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Pressure, state and response: configurational analysis of organizational resilience in tourism businesses following the COVID-19 pandemic crisis

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Organizational resilience is key for tourism companies in coping with crises; however, little is known about how tourism companies can become more resilient. Furthermore, much of the empirical evidence in the extant literature comes from developed countries. The study identifies key factors affecting organizational resilience based on a “resource–capacity–relationship” theoretical framework, incorporating the number of COVID-19 cases as an external factor in the stress-state-response (PSR) model, with the epidemic as pressure, corporate governance, and redundant resources as the enterprise state, and CSR performance as the response. The fsQCA method was used to analyse the interaction and joint effects among multisource influencing factors such as pressure, state and response. Based on an empirical analysis of 35 listed tourism companies in China from 2010 to 2020, the research found the following: (1) Four groupings of high organizational resilience: redundant resource deficit under epidemic pressure with high pay incentive compensation, low financial risk, and CSR driven under low epidemic pressure, resource deployment and CSR driven under low financial risk and CSR driven under low financial risk. Of these, CSR at the response level as a core condition is key to developing high organizational resilience. (2) Corporate governance capabilities play a high role in fostering organizational resilience under epidemic pressure and can compensate for organizational deficiencies in resources and relationships. (3) Under specific objective endowment conditions, unabsorbed redundant resources and absorbed redundant resources can substitute to some extent for deficiencies in capabilities and relationships. (4) The low organizational resilience configurations suggest that potentially redundant resources may be the key to low organizational resilience. CSR is not the ‘golden key’ to organizational resilience but is influenced by redundant resources. Furthermore, the key variables affecting organizational resilience were significant during the studied period. The research provides a theoretical reference and practical guidance for the sustainable development of tourism enterprises in the context of major public health crises.

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Introduction

As an important component of the global economy (Nooripoor et al., 2021), tourism contributes significantly to the economic development of all regions (Glowka and Zehrer, 2019). Tourism is a highly competitive, risky, leveraged and capital-intensive industry (Singal, 2015). Furthermore, it is inherently vulnerable to various types of crises (Hu and Xu, 2022), especially regional epidemics (Butler, 2020; Duro et al., 2021; Hall et al., 2021). Crises and disasters always damage tourism (Breitsohl and Garrod, 2016). Thus, “tourism resilience” has been an important theme in tourism research since before the COVID-19 pandemic (Arrowsmith and Inbakaran, 2002; Calgaro and Lloyd, 2008; Strickland-Munro et al., 2010; Lew, 2014; Cheer and Lew, 2017). In the last 2 years or so, the global tourism industry has been hit hard by the COVID-19 pandemic (Skare et al., 2021), and the relationship between the COVID-19 pandemic and tourism provides a realistic perspective for exploring the resilience of the tourism industry (Utkarsh, 2021; Yang et al., 2021), encouraging tourism scholars and practitioners to think about the ways in which the industry can recover quickly (Yeh, 2020) and the direction of tourism development in the post-pandemic era (Yang et al., 2021).

COVID-19 was first detected in Wuhan, Hubei Province, China, in December 2019. The continued spread of the epidemic has had a huge social and economic impact, and the tourism industry has suffered a huge impact. The hotel industry in China, for example, suffered a loss of approximately US\$9.57 billion during January and February, with occupancy dropping to close to 10% (Becker, 2020). However, through multiple pandemic control campaigns, the government gained effective control of the crisis by March 13, 2020 (Xinhua Net, 2020), when 87% of hotels reopened (Smith Travel Research, 2020). While many travel companies have struggled with the effects of the COVID-19 pandemic outbreak, some have managed to cope with the situation with aplomb. What are the factors that influence and determine the fate of tourism companies? Faced with the risks and challenges brought about by environmental uncertainty, only resilient companies can actively adapt to changes, survive the crisis and achieve sustainable growth (Zhang et al., 2020). The COVID-19 pandemic outbreak demonstrated the importance of tourism resilience research and provided a real stress test for researchers and practitioners on how to improve tourism resilience and cope with a terrible crisis (Hu and Xu, 2022). The way in which tourism survived the outbreak and recovered quickly has become a major concern for researchers and practitioners alike.

The concept of resilience has seen a proliferation of different definitions, of which one of the most utilized is the one provided by the United Nations Office for Disaster Risk Reduction (UNISDR, 2002). It defines resilience as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner”. Crisis and risk are key scenarios for measuring resilience in tourism, and crisis management has been regarded as a means of improving resilience in tourism (Filimonau and De Coteau, 2020; Lew, 2014; Paraskevas et al., 2013; Prayag, 2018). In terms of research on resilience management in tourism organizations, risk and crisis assessment, crisis response and crisis recovery are important components of tourism resilience management. Paraskevas and Quek (2019) proposed a five-stage resilience management framework for tourism organizations, which includes sensing the risk landscape, risk assignment, risk treatment, crisis response, and crisis recovery. Considering tourism resilience management in the context of the pandemic, Kuščer et al. (2021) divided the process into three stages: the response phase, the recovery phase, and the

restart phase. These resilience management frameworks provide a theoretically complete explanation of the process of managing resilience in tourism organizations, but little is known about how to foster organizational resilience. The aim of this paper is to develop a complete framework for analysing organizational resilience in tourism enterprises applicable to crisis scenarios, dividing organizational resilience cultivation into three processes: stress-state-response (PSR) and highlighting the analysis of the impact of changes in the epidemic on organizational resilience. From a meso-scale study of tourism organizational resilience. Research on themes related to organizational resilience has been conducted by scholars based primarily on resource, capacity, and relationship perspectives. The resource perspective focuses on the impact of a firm’s resource base on organizational resilience, such as material resources (R. Toubes et al., 2020), including human capital (Barasa et al., 2018; Biggs et al., 2015), cash holdings (Wieczorek-Kosmala, 2022) and intangible resources such as organizational culture (Brown et al., 2017; Barasa et al., 2018). The capabilities perspective explores how core corporate capabilities are drivers of organizational resilience, such as innovation capabilities (R. Toubes et al., 2020) and corporate governance capabilities such as governance processes (Barasa et al., 2018) and leadership practices (Barasa et al., 2018; R. Toubes et al., 2020). The relationship perspective explores the role of a firm’s relationships with internal and external stakeholders on organizational resilience, such as social capital (Brown et al., 2017; Chowdhury et al., 2018) and corporate social responsibility (Torres et al., 2001). Research on the joint role of capabilities, resources, and relationships on organizational resilience has found that corporate social responsibility (CSR) and corporate governance have different effects on firm value in times of uncertainty (Jiang et al., 2019). Borghesi et al. (2019) argued that while CSR behaviour plays a key role in enhancing organizational resilience as a reservoir of social capital, corporate governance may limit the ability to perform in response to economic crises.

The above studies have enriched and deepened the understanding of organizational resilience, but there are still three shortcomings. First, in terms of the theoretical framework, most of the existing studies focus on individual theoretical perspectives, neglecting the integration of theoretical perspectives, which is not conducive to identifying the key conditions for the formation of organizational resilience (Shan et al., 2021). Second, in terms of research methodology, most of the existing studies focus on the “net effect” of individual variables without identifying the “joint effect” of multiple variables, whereas the formation of high organizational resilience is not the result of individual factors but the result of the combined effect of multiple dimensions (Zhang et al., 2021). Traditional regression analysis cannot explain this causal complexity problem well (Fiss, 2011). Third, organizational resilience is a highly situational variable, and most previous studies have used crisis events as a window into organizational resilience and have isolated factors such as the external environment and corporate management for a single-dimensional theoretical interpretation, without forming a complete theoretical framework for the management of public emergencies. Fourth, in terms of antecedent interactions, few studies have explored the interactions between different factors, while the interaction between multiple factors may have complementary or alternative effects, which limits managers’ understanding of the synergistic matching and alternative effects between the multiple factors of resources, capabilities, and relationships behind the formation of organizational resilience. In addition, most of the relevant literature is based on empirical evidence from firms in developed countries, and there is a lack of studies on the organizational resilience of tourism firms in developing countries.

With this in mind, we examine the organizational resilience cultivation of Chinese tourism firms in the context of the COVID-19 epidemic using a sample of Chinese-listed tourism firms. We chose Chinese firms for this study because, first, as the first country to be hit hard by the COVID-19 crisis, China initially took steps to cope with the devastating consequences of the epidemic with some success (Xinhua Net, 2020), and the systemic shock of the COVID-19 epidemic and the subsequent recovery in China makes China a suitable context for studying organizational resilience. Second, China's tourism industry started late with uneven regional development (Sui and Zhang, 2020). Chinese tourism firms are likely to face more changes and uncertainties in the business environment, which makes them more vulnerable to the COVID-19 epidemic than firms in developed countries. To further refine the existing research, this paper uses the impact of the COVID-19 epidemic event as the observation window, applies the fuzzy set qualitative comparative analysis (fsQCA) method, uses a sample of 35 Chinese listed tourism companies, and establishes a framework for analysing the pathway of cultivating organizational resilience with the epidemic as the pressure, redundant resources (resource perspective) and corporate governance (competence perspective) as the corporate state, and CSR fulfilment (relationship perspective) as the response, based on the PSR model. By examining the impact of three key factors, resources, capabilities and relationships, on organizational resilience, we identify the mechanisms that drive organizational resilience and aim to answer the following three research questions:

RQ1: What sets of conditions drive organizational resilience to reach the same goal by different means?

RQ2: Which conditions are more important for organizational resilience?

RQ3: Which conditions have matching and substitution relationships with each other?

The present article is expected to contribute to the extant literature in several ways. First, it embeds the resource–capacity–relationship framework into the PSR model, expanding the application of the PSR model in organizational resilience research and providing a theoretical reference for resilience development in tourism enterprises. Second, unlike previous QCA method studies that have taken individual years as the study interval, the study attempts to expand the research content by comparing and analysing the configurations of listed tourism companies with high organizational resilience for three years from 2018 to 2020, discovering the “commonality” and “individuality” of resilience configurations in epidemic crises and noncrisis situations and highlighting the analysis of the impact of changes in the epidemic on organizational resilience. Third, based on panel data from 2010 to 2020, the net effect of a single antecedent variable of organizational resilience is supplemented using the time-fixed effects model in the traditional regression method, which verifies the reliability and extensibility of the QCA method and the existence of a bridge of communication and integration with other methods.

Literature review

The concept of “resilience” originated in the field of materials science and has been applied in the fields of engineering, ecology, psychology, and management. Meyer (1982) introduced the concept of “organizational resilience” and defined organizational resilience as the ability of an organization to cope with disturbances and restore the previous order. This study follows this definition and defines organizational resilience as the ability of an organization to recover to its initial state in a timely and effective manner when faced with an external shock, specifically at the firm

level, where organizational resilience is expressed as the recovery of share price after a crisis event. Researchers in organizational resilience have focused on the factors that can enhance resilience. Three main perspectives on organizational resilience have emerged from the literature: the resource perspective, the capability perspective, and the relationship perspective. In the following, the logic of differentiation and relevance of the three theoretical perspectives in explaining organizational resilience is systematically described.

