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The Effects of Corporate Social Responsibility on Service Innovation Performance: The Role of Dynamic Capability for Sustainability

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Received: 14 March 2019; Accepted: 30 April 2019; Published: 14 May 2019

Abstract: The effects of corporate social responsibility (CSR) on product and technological innovation have been thoroughly examined. However, the relationship between CSR and service innovation remains largely unexplored. We examined the relationship between community and environmental CSR and service innovation performance, with further exploration of the mediating mechanism between them. Based on social capital and dynamic capability theory, we developed a model revealing that CSR improves the performance of service innovation through an advanced dynamic capability to address rapidly changing environments. Through the use of structural equation modeling and hierarchical regression analyses, we tested the conceptual model with a data set of 298 small- and medium-sized enterprises in China. The results demonstrate that the positive influence of community CSR on service innovation performance is partially mediated by dynamic capability, whereas this effect of environmental CSR is fully mediated by dynamic capability. These findings have important implications for both CSR and service innovation practice and theory.

Keywords: corporate social responsibility; dynamic capability; service innovation; China; SMEs

1. Introduction

Customer demands for improved services are continuously growing. This is not a special phenomenon only occurring in service industries, but is also true for manufacturing industries. Manufacturing industries are thus no longer only competing on the basis of products provided, but also on the associated services [1]. As providing quality service is increasingly critical to success, service innovation is determined to be a major strategy to improve the sustainable competitiveness of firms [2].

This phenomenon has attracted increased attention from academia and practitioners. Studies have been striving to identify the factors influencing, and effective approaches to improving, service innovation performance. Following research on product innovation, early studies focused on the process improvement of service innovation [3]. Due to the unique characteristics of services (i.e., intangible, indivisible between production and consumption, heterogeneous, and fugitive) [4], service innovation

is significantly different from product innovation; it might not require a formalized development process, but could be unintentional and mostly incremental [5].

Internal and external factors interactively and jointly affect the success of service innovation. Internally, firms' resources, capabilities, and activities are important elements in service innovation. The factors examined so far include control mechanisms [6], internal innovative environments [7], learning capability [8,9], leadership [10], dynamic capability [11], strategic orientation [12], and the attitude toward innovation [13]. Kindström et al. [14] argued that dynamic capabilities in certain managerial areas, such as internal sensing, service interaction, and service delivery, are key to the success of service innovation in manufacturing firms [14]. Externally, factors studied so far include customer involvement in service innovation, stakeholder relationships and support, and coordination between the firm and its partners [15–17]. For instance, Geum et al. found that the provision of suppliers' support using their valuable knowledge and technology contributes to the service innovation of the firm [18]; Straub et al. argued that the participation of customers, acting as a service-specifier and quality-controller in the innovation process, is crucial to the success of service innovation [19]; and Rusanen et al. claimed that network capability positively affects the performance of service innovation by improving the effectiveness of relationship learning [20].

Either orientation has its weakness, as organizations exist inherently at the intersection of internal systems and external environments. Despite the extant efforts in searching for influencing factors from an organization's relatively single-sided orientation (whether internal or external), studies of service innovation can tangibly benefit from investigating influencing factors that direct self-initiated efforts toward external impacts (i.e., combining the internal and external perspectives). In keeping with this line of thought, we proposed that corporate social responsibility (CSR), as an external factor to be integrated with dynamic capability as an internal factor, is worthy of researchers' attention.

CSR is among the most important imperatives in fulfilling the above-mentioned integration. Bereskin and Hsu found that pharmaceutical companies incorporate social responsibilities within research institutions, leading to the latter's better cooperation in innovation, and this, in turn, improves the effectiveness of launching new medicine [21]. Zhang and Lv argued that the protection of stakeholders' interests promotes the value of the knowledge that the firm's workers possess, as well as their innovative awareness, and encourages them to participate in innovation activities and general practices of the firm [22]. Bocquet et al. claimed that strategic CSR has a positive effect on the firm's product and technological innovation [23]. However, the influences of CSR on service innovation have yet to be systematically researched.

