

Research on the Upgrading and Development of Ski Industry in Heilongjiang Province under the Opportunity of 2022 Beijing Winter Olympic Games

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Abstract: *At present, there are two bottlenecks in the development of skiing industry in Heilongjiang Province, that is, the total number of customers has not broken through for a long time, and it is in a downward trend; the number of users of each skiing enterprise is very thin, which can not support the operating expenditure, which shows that the sustainability of the development of skiing industry in Heilongjiang Province is greatly weakened, and how to improve the sustainability of development is a problem worthy of attention of skiing enterprises. At this time, the emergence of the Beijing Winter Olympic Games has given Heilongjiang Province ski industry the direction to break through the bottleneck and improve the development sustainability. Ski enterprises can use the appeal and audience groups of the Beijing Winter Olympic Games to achieve their goals. This paper will analyze this and elaborate the ways and strategies to achieve the goals. Selecting Chinese A-share listed companies from 2011 to 2019 as research samples, this paper empirically tests that the higher the development of the regional digital economy, the lower the synchronization of corporate stock prices. The same conclusion is obtained after the robustness test. The mediation effect test shows that the digital economy reduces stock price synchronization by inhibiting real earnings management. Further research proves that the digital economy has more significant synchronization with enterprise stock prices in non-state-owned enterprises with close attention paid by analysts. The research conclusion has important enlightenment for listed companies, regulatory authorities, and investors.*

Keywords: Beijing Winter Olympic Games; Heilongjiang Province; Skiing industry.

1. INTRODUCTION

Skiing industry is one of the characteristic industries in Heilongjiang Province. It is very popular in the hearts of local people and customers. Therefore, more and more people are engaged in the skiing industry in Heilongjiang Province in the early development. However, in the modern development, because people are more and more aware of skiing, and the demand for playing is more and more diversified, which leads to the backward service of skiing industry, and there are problems in many aspects, so the skiing industry in Heilongjiang Province is currently in the state of eager pursuit of transformation. The 2022 Winter Olympic Games will be held in Beijing. Skiing is one of the main projects. The Winter Olympic Games will definitely bring positive effects to the skiing industry in Heilongjiang Province. At this time, we should take the opportunity of the Winter Olympic Games to vigorously reform the skiing industry in Heilongjiang Province, so as to keep up with the modern pace of industrial services and improve the sustainability of Industrial Development [1].

Nowadays, the development of the digital economy has attracted worldwide attention. Since the 18th National Congress of the Communist Party of China, the central government has boosted the construction of a country strong in the Internet and issued the 14th Five-Year Plan for the development of the digital economy. Meanwhile, relevant departments have implemented the plan and vigorously promoted digital industrialization and industrial digitalization, which laid a solid foundation for the sustainable development of the digital economy. People's Daily shows that China's digital economy expanded rapidly from 2012 to 2021, ranking second in the world for many years. Its prosperous development has improved the macro economy (Liu et al., 2023) and transformed micro enterprises (Yang, 2022).

Compared with the mature capital market, China's capital market is still in the initial stage of development. In an effective market, the stock price should be very close to its intrinsic value, and the fluctuation of the stock price should embody its fundamental information. But the single stock price severely fluctuates with the average market price in China, that is, "rising and falling simultaneously", which means that the stock price in China's stock market has a high synchronization. However, based on excessive stock price synchronization, the company's stock

price reflects that market information is not unique information, which will cause serious damage to the efficiency of resource allocation in the capital market (Gul et al., 2009) and increase the risk of financial market collapse (Lan & Xian, 2020). Therefore, the study on the factors affecting stock price synchronization is conducive to improving the quality of stock price information and the stable development of the economic market. With the development of technologies with high efficiency such as the Internet, artificial intelligence, and big data, analysts' attention can be attracted to enhance information transparency. Internally, it can strengthen management supervision, effectively prevent information fraud, and alleviate enterprises' information asymmetry in all directions, thus reducing the synchronization of stock prices. Thus, it is necessary to study the influence of the digital economy on stock price synchronization, which benefits the stable market development and the long-term development of China's trading market.