Resource perspective

The core logic of the resource perspective is to view the firm as a combination of resources, and its theoretical foundations are mainly resource base theory and resource redundancy theory. Whether it is to recover from a crisis or to improve through such recovery, the enterprise must properly allocate redundant resources and implement organizational flexibility (Lu and Xiang, 2021). In an epidemic crisis, redundant corporate resources become an important safeguard for organizational recovery. According to resource redundancy theory, the redundant resources of an organization can be classified as unabsorbed redundancy, absorbed redundancy, and potential redundancy (L. J. Bourgeois, 1981). Many studies have focused on the role of these three types of resources in organizational resilience. The level of cash holdings (Xiao et al., 2020) and financial resources (Tognazzo et al., 2016) have been found to have a positive effect on organizational resilience. Wieczorek-Kosmala (2022) assesses cash holdings in the tourism industry in four Central European countries and concludes the importance of financial redundancy and cash holdings in determining resilience. The buffering effect of redundant resources in the aftermath of an outbreak has been studied by scholars. Jin et al. (2021) study how organizational redundancy affects the return of A-share listed firms after an epidemic outbreak. Their study shows that the return of listed firms generally decreases after an epidemic outbreak, while organizational redundancy plays a moderating role in mitigating the epidemic shock. Studies have been conducted to explore the buffering effect of absorbed redundancy on crisis firms, including R&D investment (Tognazzo et al., 2016) and knowledge resources (Mafabi et al., 2012). However, the impact of absorbed redundant resources on organizational resilience has not been uniformly concluded; for example, Tognazzo et al. (2016) found that small firms' R&D investment prior to the global financial crisis in 2008 did not enhance the speed of recovery from the crisis. Li and Liu (2010) found that the magnitude of the utility of redundant resources is influenced by a firm's ability to allocate and utilize resources. In addition, redundant resources have a significant impact on the fulfilment of CSR. Studies have shown that in state-owned enterprises, the relationship between absorbed redundancy and CSR has an “inverted U-shape”, while in private enterprises, the two are positively correlated (Hu et al., 2019).

Capability perspective

The core logic of the capability perspective is that firms can adapt to rapidly changing environments (Teece et al., 1997), such as crisis events and adversity events, through the ability to integrate, build and reconfigure internal and external resources. The main theoretical underpinning for this is the theory of enterprise capabilities, which argues that building capabilities that can adapt to environmental change through continuous learning are key to making a firm organizationally resilient (Shan et al., 2021; Tsiapa and Batsiolas, 2019). Studies have been conducted on individual and corporate capabilities and have mainly examined the impact of managers' capabilities on organizational resilience, especially those of top managers because top managers have stronger

human and social capital than ordinary employees and can play a greater role in crisis situations. Research in this area has examined the positive effects of transformational leadership (Sun et al., 2021), entrepreneurial spiritual capital (Wu and Gu, 2021), managerial competencies (Xu et al., 2020), and team leadership (Barton and Kahn, 2018) on organizational resilience. Research in the main area of business capability has examined the contribution of innovation capability (Tognazzo et al., 2016) and technological capability (Bustinza et al., 2016) to organizational resilience.

Few studies have taken a governance capability perspective. Core competence theory also argues that core competence is not simply the possession of resources but that core competence is closely related to organizational structure in addition to the effective use of resources. A company's core competency is not science and technology in the general sense; it should be an institutionalized system of interdependent and interconnected knowledge that manifests itself as the company's overall ability to act. Corporate governance is in line with the content and characteristics of corporate capability theory: corporate governance is a set of institutional arrangements for the enterprise, and the institution itself is a resource, whose scarcity is reflected in the scarcity of professional managers, whose internal institutional arrangements are different, especially in terms of the allocation of control, which makes it inimitable and irreplaceable (Tan, 2009). In a crisis, corporate governance as a core competency is crucial for organizational resilience recovery, and existing studies have examined the joint role of corporate governance and CSR in enhancing organizational resilience (Sajko et al., 2021; Torres and Augusto, 2021). Some studies have also focused on the positive effects of executive compensation (Flammer, 2015) and independent directors (Xiao and Xue, 2014) on CSR. While it is not known whether corporate governance capabilities directly contribute to organizational resilience in crisis, we argue that corporate governance capabilities are also a key to resilience recovery in crisis and fill this gap in the literature by including them in the study.

Relationship perspective

The core logic of the relational perspective is that organizations should balance the interests of different stakeholders and focus not only on the accumulation of shareholder wealth but also on their own social benefits, based on stakeholder theory. Based on the stakeholder theory proposed by Friedman, a company is essentially a set of "contracts" entered into by various stakeholders, including shareholders, managers, employees, creditors, customers, and suppliers. Research has recognized the importance of a dynamic collaborative process of stakeholder engagement in crisis management in the hospitality industry (Li et al., 2021).

Tourism resilience research at different scales suggests that cooperation and mutual assistance (social capital) (Brown et al., 2017; Choi et al., 2021; Chowdhury et al., 2018; Cirer-Costa, 2020; Espiner and Becken, 2014; Powell and Holladay, 2013; Kimbu et al., 2018) are central to improving local, organizational and individual resilience; therefore, the close relationships that firms build with stakeholders can help improve organizational resilience in the face of a crisis. A number of studies have explored the impact of firms' precrisis CSR performance on the speed of recovery after a crisis and found that CSR positively affects organizational resilience (Ortiz-de-Mandojana and Bansal, 2015; Desjardine et al., 2019; Sajko et al., 2021). In the context of an epidemic crisis, in addition to taking responsibility for shareholders and creditors, at the employee level, CSR contributes to employee resilience through employee perceived satisfaction with

the epidemic response (He et al., 2020). At the same time, the fulfilment of CSR also helps reduce employees' intention to leave (Shen et al., 2018). At the public level, CSR fulfilment can help reduce employee turnover. At the public level, the fulfilment of CSR can also bring political legitimacy to the company (Luo et al., 2017) and can earn public trust (Wang and Qian, 2011). At the consumer level, the fulfilment of CSR helps enhance consumers' perceptions of the company's reputation (Lai et al., 2010) and foster customer satisfaction (McWilliams and Wright, 2006). At the government level, establishing a good relationship with the government can help companies improve their access to scarce resources (Faccio, 2006).

As seen from the above, the literature provides rich theoretical references and empirical evidence for understanding organizational resilience at three levels—resources, capabilities and relationships—and provides solid theoretical support for this paper to build an analytical framework for organizational resilience. There is still room for expansion of existing research. First, resilience studies based on the capability perspective lack exploration of the impact of corporate governance capability on organizational resilience. Based on core capability theory, the internal systems and structures of organizations under crisis are also an important guarantee for organizational resilience recovery. Second, the process of adjusting to external shocks and restoring order after a crisis is a complete process, and few studies have included external shocks in their research, lacking a process perspective on organizational resilience. Third, a review of the literature reveals that corporate governance and redundant resources can have a significant impact on CSR. The variables of corporate governance, redundant resources, and CSR do not act alone on organizational resilience but rather are linked to enhance organizational resilience. Variables from different theoretical perspectives may also have alternative effects in enhancing organizational resilience. Taking the relationship and resource perspectives as an example, by building high-quality social ties with internal and external stakeholders, companies can input heterogeneous resources, such as legitimacy resources (Luo et al., 2017) and employee resilience (He et al., 2020), but this may also have a substitution effect on other organizational resources. Fourth, most of the existing studies have examined the impact of certain types of factors on organizational resilience separately based on resource-based theory, core competency theory and stakeholder theory. In reality, organizational resilience is affected by a combination of internal and external factors, and the findings from the same theoretical perspective are inconsistent (Tognazzo et al., 2016). This is because examining which resources, capabilities or relationships are more important to organizational resilience in isolation, without considering the interaction of multiple theoretical perspectives, may weaken the explanatory power of the findings for real-life situations.

In summary, we will use the "resource-capacity-relationship" as the theoretical framework to select the key conditions that influence organizational resilience, and the "resource-capacity-relationship" paradigm has also been used by scholars to analyse issues such as growth paths (Luo et al., 2016) and innovation performance of enterprises (Jiang and Tang, 2018), which has better explanatory power and stronger theoretical support. In terms of research models, few studies have incorporated external shocks into organizational resilience analysis models. We aim to develop a complete model of organizational resilience analysis for tourism enterprises applicable to crisis scenarios, attempt to analyse the process of enterprise organizations responding to environmental conditions after being stressed by epidemic shocks, highlight the analysis of the epidemic, and divide the cultivation of organizational resilience into three processes: PSR. The PSR model can be adapted to the process of organizational

resilience, from the stress caused by the epidemic outbreak to the state of the organization its response during the epidemic, and its recovery after adapting to the crisis. The cause–effect–feedback logic reflected in the PSR model fully reflects the complex interactions between nature and human society and environmental systems. It also reveals the dynamic recovery process of organizational resilience after a crisis. Due to its dynamic systems theory thinking, the PSR model has also been widely used in ecological safety assessment (Jin and Wang, 2020), disaster risk assessment (Liu et al., 2018), ecological safety assessment (Zhao et al., 2014), sustainable tourism development (Salemi et al., 2019) and various disaster risk assessment studies. In this paper, the use of the PSR model can better reflect the impact mechanism of major public health events on tourism enterprises and evaluate the state of enterprises in public health events as well as their response measures; therefore, the PSR model is applicable to the study of the organizational resilience of construction enterprises during major public health emergencies. Specifically, we use the COVID-19 epidemic as the source of stress (P), corporate governance and redundant resources as the state (S), and corporate fulfilment of CSR (R) as the response and select three levels of corporate governance, redundant resources, and CSR as the key conditions affecting organizational resilience based on the “resource–capacity–relationship” theoretical framework. In terms of methodology, fsQCA is used to analyse the combined effects of epidemic pressure, corporate governance, redundant resources, and CSR on organizational resilience, with a view to providing a theoretical reference for the cultivation of organizational resilience in tourism enterprises in the context of public health crises. The fixed effects model in the traditional regression approach is also effectively integrated with fsQCA to complement and validate the findings of fsQCA, providing a methodological reference for the application of fsQCA in related fields.

Theoretical basis and model construction

PSR theoretical model. The PSR model was first proposed by Canadian statisticians. The Organization for Economic Cooperation and Development (OECD) has been using the PSR model for environmental quality evaluation since 1970 and has achieved good results. In the field of tourism research, the PSR model has been applied to the evaluation of the landscape carrying capacity of ecotourism areas (Zhang et al., 2020) and the coupled and coordinated evaluation of tourism development and the ecological environment (Li et al., 2021). In the PSR model, “P” reflects the disturbance and influence of external factors on the system. “S” reflects the state of the system itself under pressure. “R” reflects the response measures taken by the system under the influence of pressure.