Dynamic capability may mediate the effects of CSR on service innovation performance. By definition, dynamic capability is the "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" [24]. CSR not only improves the relationship of a firm with stakeholders, but also enriches the sources of knowledge, improves the flexibility of the firm in the reallocation of resources and capabilities, and helps generate fresh and valuable ideas for new service development. These positive changes within an organization in turn facilitate the transformation of organizational capabilities [25]. Kindström et al. [14] noted that dynamic capabilities enable the firms to identify service innovation needs. A strategic direction, such as CSR, may affect dynamic capability development, and the ensuing dynamic capabilities can in turn affect service innovation. Specifically, CSR may improve the performance of service innovation by improving the firm's adaptive, absorptive, and innovative capability, i.e., the three dimensions of dynamic capability [11], and help the firm respond more effectively to a novel environment [26].

In sum, we empirically examined the relationship between CSR and service innovation performance, and the role played by dynamic capability in this influencing process. We found that that the positive influence of community CSR on service innovation performance is partially mediated by dynamic capability, whereas this effect of environmental CSR is fully mediated by dynamic capability. By exploring the research questions above, we provide important contributions to the literature. Practically, our findings remind practitioners that the operation of CSR to improve

service innovation is a dynamic and detailed process, requiring the constant updating of dynamic capability and the investment of efforts/resources in dimensionalized CSR activities. Theoretically, first, our findings improve the academic understanding of the catalysts of service innovation by empirically identifying the positive effect of CSR on service innovation and highlighting the role of dynamic capability as an influencing mechanism between the two. In addition, the findings extend our understanding of the relationship between CSR and service innovation by revealing that the types of CSR matter in the interaction between the two constructs. Finally, the study also contributes to the CSR literature by revealing the performance of service innovation as a business return to CSR. This work provides practical insights into how firms might improve their service innovation performance by strategically assuming social responsibilities, and by maximizing the effect through advancement of their dynamic capabilities, all of which are essential to successful service innovation.

1.1. Conceptual Framework

1.1.1. Service Innovation

Service innovation is the process through which a firm improves its service quality and creates new market value by changing service elements, reforming the service system, or applying the service plan formulated for specific customers to general customers [27]. Service innovation can be technological or non-technological [28], involving activities such as major development in core services, the introduction of a new service, the extension of existing service scope, improvement in service, and/or a change of service style [29]. The process of service innovation is not necessarily as organized as that of product innovation; it can be planned, intentional, or unintentional, and usually emerges as a result of the interaction between firms and their stakeholders [30]. Successful service innovation improves the firm's service quality, efficiency, customer experience, and customer value, and thus the firm's competitive advantage [31].

As service is intangible, indivisible between production and consumption, heterogeneous, and fugitive [4], the measurement of service innovation can be difficult. Early studies in this area used mostly financial results to assess the performance of service innovation [32], and were later expanded to involve market performance [33]. Now, more comprehensive measurements have been adopted to involve firms' internal management, learning, and development [34]. Avlonitis et al. developed a scale to examine the performance of the service innovation process, which involves short-term financial indicators and long-term non-financial outcomes of service innovation [35]. We adopted this measurement in our study, and the performance of service innovation is assessed by the extent of the competitive advantage created by service innovation, as well as the direct financial results generated by new service development.

According to the resource-based view, the performance of the firm is more about how it cultivates and uses its resources and capabilities, especially the core competencies, to create a sustainable competitive advantage. Performance of service innovation is largely dependent upon the firm's ability to obtain needed information and knowledge, its sensitivity to market change, its responsiveness to changes in customer preferences [36], and its capability to satisfy customer needs. These are all linked to the dynamic capability of the firm [26,37].

1.1.2. Dynamic Capability

The concept of dynamic capability first appeared in Teece and Pisano's work [26]. The introduction of the concept provides an entirely new perspective for understanding firms' value creation and competition. According to Teece et al. [24] and Pisano and Teece [38], dynamic capability is the capacity of firms to gain, release, integrate, and reconfigure resources and capabilities. Dynamic capability is different from the capacity of the firm to assume basic functional actions or run day-to-day operations, but instead enables the firm to identify the attached value of other resources, or the more abstract strategic perspicacity to formulate and implement new strategies well ahead of its competitors [39].