Does the digital economy affect the synchronization of enterprise stock prices and what is the internal impact mechanism? This paper can be used for reference to explore the above problems based on Chinese A-share listed companies from 2011 to 2019. This paper has the following innovations.

(1) Supplement the research on economic consequences in the digital economy and deepen the understanding of digital economy. (2) Enrich the research on the influencing factors of the stock price synchronization to better analyze its influence mechanism. (3) Use heterogeneity test to provide empirical evidence for macro-influence on micro-enterprise development and new ideas for enterprises and investors with economic value.

2. SUSTAINABLE DEVELOPMENT PATH OF HEILONGJIANG SKIING INDUSTRY

The digital economy emerged in the United States in the 1990s, which initially contained new fields such as computers, information and communication technology, e-commerce, and digital payment. Then, with the rapid development of digital technologies such as big data, cloud computing, artificial intelligence, and blockchain, the theoretical connotation of the digital economy has been greatly expanded. Through the research of Qi et al. (2020), it is concluded that enterprises improve enterprise governance by reducing the irrationality and information asymmetry of managers' decision-making. Sun Hui (2022) believed that the digital economy can improve the efficiency of enterprise information transmission and communication, thus reducing the information errors caused by multi-level transmission, and finally promoting the clarity of enterprise information transmission. Hu Shan and Yu Yongze (2022) analyzed the impact of enterprise digital investment on enterprise innovation and concluded that digitalization can improve enterprise innovation. Taking Chinese A-share listed companies as empirical samples to verify that the digital economy can increase enterprise cost stickiness, this paper discusses the relationship between the digital economy and enterprise cost stickiness.

2.1 Optimization of industrial structure

In fact, compared with other countries, China's skiing industry started late, which led to restrictions in the past development of skiing industry in Heilongjiang. For example, the local government in Heilongjiang Province strictly controlled the scale of skiing industry, considering that skiing sites need to occupy large land resources, etc., which led to the beginning of the scale of Heilongjiang skiing industry. In the end, it can't be expanded. So far, there has been a serious structural imbalance [2]. There are two kinds of unbalance problems in Heilongjiang skiing industrial structure, one is the simplification of product development, the other is the imbalance of development structure. The following will analyze these two points. Stock price synchronization originated from the capital asset pricing model (CAPM) of Sharpe (1964), which slowly took shape from the unique perspective of Roll (1988). After Morck et al. (2000) followed Roll's thinking and compared the R² of many countries, it was found that the countries with lower capital market openness and financial liberalization had higher information collection costs, which led to higher stock price synchronization. In other words, the stock price synchronization of developed countries was lower than that of non-developed countries. According to Liu Na (2021), there is an inverted U-shaped curve relationship between investor protection and stock price synchronization, which further strengthens investor protection, emphasizes improving the quality of accounting information, and intensifies internal control, thus reducing stock price synchronization. Chen Cheng (2017) found that investor protection significantly reduced the stock price synchronization of listed companies and enhanced the efficiency of capital market pricing mechanisms. Yi Zhihong et al. (2019) manifested that analysts can attract investors and reduce stock price synchronization by providing information on corporate characteristics. According to Xiao Qi and Shen

Huayu (2021), media attention mainly reduces stock price synchronization through the “noise channel”. The higher the media attention, the lower the stock price synchronization.

(1) Single product development

According to the product development situation of modern Heilongjiang skiing industry, almost all skiing products are alpine skiing, which can only carry out skiing activities on behalf of customers in the skiing field, while the needs of modern customers are not limited to this, and may also produce accommodation, tourism and other needs. It can be seen that the product development level of Heilongjiang skiing industry is not only single, but also relatively low, which is one of the fundamental reasons for the disconnection between the industry and modern customer demand [3]. Table 1 is the product list of five Heilongjiang skiing enterprises, which can confirm the existence of product development simplification.