At the stress level, the outbreak of COVID-19 has put tremendous pressure on tourism companies to continue operating. Following the closure of Wuhan due to the epidemic, the Department of Culture and Tourism issued an emergency notice on January 24, 2020, to suspend the business activities of tourism enterprises. Travel agencies, scenic spots, and cultural and entertainment venues in various regions suspended their operations one after another, and the massive loss of customers led to serious disruptions in business activities. Yan and Wang (2020) summarized the impact of the epidemic on small and medium-sized tourism enterprises at the micro level, including pressure on travel agents to withdraw bookings, pressure on rents, pressure on stable jobs, and salary payments. At the state level, national epidemic prevention and control policies and people’s awareness of life safety have led to a sharp decline in tourists’ willingness to travel, and tourism business enterprises’ original corporate governance structure is facing adjustments. Redundant resources

as buffer resources are vital to resolving short-term corporate crises. At the response level, while actively deploying epidemic prevention efforts after the outbreak, listed tourism companies are equally active in fulfilling their CSR and building close relationships with stakeholders. By fulfilling their CSR after the epidemic, enterprises establish interdependent relationships with their stakeholders and form a network of resources and knowledge with them to improve their flexibility and efficiency in decision-making (Chen and Xie, 2011), thereby increasing their resilience during the epidemic crisis. Overall, the formation of the organizational resilience of listed tourism enterprises under the impact of the epidemic is a complex process, and the introduction of the PSR model into the analysis process of organizational resilience can better explain the complex relationship of the combination of multiple factors.

Establishment of the PSRO analysis model framework. The outbreak of COVID-19 as an external factor causes disruption and disturbance to the system, while the system itself is in a state of stress, and the measures taken as a result of the stress can be explained by the “resource–capacity–relationship” theoretical framework. Resources and capabilities characterize a firm’s state of preparedness for an epidemic shock and influence the response at the relational level.

The impact of resources, capabilities, and relationships on organizational resilience is seen to intersect and interact. Corporate governance affects organizational resilience by influencing the fulfilment of CSR (Flammer, 2015; Xiao and Xue, 2014), and redundant resources (Hu et al., 2019) directly affect the resilience of a firm in a crisis. We use a “resource–capacity–relationship” theoretical framework to identify the conditions for organizational resilience and embed “resource–capacity–relationship” theory in the PSR model to analyse organizational resilience. We construct a stress, state, response framework for analysing organizational resilience (PSRO) by considering epidemic shocks as the source of pressure (P), corporate governance capacity and redundant resources as the firm’s state (S), and the firm’s commitment to social responsibility and building close relationships with stakeholders as the response (R). The PSRO model provides a more systematic framework for explaining the interactions of multiple factors, facilitating the analysis of resilience system formation mechanisms from a holistic perspective.

Due to the variability of research objects, different listed tourism enterprises have different epidemic pressures in their locations. There are also large differences in corporate governance structure, redundant resource status and fulfilment of CSR. This combination of factors will result in different resilience performances during the epidemic. The fsQCA method allows for the identification of different configurational compositions that yield resilience. In this paper, we refer to mainstream qualitative comparative analysis (QCA) research and consider several practical criteria for the selection of antecedents: first, we refer to the recommendations given by Du and Jia (2017) to select the key constructs in the theoretical framework and the important antecedent conditions in the existing literature; second, we refer to Ragin’s (2008) recommendation that the purpose of the QCA method is not to exhaust all variables but to analyse the consistency of the sample on important variables, and it is generally suitable for analysing groups of four to seven conditions. We finally defined seven antecedent conditions: the number of confirmed diagnoses at the firm’s location (epidemic pressure), executive compensation and the proportion of independent directors (corporate governance status), unabsorbed redundant resources, absorbed redundant resources and

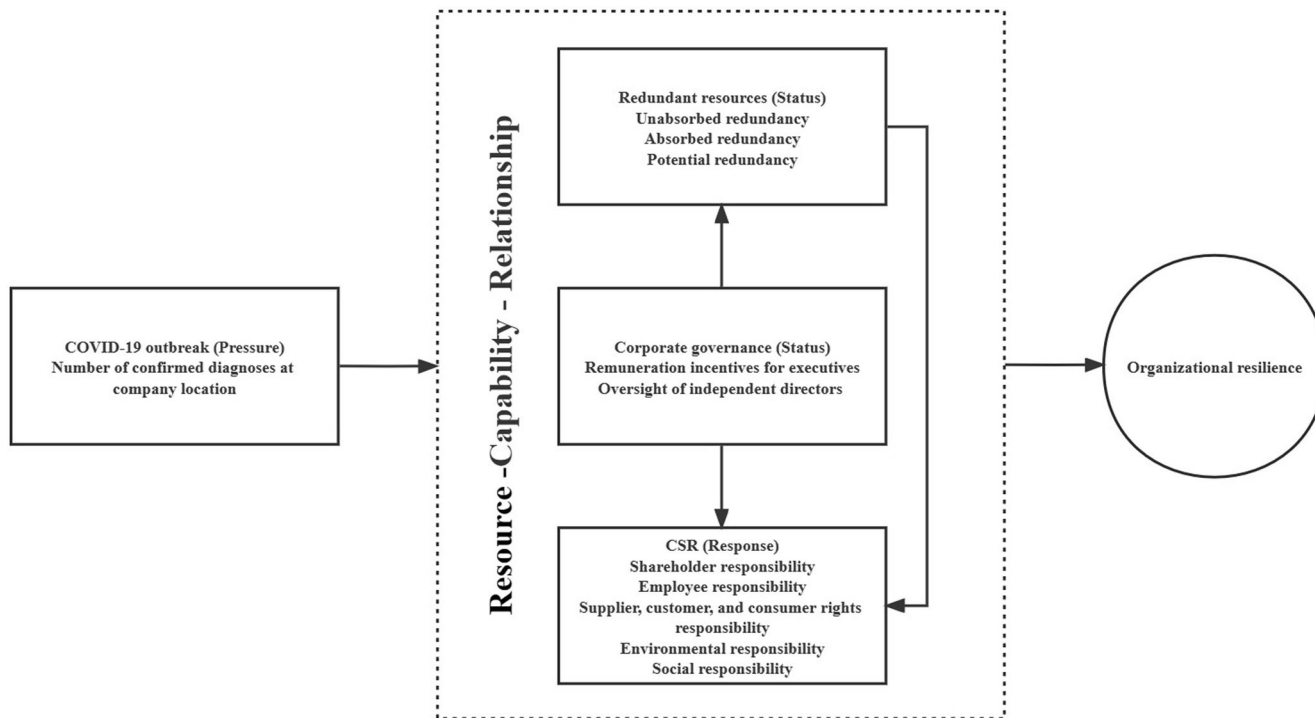


Fig. 1 Framework for PSRO analysis of the antecedents of organizational resilience.

potentially redundant resources (redundant resources status), and CSR (epidemic response), in an attempt to examine the interaction of these seven conditions on the configuration effect of organizational resilience. Based on the PSR model, we establish a framework for analysing the influencing factors of organizational resilience, as shown in PSRO analysis framework (Fig. 1).

Data and methodology

Data. The focus of this study is on listed companies in the tourism and airline categories that were highly affected by the epidemic in FY2020. Against the backdrop of a downward macroeconomic situation, changes in stock market sentiment can precisely reflect changes in investor sentiment and the economic performance of real companies in real-time (Chen, 2020); therefore, the resilient performance of tourism companies can be analysed from the perspective of the stock market. However, the factors affecting stock market performance are numerous and complex, and it is difficult to extract the negative effect of the epidemic on the stock market alone. For this reason, a shorter time horizon is chosen for the analysis to minimize stock market noise. Specifically, the fiscal year 2020 is chosen as the sample time interval for this paper, and the time window is set at 90 days after 31 December 2019, taking into account the persistence of the epidemic and the continuity of the material impact in the post-epidemic period. This period is the initial phase of the epidemic in China (Chen, 2020), which is relatively short, and there are no other significant external shocks during the sample period; thus, market noise can be excluded to a certain extent to assess the resilience of firms.

The study screened the study sample layer by layer in four areas: publicly released directory of listed Chinese tourism companies, changes in the main business, whether they are in financial distress and the number of years they have been listed. The steps are as follows: first, the sample enterprises were initially identified. Based on the 2016 China Tourism Listed Enterprises Development Report published by the former National Tourism Administration, the leisure services and air transportation

enterprise directories obtained from the WIND database on 13 April 2021, and relevant authoritative literature (Wang et al., 2020), 32 tourism and 8 airline listed companies were identified. Second, the annual sample of companies with nontourism-based main businesses among the listed tourism companies during 2020 was excluded. Based on the provisions of the Industry Classification Guidelines for Listed Companies promulgated by the CSRC in 2001 and the definition of listed tourism companies in the study by Liu et al. (2007), this study uses the proportion of operating revenue as the classification criterion. Specifically, businesses involving food and beverage services, scenic spot operations, hotel operations, travel agency operations and exhibition services are classified as the main business scope of tourism enterprises. If the revenue of any of these main business categories accounts for the largest proportion of all businesses, it is considered a listed tourism company; it is more common for tourism enterprises to diversify their operations, and even if the company’s operations involve the tourism industry but the proportion of revenue is not the largest, it is not considered a typical listed tourism company (Xu, 2007). Third, the sample of companies that are in the stage of being specially treated during 2020 is excluded because listed companies in the ST, PT and *ST stages are financially distressed companies, and their abnormal behaviours may impact the result (Chen et al., 2022). Furthermore, to more effectively use the panel data for the period 2010–2020 for regression validation, we excluded the sample of companies listed after 2018 based on the above screening results, and finally selected 29 listed companies in tourism and 6 listed companies in aviation. A total of 35 listed enterprises were finally selected as the study cases, among which the listed enterprises’ financial data and corporate governance data were obtained from the Wind Information and CSMAR industry database. The CSR data of the listed tourism enterprises were obtained from Hexun.com. The data related to the epidemic in a company’s location were obtained from Dingxiang Garden, and the data were checked on a sample basis to be consistent with the information published on the official website of the government

Table 1 Definition of variables and calculation method.

| PSRO framework | Variable name | Symbols | Variable definition |
|--------------------------|-------------------------------------|---------|--|
| Epidemic pressure (P) | Number of confirmed cases | Cc | Number of confirmed outbreaks of company location (90 days) |
| Redundant resources(S) | Unabsorbed redundancy | Us | Current assets/Current liabilities |
| | Absorbed redundancy | As | Administrative expenses/Sales revenue |
| | Potential redundancy | Ps | Total liabilities/Total assets - Industry median |
| Corporate governance(S) | Top three executive compensation | Sal | Top three executive salaries with two periods of lagging |
| | Percentage of independent directors | Ind | Percentage of independent directors lagging two periods |
| Outbreak response(R) | Corporate social responsibility | CSR | Hexun CSR composite score with one period lag |
| Configuration results(O) | Organizational resilience | Or | Historical stock price volatility within 90 days of the outbreak |

in the company’s location. The data analysis software used was fsQCA 3.0 and Stata16.

Endogeneity problems. Omitted variable bias, sample selection bias, and associativity bias (also known as reverse causality) are all major sources of endogeneity problems. fsQCA does not directly address potential endogeneity issues (Misangyi and Acharya, 2014), such as reverse causality. To mitigate this issue, we use lagged data, following previous studies (Lewellyn and Fainshmidt, 2017) and lagging corporate governance variables by two periods and CSR variables by one period. The lagged data are used later in the fsQCA configuration analysis process and the robustness testing process using panel data regressions.