Dynamic capability is an advanced capacity for the firm to renew, recompose, and reconstruct its resources, capabilities, and core competencies in order to respond to changes in the environment [40].

Researchers have suggested different components of dynamic capability. Their arguments fall into two distinctive groups [41]. One is relatively abstract: it refers to the cross-functional capacity of adapting, integrating, and reconstructing the firm's resources and capabilities [36,37]. The other group's suggestion is based on specific functions and managerial activities, who argued that dynamic capability is composed of capabilities in, notably, research and development, human capital and internal development, collaboration, and marketing [42,43]. Since dynamic capability is an advanced capacity that develops and maintains a firm's resources and capabilities over time, it is change-oriented and different from functional capabilities. We adopted the former group's idea and argued that dynamic capability is cross-functional, integrated, and embedded in many parts of the firm. It shows the capacity of the firm to adapt itself to fit the environment, seize opportunities, avoid threats, and grow continuously.

Therefore, Wang and Ahmed's idea was adopted here. They argued that dynamic capability is composed of the adaptive, absorptive, and innovative capabilities of the firm [11]. Adaptive capability refers to a firm's ability to be flexible in allocating resources and upgrading its resources and capability to fit within a volatile environment. Absorptive capability highlights the firm's capability in acquiring external knowledge, integrating it with internal knowledge, and transforming the new combination of the knowledge to a form that could be used by the firm. Innovative capability explains the firm's ability to generate creative ideas and implement these ideas to meet customer demands [11].

The importance of dynamic capability in relation to innovation has been noticed and examined since the introduction of dynamic capability theory [37,44,45]. However, the antecedents of dynamic capability remain largely unexplored [46]. A few studies have found that learning is the major mechanism underlying the creation and development of dynamic capability [44,47]; cognitive competences of top management are critical to dynamic capability [48,49]; social capital is necessary for the seizing, integration, and releasing of resources by firms [50]; and the leadership style influences corporate learning, which in turn influences the dynamic capability [51]. Despite these findings, the antecedents of dynamic capability are far from understood and further study is necessary.

The core resource in the development of dynamic capability is knowledge [52]. Dynamic capability is a circulation process of managing knowledge [44]. Use of knowledge underpins a firm's sustainable renewal via the process of knowledge growth [53]. Therefore, dynamic capability attaches a great deal of importance to the searching and acquisition of information and knowledge from inside and outside the firm [53]. Dynamic capability absorbs and uses information and knowledge through cooperation with external sources of innovation to build confidence and achieve success in innovation [54].

1.1.3. Corporate Social Responsibility and Social Capital Theory

CSR generates external sources for improving dynamic capability and in turn the performance of service innovation. CSR refers to the responsibilities that the firm has to meet, including social expectations, in addition to maximizing shareholders' interests [55]. It encompasses the economic, legal, ethical, and discretionary expectations that society has of organizations at a given point in time [56]. To eliminate the vague nature of the word "social", and clarify "to whom the corporate entity is responsible", Carroll redefined CSR by stakeholders (i.e., shareholders, customers, employees, suppliers, communities, competitors, and government), which "enables firms to diagnose, analyze, and prioritize an organization's relationships and strategies" [57]. Later, the stakeholder definition was broadened to include the natural environment [58].

Compared with other stakeholders, the community and environment are often categorized as secondary stakeholders as, most of the time, they have no formal contract with businesses or any power over the firm as significant as the power held by other stakeholders [59]. Thus, protecting the interests of communities and the environment, such as participating in community development, helping the disadvantaged, and initiating environmental protection programs, is often a voluntary

form of business behavior. Therefore, community and environmental CSR activities are perhaps the most appropriate examples for exhibiting the social nature of CSR. We focused on community and environmental CSR activities and examined their effect on the performance of service innovation and dynamic capabilities.