Table 1: product list of five skiing enterprises in Heilongjiang

Enterprise serial number	Product
1	Alpine skiing, skiing training, air skiing
2	Alpine skiing, Air skiing
3	Alpine skiing, skiing training
4	Alpine skiing, Air skiing
5	Alpine skiing

(2) Unbalanced development structure

Unbalanced development structure refers to the phenomenon that Heilongjiang skiing industry is restricted by comprehensive development and can only rely on tourism to attract tourists, resulting in unbalanced development structure. According to the current development situation of Heilongjiang skiing industry, most of the supplies and equipment of the industry are imported, and even though they are produced by domestic manufacturers, there will be problems such as output and fraud. These problems make the cost of Heilongjiang skiing industry soar, in addition, it can not meet the needs of current users, resulting in the industry's economic benefits and costs are not directly proportional [4]. Table 2 shows the economic benefits and costs of three Heilongjiang skiing enterprises in one year.

Table 2: economic benefits and costs of three skiing enterprises in Heilongjiang Province in one year

Enterprise serial number	Economic returns	Cost
1	301438	381127
2	292131	337545
3	273371	345753

It can be seen that under such a development trend, the development of Heilongjiang skiing industry will inevitably go to ruin. However, the existence of the problem also brings us development enlightenment, that is, if we can use the Winter Olympics to reverse this situation, we can optimize the skiing industry in Heilongjiang Province, and its development sustainability will also be improved.

2.2 Optimization of production factors

According to the theory, the power of upgrading and development of any industry comes from production factors. Therefore, from the perspective of skiing industry in Heilongjiang Province, it is necessary to optimize the current production factors to improve the sustainability of the industry. The production factors of Heilongjiang skiing industry include skiing field, skiing population and skiing professionals. These factors have bad performance in the current situation of the industry. That is to say, most of the skiing fields in Heilongjiang skiing industry are small and medium-sized skiing fields, most of which are small-sized skiing fields. Such skiing fields can only meet the

needs of entertainment or beginners, while when users have learned When skiers are skilled skiers, they will not carry out activities in small and medium-sized ski resorts, which shows that ski resort factors lead to the sustainable development of skiing industry in Heilongjiang Province; in terms of skiing population factors, in fact, many people in our country want to try skiing, but most of them are skiing for the purpose of entertainment and simple taste, while some people are harmed Afraid of the risks in skiing, so they will not put into practice. These phenomena lead to the limitation of skiing population, which is also a blow to the sustainability of the development of Heilongjiang skiing industry. In terms of the elements of skiing professionals, such talents are necessary elements for the operation of skiing industry, but because of the small base of skiing population and the high level of technology, they will choose to become professional athletes, Therefore, there are few professional talents in Heilongjiang skiing industry, which makes its development more difficult and indirectly affects its development sustainability [5-6]. Table 3 data statistics of skiing industry, skiing population and skiing professionals in Heilongjiang Province.

Table 3: data statistics of skiing industry, skiing population and skiing professionals in Heilongjiang Province

Statistical terms	Data
Ski Field	Small 20 seats / medium 13 seats / large 1 seat
Skiing population	101378
Skiing professionals	30171

2.3 Improve management level

At present, the management level of Heilongjiang skiing industry is relatively low, and it has never established a strict access and exit system. This phenomenon has led to a huge conflict between most ski resorts and national norms, which indirectly limits the development of skiing industry. At the same time, there are many illegal ski resorts in the current situation of Heilongjiang skiing industry. These ski resorts usually establish cooperative relations with the tourism industry, and then carry out some unworthy publicity work. These behaviors will greatly damage the image of Heilongjiang skiing industry in tourists' hearts, indirectly making the skiing industry receive less attention. If this continues, skiing tourists and investment The number of investors will continue to decrease, which is not conducive to the sustainable development of Heilongjiang skiing industry [7-8]. Table 4 shows the data of tourists and investors in a year before and after a skiing industry in Heilongjiang Province. Digital economy (Dif) and non-inclusive financing independent variables refer to Guan Huayu (2022) and Huang Qunhui (2019). Internet penetration rate (Ip), number of Internet broadband access users (Bbs), mobile telephone penetration rate (Mtp), number of mobile phone users (Pca), total post and telecommunications business (Pacy), and total revenue of software and information service industry (Sii) are selected as six indexes. According to the benchmark test, the combination of independent variables without inclusive financing is analyzed by hypothetical principal component firstly, which got the comprehensive index x_3 by standardization method. Meanwhile, the combination of independent variables including inclusive financing is obtained by principal component analysis as x_4 , which is used as the index of the robust test.