Main variables

Organizational resilience (Or). Given the persistence of the epidemic and the continuity of the material impact in the postepidemic period, we set a time window of 90 days after 31 December 2019. This period is the initial phase of the domestic epidemic (Chen, 2020), a relatively short period, and there are no other significant external shocks during the sample period, so market noise can be excluded to a certain extent. With specific reference to Torres and Augusto’s (2021) approach, the historical volatility of the stock price within 90 days after the outbreak is used as a measure of organizational resilience, where a smaller indicator indicates that the firm is less exposed to the shock of the epidemic and therefore has better resilience.

Historical volatility is calculated in two steps. In the first step, the logarithmic return of the daily closing price is calculated as Eq. (1), where P_t, P_{t-1} denotes the closing price of the firm on Day t and Day $t-1$. In the second step, the standard deviation of the log returns is calculated and annualized, as in Eq. (2), where R_{avg} denotes the average of the log-returns of the firm over n days.

$$R_t = \ln(P_t) - \ln(P_{t-1}) \tag{1}$$

$$vol_i = \sqrt{\frac{\sum_{i=1}^n (R_i - R_{avg})^2}{n - 1}} * \sqrt{250} \tag{2}$$

Epidemic pressure (Cc). With the increase in the number of confirmed cases of COVID-19, tourism enterprises face greater pressure. Therefore, in this paper, the number of confirmed cases of the epidemic at the location of the enterprise (if the enterprise is located in a municipality, the data on confirmed cases of COVID-19 are specific to the district level; otherwise, it is at the municipal level) is used as an indicator to measure the pressure of the epidemic.

Tourism business status (Sal Ind; Us As Ps). Based on the above theoretical analysis and literature review, at the corporate governance level, we select the total compensation of the top three executives (Sal) and the proportion of independent directors

(Ind) in the CSMAR database as the measures of corporate governance status.

At the level of redundant resources, Bourgeois (1981) classifies redundant resources into three categories: unabsorbed redundancy, absorbed redundancy and potential redundancy. Unabsorbed redundancy (Us) refers to resources that are not utilized by the firm, have some liquidity, and can be put into use quickly. Absorbed redundancy (As) refers to resources that have been put into use and can eventually be used after effective deployment. Potential redundancy (Ps) is related to the firm’s ability to acquire financial resources in the future. In this paper, we refer to previous practice and use a quick ratio to measure the unabsorbed redundancy (Li and Liu, 2011), the ratio of overhead to sales revenue as absorbed redundancy (Wang and Cheng, 2014), and the gearing ratio as potential redundancy (Jiang and Zhao, 2004). For the potentially redundant resources of tourism enterprises, due to the different financing capacities of the industry sectors involved in the enterprises and the large differences in the debt structure, we refer to Xie Weimin et al.’s (2016) approach: the gearing ratios of listed enterprises in different industries are adjusted according to the CSMAR industry classification, and the gearing ratio minus the median value of the industry in which it is located is used as a measure of potential redundancy to eliminate the differences between different industries.

Tourism business response (CSR). The epidemic response of listed tourism companies after the outbreak is defined as the assumption of responsibility to stakeholders, the establishment of close relationships with them, and the formation of a community of destiny in response to the epidemic. We use the total score of the CSR report assessment system of listed enterprises published by Hexun.com as the response index to measure the CSR of listed tourism enterprises. The assessment examines five items, including shareholders’ responsibility; employees’ responsibility; suppliers’, customers’ and consumers’ rights and interests’ responsibility; environmental responsibility and social responsibility. Each item sets up secondary and tertiary indicators, in line with the international authoritative CSR standard ISO26000 system. The definition of each variable under the PSRO framework is shown in Table 1.

Methodology. Most existing studies have used traditional regression methods to derive the net effect of independent variables on dependent variables, demonstrating a correlation (Zhang and Du, 2019), while the pooled relationship between multiple factors cannot be explained. fsQCA is a case-study-oriented pooling approach that considers that the influence of a variable on the outcome is not independent, but its meaning and effect depend on its combination with other variables. Based on the principles of set theory and Boolean algebra, the approach views the studied cases as groups of conditions or attributes (Ragin, 2008, 2000), and the analysis of such groups is achieved through

Table 2 Calibration anchor points and descriptive analysis for each variable.

| Variable name | Fuzzy set calibration | | | Descriptive analysis | | | |
|-------------------------------------|-----------------------|-----------------|-----------------|----------------------|--------------------|---------------|---------------|
| | Not full membership | Crossover point | Full membership | Average value | Standard deviation | Minimum value | Maximum value |
| Epidemic pressure | 2.1 | 32 | 451 | 1523.086 | 8316.067 | 0 | 50,007 |
| Unabsorbed redundancy | 0.188444 | 1.03685 | 4.053333 | 1.474105 | 1.409424 | 0.145691 | 6.46975 |
| Absorbed redundancy | 0.033486 | 0.151574 | 0.49062314 | 0.206156 | 0.152824 | 0.017004 | 0.56340745 |
| Potential redundancy | -0.17885 | 0.375495 | 0.7545912 | 0.382641 | 0.292314 | -0.37609 | 0.798476 |
| Percentage of independent directors | 0 | 0.333333 | 0.6075 | 0.392518 | 0.09265 | 0.333333 | 0.66666667 |
| Top three executive compensation | 656,410 | 1,906,300 | 12,769,077 | 3,526,915 | 3,995,535 | 468,400 | 16,911,900 |
| Corporate social responsibility | 12.062 | 23.75 | 33.539 | 23.66429 | 6.494029 | 2.85 | 34.49 |
| Organizational resilience | 0.373645 | 0.468685 | 0.66419763 | 0.48434 | 0.098519 | 0.200654 | 0.69585719 |

ensemble analysis, i.e., using set theory to conceptualize the causal conditions and outcomes of the study assets and to analyse the relationships among subsets (Ragin, 2008, 2000; Misangyi et al., 2016). Specifically, a set study is one in which the object of study is calibrated to certain theoretical and/or practical knowledge to select calibration criteria, and the study conditions and outcome variables are calibrated to the set membership of the case. Calibration takes into account both kind and degree differences between cases so that measurements can be interpreted and made meaningful (Ragin, 2008). Complex causal relationships are then revealed by analysing the adequacy and/or necessity of conditions or combinations of conditions for outcomes and by counterfactual analysis (Ragin, 2008). fsQCA was used in the social sciences in the early days but has been increasingly applied in the management field in recent years. fsQCA has the advantage that the number of listed tourism enterprises in China does not meet the requirements of large samples in traditional quantitative research, while fsQCA is applicable in large, medium, and small sample sizes. fsQCA has stronger practical significance because it studies the antecedent condition configurations that cause outcomes to occur from a holistic and systematic perspective, avoiding the covariance problems of traditional quantitative research (Ragin, 1989). In addition, considering that organizational resilience configurations in noncrisis contexts are equally valuable to study, we analyse the composition of resilience configurations in the absence of epidemic occurrences in 2018 and 2019 and compare them to the resilience configurations in the 2020 epidemic crisis. In the robustness testing section, we combine the traditional regression method with the fsQCA method for further supplementation and validation. The robustness of the fsQCA method is further confirmed by conducting multiple regression analysis using panel data on listed tourism enterprises from 2010 to 2020.

Empirical analysis

Data calibration. Data calibration is one of the most important steps in the fsQCA method. It comprises the process of transforming variables into sets by selecting appropriate anchor points and determining membership. Previous studies usually set “full membership”, “crossover” and “not full membership” based on existing theoretical criteria. In this paper, we refer to the literature on organizational resilience in tourism (Torres and Augusto, 2021). The 95% quantile (full membership point), 50% quantile (crossover point) and 5% quantile (not full membership point) of the sample data are selected to identify the three thresholds. In particular, when using the above quantile to calibrate the indicator of “proportion of independent directors”, 0.333 is used as the crossover point, the 95% quantile of the sample data is used as

the full membership point, and 0 is used as the not full membership point since the SEC in China stipulates that the proportion of independent directors on the board of directors of listed companies should not be less than one-third. In the calibration, the fuzzy set affiliation score of 0.5 should be avoided, or else the case cannot be categorized, resulting in a loss of cases and affecting the integrity of the analysis results. Therefore, we refer to Fiss (2011) and add 0.001 to the membership scores of all cases with membership degrees below 1 to avoid the occurrence of 0.5 membership scores and to keep the relative size of the membership scores between cases constant. We calibrate the variables for 2018–2020 according to the above method, and due to space limitations, the calibration anchors and descriptive analysis of the variables are provided only for 2020, as shown in Table 2.

Univariate necessary condition analysis. Necessity tests for individual variables are required to determine whether a single antecedent variable is necessary for the outcome variable prior to performing a configuration analysis. If a necessary condition is present, that antecedent variable must be included in the construct. The QCA method measures the necessary relationship between variables through consistency and coverage, and this study explored the necessity of conditional variables for high and low organizational resilience separately for three consecutive years from 2018 to 2020. The results are shown in Table 3. According to the QCA method, the condition is considered necessary for the outcome to occur when the level of consistency exceeds 0.9. Table 3 shows that the consistency level of all the antecedent conditions did not exceed 0.9 during the 3 years from 2018 to 2020, indicating that individual antecedent conditions have limited explanatory power for the level of organizational resilience and that the effect of multiple antecedent condition combinations on the outcome variable must be considered.

Sufficient condition analysis and conformational results. We use fsQCA 3.0 software to analyse 35 cases of listed tourism companies to study the antecedent condition constructs of high and nonhigh organizational resilience for 3 years from 2018 to 2020. Drawing on mainstream QCA research (Zhang et al., 2020), consistency thresholds and frequency thresholds need to be determined before conducting an adequacy analysis. In this paper, the following three practice criteria are considered: (1) sample size, where the frequency threshold can be set to 1 for small and medium samples, while the frequency threshold should be greater than 1 for large samples; (2) distribution of the truth table, where the distribution of cases with a result of 0 and 1 should both be covered and roughly balanced in the truth table; and (3) number of observed cases, where the number of observed

Table 3 Results of univariate analysis of necessary conditions.