The measurement of CSR has been a popular research subject since the introduction of the concept. Corporate reputation was most often used in the early stages of CSR assessment. For such assessment purposes, stakeholders are asked to evaluate firms on the basis of various indicators using a questionnaire. These marks are then used to calculate the level of the firms' CSR. Later, content analysis [60] was adopted to assess the CSR level of firms by analyzing the report and summarizing the firms' CSR activities. Since the introduction of stakeholder theory in this area, CSR has been examined by stakeholder groups. Tang developed a scale to measure CSR in China [61] that encompasses CSR for customers, employees, business partners, communities, the environment, and shareholders. Community CSR includes philanthropic activities and participation in community development, and environmental CSR involves the environmental protection behavior of the firm [61].

Firms' participation in CSR programs does not require an immediate return, but involvement generates a positive and balanced evaluation from stakeholders [62]. Continuous involvement in CSR programs demonstrates the firm's commitment to social welfare and establishes goodwill and trust among stakeholders [63]. This effect allows the firm to create a network with individuals and institutions, especially stakeholders, and secure a benefit from this network [64]. The benefit often includes resources that are needed by the firm, such as information related to customer preference, new technology development, or unrealized potential markets [65]. The motivation to participate in CSR programs might be consummatory (which creates value introjections and bounded solidarity) or instrumental (which leads to reciprocity exchanges and enforceable trust) [64]. As argued by Habisch and Moon, CSR offers a means through which businesses can invest in social capital [65].

Social capital is "the aggregate of the actual or potential resources that are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" [66]. This definition indicates that social capital enables individuals and organizations within the network to access the resources possessed by other members, and the amount and quality of those resources define the capital of the individuals or organizations [64]. Corporate social capital lies in the structure and content of the firm's social relations, and makes information, influence, and solidarity available to the firm [67].

The collectivity of stakeholders, but not necessarily the recipients of CSR programs, provides these resources to support the firm and acts as a guarantor to repay the debt [64]. Compared with other firms, a socially responsible business is more likely to receive support from its stakeholders. Often, customers, suppliers, employees, communities, and the government support the firm with the information and knowledge that they possess. This valuable input is needed by the firm for providing better services and/or products to the market [68]. In addition, cooperation between the firm and stakeholders in implementing CSR programs improves their understanding of each other, and continuous cooperation in this respect enhances the interdependence between the firm and its stakeholders [69]. Long-term commitment to CSR activities facilitates the value identification of the stakeholders with the business [70], thus enabling the firm to cultivate social capital and receive the support of stakeholders [71].

The social capital of firms incurred through CSR activities also serves as a key mechanism that underpins knowledge interpretation and integration within the firm [50] and facilitates the development of intellectual capital, which enables novel resource combinations by making new possibilities more salient [50,72]. These effects improve the dynamic capability and in turn the performance of service innovation of the firm [73]. CSR may provide an opportunity to increase social capital to overcome the survival and competitive challenge for firms' limited resource capabilities, especially for small- and medium-sized enterprises (SMEs) [74], since SMEs have not only their own specific characteristics and capabilities, but also limitations for exercising CSR [75].

Therefore, predicated on the foregoing theoretical discussion, we developed a model of the relationships between CSR, dynamic capability, and the performance of service innovation. As shown in Figure 1, we proposed that CSR positively affects the performance of service innovation and dynamic capability mediates the effect.

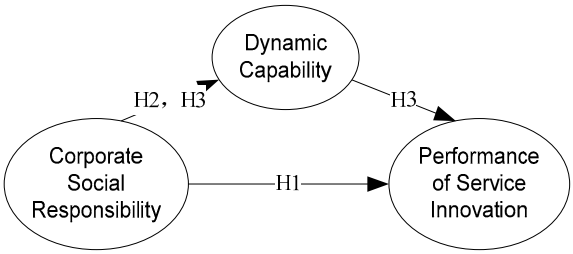

Figure 1. The relationship model tested in this study.

