry. It enriches the theoretical system of sports industry risk management.

5. Conclusion

The risk management index of sports industry in Guangdong Province contains 4 primary indicators (social and cultural risk of sports industry, technical risk of sports industry, economic risk of sports industry and political risk of sports industry). The secondary indicators contain 17 items: political situation of the sports industry, guidelines and policies of the sports industry, political intervention of the sports industry, economic situation of Guangdong Province, macroeconomic policies of Guangdong Province, GDP level of Guangdong Province, consumption structure of Guangdong Province, savings and credit of Guangdong Province, values of Guangdong Province residents, education level of Guangdong Province, customs and habits of Guangdong Province, health consciousness of Guangdong Province residents, attitude of Guangdong Province residents towards occupation and leisure, entrepreneurship of Guangdong Province, and information technology change of Guangdong Province. , Entrepreneurship in Guangdong Province, Information Technology Changes in Guangdong Province, Speed of Technological Updates in the Sports Industry in Guangdong Province, Research Expenditures on the Sports Industry by the Government of Guangdong Province, Technological Concerns in the Sports Industry in Guangdong Province, Inventions and Technological Developments in the Sports Industry in Guangdong Province.

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