| Antecedent conditions | 2020 | | | 2019 | | | 2018 | | | | | |
|--------------------------------------|--------------------------------|----------|-------|-------------------------------|----------|-------|--------------------------------|----------|-------|-------------------------------|----------|--|
| | High-organizational resilience | | | Low-organizational resilience | | | High-organizational resilience | | | Low-organizational resilience | | |
| | Consistency | Coverage | | Consistency | Coverage | | Consistency | Coverage | | Consistency | Coverage | |
| Unabsorbed redundancy | 0.653 | 0.726 | 0.626 | 0.651 | 0.702 | 0.532 | 0.591 | 0.657 | 0.766 | 0.549 | 0.569 | |
| -Unabsorbed redundancy | 0.686 | 0.662 | 0.736 | 0.665 | 0.610 | 0.732 | 0.611 | 0.630 | 0.612 | 0.774 | 0.667 | |
| Absorbed redundancy | 0.639 | 0.672 | 0.637 | 0.627 | 0.780 | 0.481 | 0.506 | 0.614 | 0.729 | 0.519 | 0.548 | |
| -Absorbed redundancy | 0.645 | 0.655 | 0.667 | 0.634 | 0.548 | 0.790 | 0.689 | 0.619 | 0.592 | 0.744 | 0.631 | |
| Potential redundancy | 0.664 | 0.615 | 0.786 | 0.682 | 0.574 | 0.715 | 0.646 | 0.530 | 0.553 | 0.719 | 0.667 | |
| -Potential redundancy | 0.657 | 0.766 | 0.557 | 0.608 | 0.713 | 0.529 | 0.533 | 0.681 | 0.732 | 0.518 | 0.495 | |
| Percentage of independent directors | 0.844 | 0.706 | 0.829 | 0.650 | 0.696 | 0.783 | 0.609 | 0.789 | 0.684 | 0.803 | 0.619 | |
| -Proportion of independent directors | 0.581 | 0.784 | 0.624 | 0.789 | 0.733 | 0.609 | 0.749 | 0.561 | 0.763 | 0.591 | 0.713 | |
| Top three executive compensation | 0.613 | 0.732 | 0.544 | 0.608 | 0.733 | 0.595 | 0.615 | 0.511 | 0.635 | 0.631 | 0.696 | |
| -Top 3 executive compensation | 0.671 | 0.611 | 0.760 | 0.648 | 0.642 | 0.742 | 0.656 | 0.756 | 0.698 | 0.669 | 0.549 | |
| Corporate social responsibility | 0.752 | 0.738 | 0.642 | 0.590 | 0.732 | 0.607 | 0.554 | 0.682 | 0.696 | 0.673 | 0.610 | |
| -Corporate social responsibility | 0.583 | 0.635 | 0.715 | 0.729 | 0.608 | 0.706 | 0.703 | 0.618 | 0.680 | 0.664 | 0.650 | |
| Epidemic pressure | 0.558 | 0.677 | 0.570 | 0.648 | | | | | | | | |
| -Epidemic pressure | 0.710 | 0.638 | 0.716 | 0.603 | | | | | | | | |

“-” means “not” in the logic operation.

cases should be no less than 75% of the total number of cases. As there is no uniform conclusion from existing research on the relationship between each of the seven conditions and organizational resilience, a definitive counterfactual analysis cannot be made in this paper. Therefore, the status of each of the seven conditions was set to ‘present or absent’ in the analysis. In this paper, the original consistency is set to 0.8, with a case frequency of 1, and the PRI consistency is set to 0.75 with reference to Ragin (2008). The qualitative comparative analysis of fuzzy sets produces complex solutions (which do not contain “logical residuals”, are not simplified, and have more configurations, which is not conducive to analysis); intermediate solutions (which include only “logical residuals” that are consistent with theory and practice); parsimonious solutions (which contain “logical residuals”) and simplistic solutions (which include “logical residuals” but do not evaluate their rationality). Therefore, in this paper, we choose the conditional configuration of the intermediate solution when analysing organizational resilience and further determine the core and edge conditions of the configuration in combination with the parsimonious solution. If a variable appears in both the simple solution and the intermediate solution, it is judged as the core condition; if the variable appears only in the intermediate solution, it is judged as the edge condition. Combining the above judgement principles, the final conformation results of the organizational resilience of the listed tourism enterprises in 2018–2020 are obtained, as shown in Tables 4 and 5.

Produce high organizational resilience configurations. Eight high-organizational resilience configurations were obtained from a case study of 35 A-share travel listings for 2018–2020 (Table 4). Overall, the level of consistency between the single and overall solutions for all eight configurations presented in the table exceeds the minimum criterion of 0.75 proposed by Schneider and Wagemann (2012), and the coverage of the overall solution exceeds 40% for all years. This further indicates that the antecedent conditions of the corresponding case composition are also sufficient conditions for the occurrence of high organizational resilience.

From the perspective of individual variables, the epidemic stress variable has two performance states for the three constructs in FY2020. The first is a marginal condition in the presence state, a configuration that represents some of the firms that are resilient in the presence of epidemic stress. The second is as a core condition in the absence state, a result that suggests a negative role for the COVID-19 epidemic in the formation of organizational resilience, with firms in less epidemic-stressed environments tending to be more resilient. In terms of corporate governance status, the proportion of independent directors appears mostly as a marginal condition of presence status in the 2018–2020 configurations, a result that suggests that although independent directors do not act as a core condition for the formation of high organizational resilience, they still play a role in the resilience formation process, and their monitoring and disciplinary role is effective. This finding demonstrates to some extent the superiority of the system established by the CSRC with more than 1/3 of independent directors and, on the other hand, the importance of independent directors with different knowledge structures and sources of information for proper decision-making (Chen and Xie, 2011). The top three executive compensation variables appear mainly in presence and as core variables under the 2020 epidemic crisis and do not appear as core variables in 2018 and 2019, and the variable states are not consistent, a result that suggests that executive compensation incentives may play a more pronounced role in crisis situations than in noncrisis situations. This suggests that the effective exercise of individual managerial competencies becomes key to a firm’s resilience from

Table 4 Antecedent condition configurations for high organizational resilience.

| Structure variables | Conditional variables | 2020 | | | 2019 | | 2018 | | |
|---|---|---------|---------|--------|--------|--------|--------|--------|--------|
| | | a1 | a2 | b1 | c1 | c2 | e1 | e2 | e3 |
| Epidemic pressure | Number of confirmed outbreaks (Cc) | • | • | ⊗ | - | - | - | - | - |
| Redundant resources status | Unabsorbed redundancy (Us) | • | | • | | • | • | • | |
| | Absorbed redundancy (As) | ⊗ | ⊗ | • | ● | ● | • | • | • |
| | Potential redundancy (Ps) | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ | ⊗ |
| Corporate governance status | Percentage of independent directors (Ind) | • | • | • | • | • | • | • | • |
| | Top 3 executive compensation (Sal) | ● | ● | ⊗ | ⊗ | | ⊗ | ⊗ | • |
| Outbreak response | Corporate social responsibility (CSR) | | • | ● | ● | ● | ● | ● | ● |
| Original coverage | | 0.2739 | 0.3098 | 0.3270 | 0.3865 | 0.3647 | 0.3712 | 0.3677 | 0.2418 |
| Unique coverage | | 0.0027 | 0.03851 | 0.1508 | 0.0385 | 0.0168 | 0.0369 | 0.0333 | 0.0287 |
| Consistency | | 0.9660 | 0.9890 | 0.9585 | 0.8977 | 0.9031 | 0.9636 | 0.9178 | 0.9565 |
| Overall solution coverage | | 0.4632 | | | 0.4033 | | 0.4333 | | |
| Consistency of the overall order solution | | 0.95029 | | | 0.9015 | | 0.9167 | | |

● Indicates that the core condition appears. ⊗ Indicates that the core condition does not appear; (2) • indicates that the marginal condition appears. ⊗ Indicates that the marginal condition does not occur; (3) “-” indicates that the epidemic did not occur in that year; (4) a space indicates that the condition is irrelevant (i.e., it may or may not occur).

Table 5 Antecedent condition configurations for low organizational resilience.

| Structure variables | Conditional variables | 2020 | | 2019 | | 2018 | |
|-------------------------------------|---|--------|--------|--------|--------|--------|--------|
| | | a1 | b1 | c1 | d1 | e1 | f1 |
| Epidemic pressure | Number of confirmed outbreaks (Cc) | ⊗ | • | ⊗ | - | - | - |
| Redundant resources status | Unabsorbed redundancy (Us) | | ⊗ | ● | • | ⊗ | ⊗ |
| | Absorbed redundancy (As) | ⊗ | ⊗ | ⊗ | ⊗ | ● | ⊗ |
| | Potential redundancy (Ps) | • | ⊗ | ● | ● | ● | • |
| Corporate governance status | Percentage of independent directors (Ind) | • | • | • | • | • | • |
| | Top three executive compensation (Sal) | ⊗ | ⊗ | • | ⊗ | ● | • |
| Outbreak response | Corporate social responsibility (CSR) | ⊗ | ⊗ | • | ⊗ | ⊗ | ● |
| Original coverage | | 0.3431 | 0.2536 | 0.2918 | 0.2687 | 0.2193 | 0.4077 |
| Unique coverage | | 0.1129 | 0.0726 | 0.1049 | 0.2687 | 0.0448 | 0.2332 |
| Consistency | | 0.9398 | 0.9512 | 0.9698 | 0.9424 | 0.9450 | 0.9261 |
| Overall solution coverage | | 0.5207 | | | 0.2687 | 0.4525 | |
| Consistency of the overall solution | | 0.9437 | | | 0.9424 | 0.9259 | |

● Indicates that the core condition appears. ⊗ Indicates that the core condition does not appear; (2) • indicates that the marginal condition appears. ⊗ indicates that the marginal condition does not occur; (3) “-” indicates that the epidemic did not occur in that year; (4) a space indicates that the condition is irrelevant (i.e., it may or may not occur).

a crisis, further confirming the judgements made in previous studies regarding the importance of managers in crisis situations (Williams et al., 2017). The three redundancies in a firm’s redundant resources state differ significantly in the high organizational resilience construct. Notably, potentially redundant resources appear in a deficient state and as a core variable in all eight constructs for the three years from 2018 to 2020. We use gearing to measure the potentially redundant resources of a company. A high gearing ratio for a listed company indicates that the company has a strong ability to raise funds and can also pose a high financial risk to the company. This result shows that the redundant resources acquired by the company through debt bring more risk to the company than its cushioning effect, which is not conducive to high organizational resilience. Unabsorbed redundant resources were mostly found in the present state in 2018–2020 but did not constitute a core condition, suggesting that unabsorbed redundant resources act as a buffer in the formation of high organizational resilience, a finding consistent

with Wieczorek-Kosmala (2022). In contrast, the status and importance of absorbed redundancy are not fully consistent across the groups of states in 2018–2020 and are influenced by other variables with uncertainty, a finding consistent with Li and Liu’s (2010) study, where the magnitude of the utility of redundant resources is influenced by the ability of firms to allocate and utilize resources. In terms of epidemic response, the presence and core condition of CSR response is reflected in all annual configurations, indicating that CSR practices play an important role in the formation of organizational resilience and are one of the key variables in the cultivation of organizational resilience. This finding confirms Williams et al. (2017) and Shan Yu et al.’s (2021) suggestions that it is the interaction of the organization with other stakeholders that are important for the organization to achieve recovery and rebound. Based on Table 4, the core conditions of each configuration are summarized in the following four high organizational resilience patterns for the three years from 2018 to 2020.