1.2. Hypotheses Development

1.2.1. CSR and Service Innovation Performance

From a knowledge management perspective, the essence of service innovation is transforming tacit knowledge into coded knowledge. This is a process characterized by the ever-spiraling movement of continuously accumulating, learning, and accumulating new knowledge [76]. The knowledge needed for service innovation includes customer preferences regarding the service provided, the resources necessary for providing such services, the sources of these inputs for new service development, the method of integrating external with internal resources and capabilities, and the transformation of this new knowledge into new services [77]. Successful service innovation requires a favorable attitude toward risk-taking, learning, creative thinking, and adopting new ideas by management and an innovative culture within the firm. Finally, successful service innovation requires the firm to have a high level of flexibility and to be prepared for continuous changes [67].

The acquisition of information and capabilities needs support from stakeholders. The willingness of stakeholders to help is largely determined by the trust, shared norms, and sense of mutual value identification between the firm and its stakeholders—the social capital of the firm [64]. Social capital is an aggregation of obligations to the donors, who support the former resources by knowing that they will be fully repaid in the future [64]. CSR, if properly implemented, satisfies the needs of stakeholders; improves the firm's image, goodwill, and trust of the firm among its stakeholders and encourages communication between them; and facilitates relationship building between the firm and its stakeholders [65]. This is a process of cultivating a sense of obligation in the stakeholders, thus increasing the social capital of the firm [72].

Specifically, properly implemented community CSR advances the well-being of the community, the disadvantaged, and society as a whole, and improves the corporate image with regard to transparency, goodwill, and good citizenship among its stakeholders [68]. The interaction between the firm and its stakeholders in the planning, implementation, evaluation, and modification of CSR programs enables them to understand each other better and enhances the social capital of the firm [69]. When the firm continuously cooperates with its stakeholders in CSR programs, they exchange more information, share more work, and become more reliant on each other. Additionally, if it is proven that the firm has a long-term commitment to CSR, "the firm's good intentions will be recognized by its stakeholders and encourages them to eventually identify with the firm" [70]. Therefore, CSR should be understood through the application of social capital theory [71].

Improved social capital reinforces the networking of the firm with its stakeholders, lowering the transaction cost of knowledge sharing and providing the firm with timely information about market demand, technological development, favorable public policies and regulations, resources that can be leveraged, and changes in the external environment [77]. This is all essential information

necessary to accurately understand the necessity and possibility of service innovation. Reinforced networking allows the firm to integrate obtained external knowledge with internal knowledge. In the meantime, awareness of the fast-changing external environment encourages the firm to become more positive and fosters a favorable culture within the firm toward new service development, thus facilitating service innovation [67]. Ommen et al. argued that stakeholder participation is a critical factor determining the service innovation performance [78] and CSR is critical in guiding stakeholder participation [79,80]. Therefore, CSR improves the sensitivity of a firm to opportunities that appear in the external environment, its willingness to adapt its ability and strategy to exploit opportunities, the understanding of the necessity for and approaches to innovation, and the capability for service innovation. These effects improve the performance of service innovation. Thus, we proposed that,

Hypothesis 1 (H1). *CSR is positively associated with service innovation performance.*

1.2.2. CSR and Dynamic Capability

Based on social capital theory, CSR helps a firm cultivate social capital. Social capital facilitates the generation of resources and strategic capabilities [81] and serves as a device for the firm to integrate internal and external knowledge and to convert external knowledge into a firm's specific capabilities [82].

In particular, social capital generated by CSR activities enables the firm to access external knowledge, especially the tacit knowledge of stakeholders that is otherwise difficult to acquire, and promotes a constant inflow of information and resources from stakeholders. The exchange of information enables a firm to detect new moves in the market and industry and identify opportunities and threats [83]. Therefore, a firm could use its own and stakeholders' resources to prepare and adapt to and respond more effectively to changes in a volatile environment; therefore, the adaptive capability of the firm advances.