Table 4: Data of tourists and investors in a year before and after a skiing industry in Heilongjiang Province

Time	Visitor data (mean)	Investor data (average)
A year ago	207212	5012
One year later	134727	3391

3. ERO POWER USER MODEL OPTIMIZATION

3.1 Basic model analysis

Strategies to improve the sustainable development of skiing industry in Heilongjiang Province. In view of the above three approaches, the following will analyze the corresponding strategies. The strategy is mainly based on the background of the Winter Olympic Games, which can promote the transformation and development of the skiing industry in Heilongjiang Province.

3.2 Optimization strategy of industrial structure

In terms of industrial structure, according to the distribution of skiing product manufacturers in China, most of them are located in the south, that is, the Yangtze River Delta and the Pearl River Delta are the regions with the highest production capacity of chemical products, which almost occupy a monopoly position in the market. Under this condition, the ski industry of Heilongjiang Province should actively establish cooperative relations with the relevant manufacturers in the South under the call of the Beijing Winter Olympic Games, so as to make up for the lack of their own production capacity. In view of the possible fraud in southern production, the local governments of the South and the North must strengthen market supervision and set up relevant systems such as compensation and punishment to protect the interests of both sides. In addition, although most of the ski products need to be produced in the south, the north is dominant in some heavy machinery production, such as ski cars. Therefore, it is suggested that ski enterprises in Heilongjiang Province should establish cooperative relations with the North heavy industry, so as to reduce the logistics cost and facilitate communication.

3.3 Optimization strategy of production factors

In the background of Beijing Winter Olympic Games, China has carried out in-depth scientific and technological development of the skiing industry, integrating many advanced technologies into the skiing industry, such as skiing products, the chemical products used by athletes in the Winter Olympic Games are produced by high-tech molecular science, nanotechnology, material technology, etc.; skiing training methods, etc. all rely on VR, AR technology, etc. Under this condition, when the Winter Olympic Games are held, the products and training methods under these advanced technologies will inevitably become the goal of ski lovers. Therefore, Heilongjiang Province, as a ski industry cluster, should start to produce such products now, so as to meet the impact of the Winter Olympic Games. At the same time, in terms of ski resorts and professional talents, these advanced technologies can also be used for optimization. For example, VR technology can provide virtual training for ski beginners to experience the fun of skiing, and then guide users to enter various levels of ski resorts for activities. VR technology can be used to train talents to improve their professional ability, which can make up for this The problem of professional talent subsidy.

3.4 Management level optimization strategy

First of all, under the background of the 2022 Beijing Winter Olympic Games, the skiing industry in Heilongjiang Province has been highly concerned by the state. The state has put forward strict rectification requirements for the "market chaos" caused by the lack of the current management level of the industry. Therefore, under the condition of national control, the local government of Heilongjiang Province should increase its efforts to carry out politics on the current situation of the skiing industry in Heilongjiang Province, focusing on improving the market. In order to maintain the image of Heilongjiang province's skiing industry and set up the correct concept of industrial management, we must strictly punish those skiing enterprises that do not meet the standards. Secondly, because the local government of Heilongjiang Province has invested in the early development of skiing industry, leading to some nonstandard skiing industry "owning protective umbrella". In response to this problem, the local government must strictly prohibit it, and require the government departments that have already invested to gradually withdraw their capital and let the industry operate with private capital. This not only can eliminate the problem of "protective umbrella", but also can So that the development of skiing industry can not be interfered by the government and break through the existing restrictions.

4. CONCLUSION

To sum up, this paper analyzes the current situation of the skiing industry in Heilongjiang Province, puts forward the current problems, and expounds the development path guided by the problems. Based on the 2022 Winter Olympic Games and the influence of the Winter Olympic Games, this paper puts forward the strategies to improve the sustainable development of the skiing industry in Heilongjiang Province, and analyzes the key points and functions of the strategies. The results show that the current restrictions of the skiing industry in Heilongjiang Province can be reversed through the strategies, so that the industry will develop in a diversified direction, representing the sustainable development of the industry.

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