1. Lack of redundant resources under epidemic pressure and high pay incentive compensation type.
The core conditions of configurations *a1* and *a2* are the same, both being $Sal \sim As \sim Ps$, and therefore constitute a second-order equivalent configuration (Fiss, 2011). Configurations *a1* and *a2* indicate that a configuration with higher executive compensation incentives, nonhigh absorbed redundant resources, and nonhigh potentially redundant resources as core conditions can generate high organizational resilience. This configuration suggests that higher executive compensation incentives have a compensating effect in the case of low absorbed redundancy resources and low potentially redundant resources with respect to the state of the listed firm. The proportion of independent directors and nonabsorption of redundancy as marginal conditions for the presence state in configuration *a1* indicate that independent directors play a role in this situation, while the CSR response of tourism firms does not affect the formation of high organizational resilience. The proportion of independent directors and CSR are marginal conditions for the presence of configuration *a2*, where independent directors and a certain level of CSR fulfilment contribute to organizational resilience. While few previous studies have explored the impact of corporate governance capabilities on organizational resilience from a corporate governance perspective, this study finds that the proportion of independent directors as a marginal condition and executive compensation incentives as a key condition driving organizational resilience in a higher epidemic stress can make tourism firms resilient even when redundancy resources are scarcer and CSR is less responsive. This demonstrates the superior role that corporate governance capabilities play in fostering organizational resilience in crisis contexts, compensating for organizational deficits in resources and relationships. This finding enriches the theoretical exploration of corporate governance capabilities in organizational resilience research, providing valid arguments for the role of corporate governance in enhancing organizational resilience in crisis management contexts and validating the judgements of previous research on the importance of managers for organizational resilience in crisis contexts (Wang and Cai, 2021).
2. Low financial risk under low epidemic pressure with CSR.
Configuration *b1* indicates that some tourism firms in less stressed areas of the epidemic, which themselves have few potentially redundant resources following an outbreak, can also have high organizational resilience by virtue of an active CSR response. The epidemic stress variable appears as the core variable in the missing state in this configuration, the corporate governance capability dimension exists only as a marginal condition, and in the absence of executive compensation incentives, firms should have some unabsorbed financial redundancy and absorbed redundancy as a buffer. Their own potential redundancy is low, yet they have lower financial risk and are better able to take advantage of the low financial risk when the whole environment is facing an epidemic crisis. Low epidemic pressure and low financial leverage, together with an active socially responsible response, will result in a higher level of organizational resilience.
3. Resource deployment with CSR under low financial risk.
The core conditions of configurations *c1* and *c2*, also as second-order equivalence configurations, are high absorbed redundancy, potential redundancy resource deficit, and high CSR response, indicating that tourism firms that invest more resources in operational deployment develop higher

organizational resilience through a positive CSR response in the face of lower financial risk themselves. Comparing the differences between the two configurations reveals that executive compensation incentives and unabsorbed redundancy perform differently in the two configurations, suggesting that these two variables are vulnerable to other factors and are unstable in noncrisis contexts.

4. CSR under low financial risk.

The high organizational resilience configuration in 2018 is highly consistent and comprises all second-order equivalent configurations with a lack of potentially redundant resources and a high socially responsible response as core variables. This result indicates that organizational resilience can be developed through a positive CSR response even in the case of low potentially redundant resources in listed companies. Further comparing the results of the 2018 configuration with the “low financial risk resource allocation with CSR” in 2019, it is concluded that the importance of absorbed redundant resources in the formation of organizational resilience varies depending on the state of corporate governance and other variables at the level of redundant resources in different years. The commonality lies in the fact that low potentially redundant resources and a positive CSR response are the core variables that play a dominant role in the formation of organizational resilience and that listed companies are more able to perform CSR “without distractions” when they face low financial risks, which is also more conducive to the formation of organizational resilience.

Taken together, the four constructs above show that the core condition of CSR at the response level is present in the high organizational resilience configuration for three consecutive years, regardless of the presence of epidemic pressure, which demonstrates the importance of CSR for the cultivation of organizational resilience and validates previous literature on social capital as a key to organizational resilience (Brown et al., 2017; Choi et al., 2021; Chowdhury et al., 2018; Cirer-Costa, 2020; Espiner and Becken, 2014; Powell and Holladay, 2013; Kimbu et al., 2018). Under the PSR model, the 2020 high-level organizational resilience configuration can be divided into two models based on the magnitude of epidemic pressure: higher epidemic pressure (*a1*, *a2*) and low epidemic pressure (*b1*). In the high epidemic stress model, executive compensation incentives are the core variable with a positive impact on the corporate governance structure variables, distinguishing it from the low epidemic stress model and the year without an epidemic, indicating that executive compensation presents a stronger incentive effect in the face of a severe epidemic crisis. In contrast, in 2018 and 2019, when the epidemic did not occur, the executive compensation variable did not show a significant positive effect. This finding suggests that executive compensation in a crisis is more likely to have a motivational effect than the norm, inspiring executives to develop a stronger sense of responsibility to actively take measures to smoothly steer the company through the crisis. Comparing the low epidemic configuration in 2020 with the no epidemic configuration in 2018 and 2019, where the low epidemic stress configuration *b1* has a high similarity to the no epidemic stress configuration in 2018, both are high organizational resilience configurations with low potential redundant resources and high CSR response as core conditions. The 2019 configuration with high absorbed redundant resources as the core condition was added to the low potential redundant resources and high CSR, suggesting that the three together can also produce a high level of organizational resilience.

From a “resource–capacity–relationship” perspective, the low epidemic pressure in 2020 shows a strong interactive consistency

in terms of resources and relationships compared to the no epidemic pressure in 2018 and 2019, with the status of redundant resources and CSR remaining relatively unchanged. On the one hand, these configurations reflect the interaction between the efficiency mechanism represented by redundant resources and the legitimacy mechanism represented by CSR, rather than an either/or relationship (Meyer and Rowan, 1977), and further corroborate institutional theory: firms need to follow the rules and order required by the institutional environment and meet social expectations to gain legitimacy and thus increase their chances of survival. However, the acquisition of legitimacy is not inefficient and ultimately has a positive impact on the firm's access to resources, social recognition, survival and growth (Meyer and Rowan, 1977). On the other hand, according to redundant resource theory, CSR performance depends on the availability of generous resources. Schuler and Gording (2006) argue that CSR behaviour is expensive and only those companies with good financial performance (redundant resources) can afford to undertake socially responsible behaviour. In contrast, the interactive consistency of CSR with absorbed redundancy or unabsorbed redundancy in configurations *b1–e3* is a comprehensive reflection and validation of Schuler and Gording's (2006) theory, which further deepens and extends the interaction between redundant resources theory and stakeholder theory.

Potential substitution relationships between conditions. It is important to add none of the three, resources, capabilities or relationships, play a fixed role in the organizational resilience formation mechanism but are alternative and complementary, influenced by other factors that work together in resilience formation. Therefore, by comparing the similarities and differences of configurations *a1–e3* (longitudinal–horizontal bidirectional view), the potential alternative relationships of resources, capability and relationship conditions can be further identified, as shown in Figs. 2–5. The potential substitution relationships for resources, capabilities, and relational conditions suggest that unabsorbed redundant resources and absorbed redundant resources have a more important role to play and can substitute to some extent for the lack of capabilities and relationships. This is because, under specific objective endowment conditions, unabsorbed redundant resources can substitute for CSR (Fig. 2), executive compensation (Fig. 3) and absorbed redundant resources (Fig. 4). Absorbed redundant resources are able to substitute for independent directors (Fig. 5) and unabsorbed redundancies (Fig. 4).

Produce low organizational resilience configurations. In this paper, we also examined the composition of the configurations that produced low organizational resilience (Table 5). Unlike high organizational resilience configurations, the six low organizational resilience configurations differ significantly, reflecting a nonlinear relationship with causal asymmetry. In the context of the 2020 epidemic, configuration *a1* shows that organizations lacking executive compensation incentives, high absorbed redundancy resources and CSR response are unlikely to have high levels of resilience even with high potential redundancy resources (implying higher financial risk) and a high proportion of independent directors. Configuration *b1* shows that organizations with a lack of executive compensation incentives, a lack of unabsorbed redundancy resources and a lack of absorbed redundancy resources are also not resilient in the presence of epidemic pressure, and it is difficult for organizations to be resilient in the absence of both resources and capabilities. Configuration *c1* shows that tourism companies do not have higher levels of organizational resilience even when they face lower levels

of epidemic pressure and there is a higher level of high potential redundant resources (implying higher financial risk), even with higher levels of unabsorbed redundant resources. In the absence of an epidemic context, configuration *d1* shows that tourism firms with higher potentially redundant resources (implying higher financial risk) and the absence of both absorbed redundant resources and executive compensation incentives do not have higher levels of organizational resilience. Configuration *e1* shows that the level of organizational resilience will not be high even with higher absorbed redundancy resources and executive compensation incentives in the presence of a socially responsible response, unabsorbed redundancy resources that are all missing and higher potential redundancy resources. Configuration *f1* shows that the level of organizational resilience will not be high even in the presence of a positive CSR response when both absorbed redundant resources and unabsorbed redundant resources are missing.

We find that low organizational resilience configurations with higher potential redundancy resources as a core condition are present in 2018–2020, while high organizational resilience configurations are all present with a core variable of missing status, a result that suggests that higher potential redundancy resources imply higher debt service pressure and financial risk and may be one of the key variables contributing to low organizational resilience. Combined with *c1* and *e1*, it is difficult for an organization to be resilient when potential redundancy resources are high, even if absorbed redundancy, unabsorbed redundancy and executive compensation are high. Furthermore, the paper finds that a positive CSR response does not always result in high organizational resilience but is influenced by redundant resources when the role of corporate governance capacity is limited. For example, in *c1*, the negative impact of high financial risk due to high potential redundancy is greater than the buffering effect of high unabsorbed redundancy, and in *f1*, there is a significant lack of unabsorbed and absorbed redundancy, in which case corporate governance capacity plays a limited role as a marginal condition of the state of being and does not lead to high organizational resilience even when socially responsive behaviour is present.

Robustness test and supplementary validation of the fixed effects model. The robustness tests in this section include the QCA method test and the supplementary validation of the fixed effects model. In this paper, we use the method of adjusting the consistency threshold level proposed by Ragin (2008) to test for high-level organizational resilience configurations. The consistency threshold was adjusted from 0.8 to 0.89, and the results showed that the increase in the consistency level did not lead to changes in configuration type and composition, and the consistency level and coverage did not change, confirming the robustness of the QCA results.

Furthermore, we collect panel data for 35 listed tourism firms for the years 2010–2020, and the results of the Hausman test suggest that a fixed effects model should be used. Therefore, a time-fixed effects model (fixed year) is used to control for the joint shocks of unobservable time factors on listed firms and to add the net effect of each antecedent variable on the outcome variable. To reduce endogeneity, corporate governance variables are lagged for two periods, CSR variables are lagged for one period, and the regression results obtained are shown in Table 6.

Based on Table 6, which presents the estimation results controlling for time effects, it can be concluded that the coefficient of the proportion of independent directors (*Inclag2*) among the corporate governance structure variables is significantly negative at the 10% level, which echoes the presence state

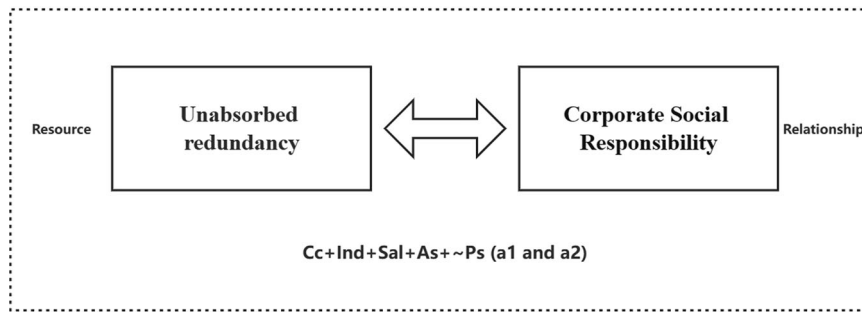


Fig. 2 The relationship of “unabsorbed redundancy as a substitute for corporate social responsibility”.