The social capital generated by CSR activities not only enables the firm to acquire information from stakeholders, but also helps the firm more accurately understand information, more precisely assess the value of the information to the firm, and identify opportunities [50], to seize the opportunities generated by the new direction and to guard the firm against risks [82]. The actions taken by the firm to seize the opportunities often involve effectively understanding the acquired knowledge, integrating and combining old and new knowledge [84], transferring the knowledge into a format that is easier for employees to understand, and developing new products and services based on that knowledge [85]. Therefore, CSR improves the firm's absorptive capability.

By actively communicating with stakeholders, a firm detects changes in the external environment and learns about its dynamic movement. In a volatile environment, firms must adapt their competitive strategies accordingly. As the firm understands changes in the marketplace and the external environment, it becomes pressured and motivated to improve its innovative capability [25]. Improving innovative capability requires the firm to encourage employees to adopt new methods of thinking and working, to continually improve the operational process, look for unusual and fresh ideas for problem-solving, and be willing to take risks that arise due to uncertainty [11]. Socially responsible firms enjoy high recognition and creative consciousness from their internal stakeholders, such as knowledge workers, motivating them to participate in the firm's innovative activities and practice in a favorable innovation atmosphere, thus improving the firm's innovative capability [22]. As the firm enjoys support from stakeholders and their resources, information, and knowledge, the fresh ideas generated through new service development become more relevant to market demands [86], and resources and capabilities for turning such ideas into reality are improved [87]. Thus, CSR improves the firm's innovative capability.

So far, the three dimensions of dynamic capability, adaptive, absorptive, and innovative capability [11], are all improved by CSR; therefore, we proposed that, with all else being equal:

Hypothesis 2 (H2). *Corporate social responsibility is positively associated with dynamic capability.*

1.2.3. The Mediating Role of Dynamic Capability Between CSR and Service Innovation

CSR activities facilitate the cultivation of social capital, which is characterized by trust, shared norms, perceived obligations, and a sense of mutual value identification between the firm and its stakeholders [70,72]. These resources create an environment of mutual benefits, coordination, and support for the firm [88]. Studies on service innovation agree that knowledge from within and outside the firm is essential to the success of service innovation [89]. CSR facilitates the creation and improvement of trust, goodwill, value identification, and perceived obligation toward the firm by its stakeholders, and thus cultivates social capital for the firm [90]. Social capital stimulates support from stakeholders on behalf of the firm. In particular, social capital promotes the exchange of resources between stakeholders and the firm, and motivates stakeholders to share with the firm the information and knowledge about market changes, dynamics in technology renewal, and industry development trends [91], thereby improving the firm's knowledge base, which is essential to its dynamic capability and service innovation. The firm benefits from social capital in terms of border access to information, the improvement of information quality, relevance, timeliness, and the more effective acquisition of new knowledge, skills, and capacity [67]. These effects improve a firm's dynamic capability and favorably enhance the performance of service innovation [67].

When the firm's adaptive capability is strong, it is flexible enough to adjust its products and/or services, prices, and marketing plans and reallocate its resources [11]. These actions are crucial to the success of its service innovation. As innovation is a reaction to new trends or potentially unrealized demands in the market, requiring a quick response to customer needs and involving allocating needed resources to develop new services or upgrade existing services [92]. Innovation requires the rapid introduction of these achievements into the market, and this process often involves the adjustment of prices and marketing plans [93].

Firms with a high absorptive capability interpret knowledge and information from stakeholders effectively and efficiently [82]. Such firms also integrate, with few or no obstacles, existing and new knowledge and transfer the results into a form that can be understood easily by employees to better forecast future demands and anticipate customer preferences [94] to create new ideas and bring new skills to service innovation.

Innovative capability is based on the firm's ability to think and work in different ways, continuously improve its operational process, look for new approaches to problems, and take risks that have arisen due to uncertainty [11]. This ability directly influences the quality and speed of the firm's service innovation and is essential to its success. Thus, the three dimensions of dynamic capability, adaptive, absorptive, and innovative capability, positively affect the performance of service innovation. Therefore, dynamic capability serves as a bridge transferring CSR's positive effect to the performance of service innovation, and we proposed that, with all else being equal:

Hypothesis 3 (H3). *Dynamic capability mediates the impact of CSR on the performance of service innovation.*

2. Materials and Methods

2.1. Sampling and Data

China is a large market that has been opening to the world. In this new economy, ethical operations and activity-ventured goodwill toward stakeholders and society as a whole are important [61]. Thus, we chose to collect representative SME samples as the data set for our analysis. A questionnaire approach was adopted to collect data, requiring three steps to develop the questionnaire. The first version of the questionnaire was based on extant studies as discussed within this section. As a result, measures developed by Avlonitis et al. [35], Tang [61], and Wang and Ahmed [11] were adopted to

develop the questionnaire for the performance of service innovation, community CSR, and dynamic capability, respectively. The second step involved soliciting feedback from 10 senior managers of 10 local businesses by inviting them to answer the initial questionnaire. The questionnaire was then amended to produce the second version. The third step involved inviting 25 senior managers from the EMBA programs of a local university to attend an organized meeting and answer and discuss the questionnaire. The appropriateness, accuracy, comprehensiveness, and clarity of the questions were discussed, and solutions were agreed upon at the meeting. The result was a finalized questionnaire, as shown in Table 3.

We also used three steps to collect the data. The economic development in the eastern, central, and western areas of China differs significantly. To avoid bias, in the first step, we selected two-thirds of the sample provinces from each of these three areas. As a result, 9, 6, and 6 provinces were chosen from the eastern, central, and western areas, respectively. In the second stage, local Chambers of Commerce were contacted and published yellow pages were studied to obtain a firm list. This led to a list of 500 SMEs (i.e., firms with fewer than 3000 employees), with half of them being from manufacturing and the rest from the service industry, and roughly the same number from each province.

In the third stage, we contacted the 500 firms by e-mail and/or telephone and invited them to participate in the survey. Upon receiving confirmation of participation, the firms were asked to identify one appropriate respondent and provide the respondent's contact information. To ensure the quality of data collected, 25 interviewers (i.e., 5 instructors and 20 postgraduate students) were trained for interview skills and procedures. We adopted a key informant approach to conducting the interview. An overview of the firm's service innovation history, as well as a review of recent service innovations, was conducted in the form of interviews. The standardized questionnaire then served as a foundation for the following interview. This process led to a sample of 298 SMEs for final analysis. The profile of the sample is shown in Table 1.

Table 1. Sample profile.

Respondent Characteristics	Percentage (%)	Respondent Characteristics	Percentage (%)
No. of Employees		**Position in the company**	
<50	23	Top managers (CEO, director of innovation, head of service development)	75
51–200	25	Senior staff (in sales, marketing, production, and accounting)	25
201–1000	24	**Education**	
1000–3000	28	College or above	58.1
Firm Age (years)		High School or under	41.9
<5	15.6	Firm Ownership	
5–10	40.4	State-owned	24.6
11–15	25.3	Private	47.1
16–20	15.2	Foreign	28.3
>20	3.5	**Industry**	
Location		Manufacturing	37.7
Eastern	31.9	Service	62.3
Central	45.6		
Western	22.5		

A *t*-test was performed to ensure that non-response bias was not a problem for the data collected. The respondents and non-respondents were compared in terms of firm size, industry, location, and ownership. All the *t*-statistics were not significant ($p > 0.05$), indicating a small possibility of non-response bias.

We conducted a series of actions to reduce common method variance. Based on the suggestions of Podsakoff et al. [95], the interviewees were firstly assured during the interview that the answers to the

questionnaire were anonymous, personal privacy was protected, and the data would only be used for academic purposes. Secondly, the sequence of questions was organized by mixed positive and negative items and from different constructs. Finally, Harman's one-factor experiment was adopted to assess the extent of common variances. The results showed that the first factor explains 38.57% of the total variance, lower than the threshold value of 40%. Thus, common method variance was not a problem in this study.

2.2. Measures

To ensure the reliability and validity of the measurement, as discussed earlier, constructs tested by extant literature were adopted and adapted according to the pilot study. All items of the variables in this research were measured on a seven-point Likert scale, from "1", representing "totally disagree", to "7", representing "totally agree".