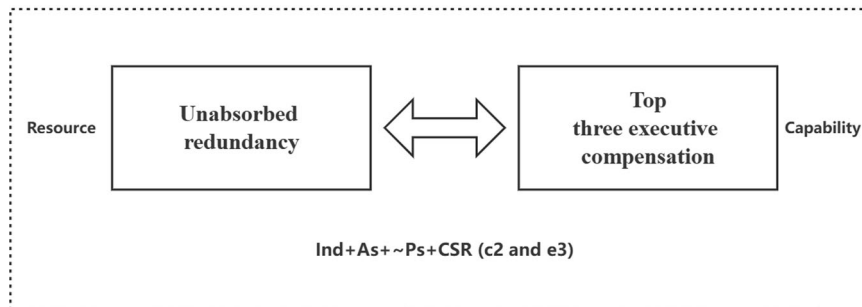


Fig. 3 The relationship of “unabsorbed redundancy as a substitute for executive compensation”.

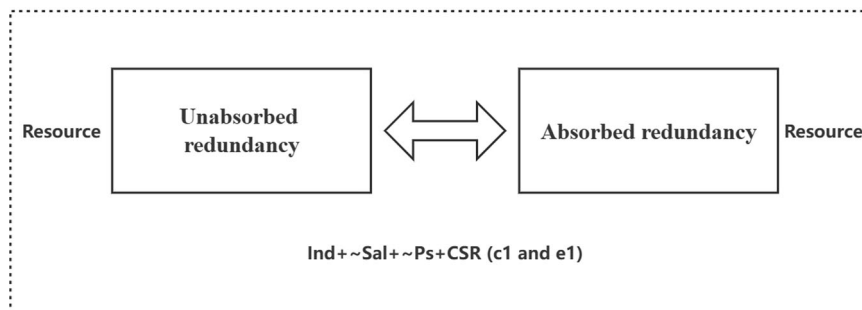


Fig. 4 The relationship of “unabsorbed redundancy as a substitute for absorbed redundancy”.

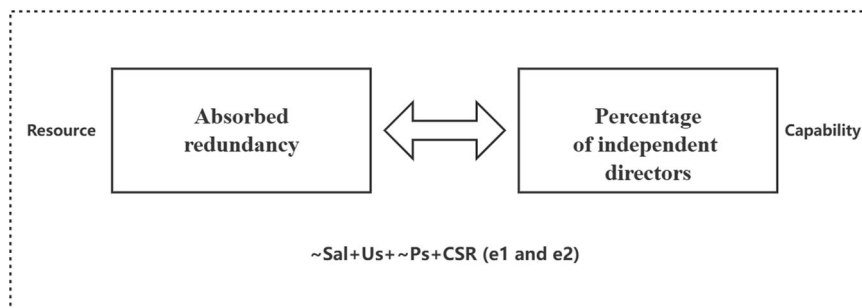


Fig. 5 The relationship of “unabsorbed redundancy as a substitute for independent directors”.

of the proportion of independent directors uniformly in each configuration state of QCA high organizational resilience in the previous section, indicating that there is a more significant positive relationship between the ability of corporate independent directors to monitor organizational resilience and that more independent directors can help firms make better decisions and be more stable when facing external shocks. While the executive compensation (Sallag2) indicator is also positively related to organizational resilience, the correlation is not significant. A possible explanation is that executive compensation plays more of

a protective role in noncrisis situations, while when a crisis occurs, compensation incentives give managers a higher sense of mission and responsibility to guide the way in a crisis and promote organizational crisis learning. The regression results likewise echo the different states presented by the executive compensation indicators in each high organizational resilience configuration in the previous section. Among the redundant resource structural variables, Us and organizational resilience have a nonsignificant positive relationship, which may be explained by the fact that unabsorbed redundancy can play a

Table 6 Time fixed effects model and robustness tests.

| Variables | Fixed effects model (Year) | | | | Robustness tests | | | |
|----------------|----------------------------|---------|---------|------|------------------|---------|---------|------|
| | Coefficient | T value | P value | VIF | Coefficient | T value | P value | VIF |
| Us | -0.004 | -0.70 | 0.485 | 1.39 | -0.006 | -0.88 | 0.382 | 1.39 |
| As | -0.171*** | -2.78 | 0.006 | 1.28 | -0.175*** | -2.78 | 0.006 | 1.28 |
| Ps | 0.046** | 2.11 | 0.036 | 1.64 | 0.044** | 1.97 | 0.050 | 1.63 |
| Indlag2 | -0.171* | -1.77 | 0.078 | 1.09 | -0.177* | -1.78 | 0.076 | 1.09 |
| Sallag2 | -1.23e-09 | -0.40 | 0.691 | 1.37 | -2.43e-09 | -0.76 | 0.445 | 1.37 |
| CSRlag | -0.002*** | -3.05 | 0.003 | 1.34 | -0.001** | -2.53 | 0.012 | 1.34 |
| _cons | 0.514*** | 11.80 | 0.000 | | 0.479*** | 10.74 | 0.000 | |
| N | 280 | | | | 279 | | | |
| R ² | 0.4728 | | | | 0.4522 | | | |
| F value | 16.97 | | | | 15.57 | | | |

***, **, * denote significance at the 1%, 5%, and 10% levels, respectively.

buffering role in the short term when facing a crisis. However, holding unabsorbed redundancy resources in the long term will be contrary to the interests of shareholders, managers will not hold a high level of unabsorbed redundancy in the long term under such circumstances, the buffering effect will be limited, and organizational resilience will also be affected. The results of the previous fsQCA also show that unabsorbed redundancy is not a core variable in the high organizational resilience configurations, and it appears to be an insignificant variable in some of the configurations. As were significantly and positively associated with organizational resilience at the 1% level, indicating that more redundant resources invested in business operations are more conducive to organizational resilience. Ps are positively correlated with organizational resilience at the 5% level, indicating that redundant resources acquired by a firm through debt may instead create greater financial risk for the firm and are detrimental to organizational resilience formation. Combining the QCA high organizational resilience configurations also show that potentially redundant resources appear as a core variable in each configuration in the missing state, indicating that potentially redundant resources play a highly consistent negative role in the formation of organizational resilience. The CSR indicator (CSRlag) is significantly and positively correlated with organizational resilience at the 1% level, indicating that companies that actively fulfil CSR have higher levels of organizational resilience. Combining the QCA high organizational resilience configuration also shows that a CSR response appears to be expressed as a core variable of presence status in all yearly configurations, validating the regression model. The goodness-of-fit of the time-fixed effects Model R² is 0.4728, indicating the strong explanatory power of the model, and the VIF value of the model is 1.09–1.64 < 10 within an acceptable range, indicating that there is no serious problem of multicollinearity between the respective variables.

To further check the robustness of the fixed effects model, we refer to Chen, Fenggong's (2020) study. The epidemic event window was tested by shortening the window period from 12.31 to 3.31 of the previous year (90-day historical volatility) to 1.11 (official notification by the Health and Welfare Commission)–3.24 (unsealing of Wuhan City). The significance and sign of the coefficients of the regression model obtained after adjusting the window period did not change significantly (Table 6), confirming that the regression results are robust.

Conclusion

How to improve organizational resilience in the context of an epidemic crisis is the focus of corporate crisis management research. We identified the key factors affecting organizational resilience based on the theoretical framework of the

“resource–capacity–relationship”, incorporated the number of confirmed COVID-19 cases as an external factor into the organizational resilience analysis framework, established the PSRO model, combined fsQCA and the fixed effects model, and explored the organizational resilience of listed tourism enterprises from a configurational perspective. The main findings are as follows: (1) The analysis of necessary conditions found that the individual variables of corporate governance, redundant resources and CSR indicators did not constitute necessary conditions for generating high organizational resilience. (2) The analysis of sufficient conditions identified four configurations for high organizational resilience: redundancy under epidemic pressure with high compensation incentives, low financial risk and CSR driven under low epidemic pressure, resource deployment and CSR driven under low financial risk, and CSR driven under low financial risk. The presence of epidemic pressure grouping, with the proportion of independent directors as a marginal condition and executive compensation incentives as a key condition for driving organizational resilience, can make tourism firms resilient even in the presence of a greater lack of redundant resources and a weak CSR response, demonstrating the superior role that corporate governance capabilities in crisis situations play in fostering organizational resilience and can compensate for organizational deficiencies in resources and relationships. The core condition of CSR at the response level was present in the no-epidemic pressure configuration for three consecutive years, which proves that CSR is a key variable in nurturing organizational resilience. (3) Potential substitution relationships between resource, capability, and relationship conditions suggest a more important role for unabsorbed redundant resources and absorbed redundant resources. Under specific objective endowment conditions, it is able to substitute for capabilities and relationships to a certain extent. (4) The low organizational resilience configuration suggests that higher potential redundant resources imply higher debt servicing pressure and financial risk, that potential redundant resources may be a key variable contributing to low organizational resilience and that redundant resources acquired by a firm through debt raising pose more risk to the firm than their cushioning effect. CSR is also present in the grouping of ground-level organizational resilience, suggesting that socially responsible responsiveness is not the ‘golden key’ to organizational resilience but is influenced by redundant resources and that corporate governance plays a limited role.

Marginal contributions. There are three contributions to this paper. First, the process of adjusting to external shocks and restoring order after a crisis is a complete process, and few studies have included external shocks in their research, lacking a process

perspective on organizational resilience. This paper expands the perspective of organizational resilience from the organization itself to the environmental system in which the organization is located and from within the organization to outside the organization and identifies the key conditions for the formation of organizational resilience based on the theoretical framework of the “resource–capacity–relationship”. The PSRO model was developed to explain the mechanisms underlying the development of organizational resilience in crisis situations. The multiple configurations of organizational resilience suggest that no single theoretical perspective can adequately explain the mechanisms of organizational resilience, whether it is the resource-based view, enterprise capability theory or stakeholder perspective. This is also in response to the call of Williams et al. (2017) and Shan Yu et al. (2021) to advocate for the expansion of research perspectives on organizational resilience in crisis contexts, which can provide some theoretical support for subsequent studies on organizational resilience.

Second, through a configuration perspective, this paper reveals that the mechanism influencing organizational resilience in Chinese listed tourism firms is a concurrent mechanism of multiple condition combinations. None of the seven antecedent conditions under the PSRO model constitutes a necessary condition for organizational resilience, and an effective combination of conditions is required to enhance organizational resilience. Compared with previous studies of the linear relationship between each antecedent condition and organizational resilience, we explain the pathway through which each antecedent condition drives organizational resilience in combination with detail and draw richer and more profound findings, deepening the study of the antecedent drivers of organizational resilience in management. In previous resilience studies based on a capability perspective, few studies have explored the impact of corporate governance capabilities on organizational resilience. We incorporate corporate governance capabilities into resilience research based on core competency theory and find that corporate governance capabilities playing a central role under epidemic pressures can compensate for organizational deficiencies in resources and relationships. CSR is also found to be a key variable influencing high organizational resilience, and potentially redundant resources (debt service pressure) are a key variable influencing low organizational resilience. Alternative relationship analysis identified a more important role for unabsorbed redundant resources and absorbed redundant resources. Under specific objective endowment conditions, absorbed and unabsorbed redundant resources are able to substitute for capabilities and relationships to a certain extent. These theoretical findings enrich the study of the antecedent drivers of organizational resilience in management.

Third, this paper introduces the QCA approach to the study of organizational resilience, which not only provides a new research approach to the field but also revolutionizes the epistemological basis of the phenomenon of organizational resilience; the histological thinking behind the QCA approach complements the net effect thinking in mainstream quantitative research and provides a holistic perspective for understanding and explaining the causal complexity of the phenomenon of organizational resilience.

Fourth, resilience is derived from adversity (van der Vegt et al., 2015), and this paper uses the impact of the global COVID-19 epidemic on tourism enterprises as an entry point for research, which is a new exploration of the context of organizational resilience research and further respond to recent calls from management academics at home and abroad to advocate for phenomenon-driven research (Ployhart and Bartunek, 2019). These research findings provide a reference for a more refined

understanding of the phenomenon of high organizational resilience and provide theoretical guidance on how to build organizational resilience in enterprises in the postepidemic era.

Management recommendations. This study proposes the following management recommendations in three areas: stress, status and response.

1. Establish a sound emergency management system to improve the overall stress resistance of the organization. After this epidemic, enterprises should summarize their experience, strengthen their weaknesses in epidemic prevention and control, further standardize and institutionalize emergency management, and integrate emergency management capabilities into enterprise development. Specifically, they should strengthen the training of tourism employees in responding to public health emergencies and provide corporate culture training to fully prepare for possible future outbreaks, as noted in Ctrip’s “Anti-Epidemic Cloud Class”. Tourism companies should summarize the lessons learned from this outbreak response and incorporate experiences of effective responses into their emergency plans. The finding that executive compensation incentives are compensatory highlights the central role of corporate executives in emergency governance. In the face of a crisis, leadership is better than management, and companies must build strong environmental awareness capabilities and mechanisms. Leaders should be sensitive to and knowledgeable of local epidemic and prevention and control measures and directions related to the crisis, set up an emergency leadership team to correctly grasp the current situation, intervene in the crisis in a timely manner, deploy resources and divide responsibilities, and motivate and inspire employees from all departments and levels of the organization to participate and fight the epidemic together.
2. Shift from short-term incentives to medium- and long-term incentives and optimize the independent director system. The importance of executive compensation incentives is highlighted by the high pay incentive compensation type configuration under epidemic pressure. In an uncertain environment, it is more important to enhance the correlation between executive compensation and medium- and long-term performance to promote performance improvement while maximizing payroll efficiency (Liu and Zhang, 2010). UBS, for example, uses a “clawback” compensation mechanism whereby a portion of an individual’s bonus is held in a special account for the duration of the review period, during which the bonus is deducted if there is a problem with the individual’s long-term performance review. This “clawback” mechanism incentivizes executives to avoid short-term and aggressive behaviour when making crisis decisions, take the risk of future uncertainty into account and make more prudent decisions. Most of the independent director ratios in each configuration of high organizational resilience appear as marginal conditions of existence status. This finding goes some way to demonstrating the superiority of the system established by the CSRC of having more than 1/3 of independent directors and the importance of independent directors with different knowledge structures and sources of information for proper decision-making. To further play the supervisory role of independent directors in the process of resilience cultivation, tourism enterprises must set higher and differentiated independent director ratio requirements according to different business types and corporate

strategies. In the selection and recruitment process, independent directors with different resumes (overseas experience, government service, financial crisis) and part-time positions in multiple enterprises can be selected to promote a diverse team of independent directors, which can provide more heterogeneous information for scientific decision-making. Enterprises should further establish an accountability mechanism for independent directors, objectively evaluate independent directors by establishing an intermediary evaluation system for independent directors, and regularly publish the evaluation results to promote the independent director system from existence to excellence. Compared with the supervisory system, the independent director system has obvious advantages of ex-ante and ex-post supervision. To give full play to this advantage, enterprises should also open communication channels between independent directors and internal and external stakeholders (e.g., investors and intermediaries), communicate information quickly when a crisis occurs, collect opinions from various parties, and provide references for decision-making.

3. Flexible management of funds and dynamic adjustment of business operations.

COVID-19 has led to the emergence of tourism enterprises operating under cash flow pressure, debt service pressure and financing difficulties, and attention must be paid to the management of funds to achieve a dynamic balance between rigid cost expenditure and flexible financing management. These findings indicate that the redundant resources obtained through borrowing will increase enterprises' financial risk, which is not conducive to resilience cultivation, so it is necessary to develop new financing channels. In terms of "open source" funds, the production and operation facilities of catering and hotel enterprises are usually leased, and fixed expenses such as leasing fees must be paid on schedule. Once it is difficult for the operating cash flow to support such rigid expenditures, to the extent that there is a need for debt financing through financial institutions, the enterprise will be subject to high-risk conditions. Under such circumstances, it can seek to use the social resources of the controlling shareholders of the enterprise to obtain financial support. Ordinary shareholders should be encouraged to inject new capital into the enterprise or to guarantee the enterprise's new debt. In the case of employees, in addition to encouraging them to hold onto their jobs, management should convince them to provide financial support to help cover the enterprise's debt with certain agreements. Some travel companies can also alleviate their cash flow difficulties by preselling products and locking in users' travel options in advance. In terms of "cutting costs", for the larger scale, longer industry chain, travel-related enterprises with more complex accounting periods should be more cautious in their expectations and curtail their product line. To retain their core quality business, they should eliminate financial pressures and low-cost performance business and reduce noncore expenses. In addition, tourism enterprises must balance the relationship between short-term response and long-term investment, and short-term response measures must not affect their long-term sustainable development. With regard to the hotel industry, it can open some floors according to market demand, reduce equipment loss, reduce energy costs, seek to provide contactless services and establish an intelligent management system that is conducive to epidemic prevention and control and reduces labour costs. In the catering industry, enterprises should conduct market research,

control procurement volume and optimize procurement channels. Airlines must adjust their capacity according to the progress of the epidemic and the demand situation, eliminate negative side routes, and optimize aircraft and crew scheduling.

4. Embed resilience cultivation into organizational culture from the height of CSR.

Today, the environment for companies is nonlinear and discontinuous, and companies will need to improve organizational resilience to cope with more uncertainties in the future. The configuration indicates that a CSR response as a key variable for resilience cultivation should be given sufficient attention. Response and resilience cultivation in all dimensions of CSR cannot be achieved overnight. Therefore, it is necessary to transform emergency management thinking into normalized thinking, integrate CSR awareness into daily operations, and implement resilience cultivation in organizational culture construction. By strengthening symbiotic relationships with stakeholders through the fulfilment of each dimension of CSR in the course of daily operations and establishing a broader network of mutual assistance in knowledge and resources, enterprises can have stronger impact resistance and recovery capabilities when crises occur. Examples of such efforts include strengthening the connection and bundling with upstream and downstream partners; repeatedly interacting with shareholders, employees and other stakeholders in terms of information, resources and values; actively fulfilling environmental responsibilities; carrying out social philanthropy; and establishing a good social image of the company. In the long run, resilience cultivation should be embedded in organizational culture construction so that the enterprise can repeatedly resist a crisis to achieve long-term development.

Policy recommendations. Scientific assessment of the epidemic situation to guide tourism recovery in an orderly manner. The resilience of the tourism industry depends on technology beyond policy adjustments, especially medical response capabilities and the degree of adjustment of social perceptions and judgements. We will work with the mainstream media to build a coordinated system to control online public opinion on COVID-19 virus infection, deliver positive and accurate information on the prevention and control of the epidemic based on the principles of "openness, transparency, authority and truthfulness", and adjust the interprovincial meltdown mechanism in a timely manner to encourage tourists to travel. We will increase the number of international and domestic flights in an orderly manner, formulate measures to facilitate the movement of foreign enterprises, and give full play to China's mega-market advantages and domestic demand potential. Cooperation between government and enterprises should be encouraged, and tourism enterprises should be supported to undertake business such as convention and exhibition activities, business activities and study activities organized by party and government organs, enterprises and institutions to help expand their business and development space.

Policies should be implemented to assist enterprises in relieving their hardships and solving the problem of insufficient supply of financial resources. New measures should be developed to support relief on the basis of the continuation of policies such as temporary refunds of warranties and VAT reduction. Local governments at all levels should be supported to make scientific adjustments in accordance with the mandate of the regulations and local realities and to simplify the subsidy application process

and strengthen policy support for risk mitigation for large, small, medium and microenterprises and individual entrepreneurs in tourism. A sound pool of financing needs to be established for key tourism enterprise projects and encouraging financial institutions to reasonably increase the effective supply of credit for the tourism industry, the efforts in inclusive finance should continue to increase, and banking financial institutions should be encouraged to support small loans for tourism start-ups, small, medium and micro enterprises and individual business operators such as themed B&Bs by category. For example, in addition to payments, Japanese government financial institutions have introduced a number of loan financing measures to address the liquidity problems faced by businesses during the epidemic (Jiang, 2022). These include the COVID-19 Special Loan (Japan Policy and Finance Corporation), which provides unsecured and essentially interest-free loans for three years to companies whose sales have fallen by more than 5%, the Crisis Correspondence Facility (Central Bank of Commerce and Industry), the COVID-19 Maru Facility (for small-scale businesses, Japan Policy and Finance Corporation) and the COVID-19 Special Loan for Sanitation (for businesses related to sanitation or hygiene, such as tourism, food and beauty care, Japan Policy and Finance Corporation). In addition, the government's policy of granting companies a portion of the funds they receive when they pay workers a stoppage allowance and further increasing the rate and maximum amount of funding for companies in difficult times has helped companies to stabilize their employees' employment even if their operations are scaled down due to the epidemic.

Limitations and suggestions for future research. Despite these contributions, our study is subject to several limitations. (1) Although the use of lagged data can mitigate potential endogeneity issues, fsQCA is not equipped to address them, so we call for further research on this issue. (2) Our findings may be influenced by the unique institutional and cultural environment in China, as the data for this study were obtained in one country. Due to the limited number of cases of listed Chinese tourism companies, we were unable to obtain a sufficient amount of data to support the study. (3) The measurement of organizational resilience may limit the generalizability of our findings. We chose an observation window of 90 days from the outbreak, which is quite short. The best way to address this issue would be to extend the observation window; however, this would make the study less time-sensitive. Future studies could consider repeating this study for a longer period of time after the end of the crisis. In addition, although critics of the efficient market hypothesis accept the idea that stock prices reflect all relevant information about a firm, the measure of resilience is entirely dependent on the stock price, which may reflect a certain bias. Future research could examine different means of implementing organizational resilience, such as long-term sales or different types of stock prices. (4) Although this paper compares and analyses the high organizational resilience configurations for three consecutive years from 2018 to 2020, the impact of dynamic changes in each antecedent variable on organizational resilience is not known. The QCA method applied to dynamic time changes still needs to be improved, and the dynamic formation process of organizational resilience can be further studied in the future with the development of the time-series QCA method.

Data availability

The data used in the current study are available on request from the corresponding author on reasonable request.

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