2.2.1. Dependent Variables

Our measurement of the performance of service innovation is based on Avlonitis et al. [35]. The items fall into two groups: the non-financial outcomes indicate the competitive advantages brought about by service innovation, and the financial indicators show the immediate market results of the new service development. In total, the measurement contains eight items, as shown in Table 3.

2.2.2. Independent Variables

As discussed in Section 2, Tang's scale was adopted here [61]. The scale involves eight items covering CSR activities for the community, the disadvantaged, and the environment. Tang's measurement was adjusted for the Chinese context. Besides activities of philanthropy and environmental protection, community CSR includes efforts to maintain community stability and harmony. The items are shown in Table 3.

2.2.3. Mediating Variable

As discussed earlier, we adopted a cross-functional view and argued that dynamic capability is an advanced capacity that must not be defined by functions. Wang and Ahmed's approach was thus adopted here, which is composed of adaptive capability, absorptive capability, and innovative capability [11]. The scale involves a total of 12 items, as shown in Table 3.

2.3. Reliability and Validity

The Kaiser-Meyer-Olkin (KMO) values of CSR, dynamic capability, and service innovation are 0.845, 0.914, and 0.861, respectively, which are all greater than 0.80. The result of the Bartlett test of sphericity was significant at the 0.000 level, indicating that factor analysis can be conducted.

Exploratory factor analysis was conducted for the scale items using the principal component method with Varimax rotation, and three components were extracted, as shown in Table 2. Cronbach's α and average variance extracted (AVE) were used to test the reliability of the scales. As shown in Table 2, Cronbach's α values of CSR, dynamic capability, and the performance of service innovation are all greater than 0.80, and the AVE of every variable is greater than the recommended value of 0.5, which means that all items of every factor are strongly consistent, and the questionnaire is valid.

Confirmatory factor analysis was adopted to test the main latent variables' convergent validity and discriminatory validity. Convergent validity was tested by factor loadings. As shown in Table 2, the items that were combined to represent each variable were all convergent to one factor. The factor loadings of every item under each dimension are greater than 0.6. Therefore, the convergent validity is acceptable. To test the discriminatory validity, we compared the correlation of each factor with their respective dimensions' AVE's square root. If the former is less than the latter, it means that there is good

discriminatory validity between all dimensions. The results in Table 3 show that every factor's square root of the AVE is greater than its correlation. Therefore, the discriminatory validity is acceptable.

Table 2. Measurement results.

Construct	Factor Loadings
CSR (Cronbach's α = 0.896; CR = 0.9176; AVE = 0.581)	
(1) Substantial donation to charitable affairs	0.815
(2) Substantial donation to public welfare events	0.830
(3) Protecting the stability of the community	0.780
(4) Participating actively in community events	0.776
(5) Our company's conduct strictly adheres to the environmental protection laws and regulations	0.675
(6) Our company has a thorough plan for environmental protection	0.742
(7) Our company uses environmentally friendly energy	0.719
(8) Our company tries to reduce the use of non-renewable resources	0.749
Dynamic capability (Cronbach's α = 0.918; CR = 0.9336; AVE = 0.5425)	
(1) Our company updates our products/services in a timely manner	0.703
(2) Our company adjusts the prices of our products/services quickly	0.609
(3) Our company amends the sales plan of our products/service quickly	0.670
(4) Our company allocates resources quickly	0.737
(5) Our company quickly understands obtained knowledge and information	0.778
(6) Our company integrates new knowledge obtained from the outside of the firm with our own knowledge	0.753
(7) Our company transfers new knowledge into a form that employees understand easily	0.806
(8) Our company could develop new products/services based on knowledge learned	0.839
(9) Our company encourages employees adopt different ways of thinking and working	0.728
(10) Our company continuously improves operational process	0.690
(11) The upper management of our company continuously pursues special and innovative problem-solving approaches	0.780
(12) The core managers in our company are willing to take risks caused by uncertainty associated with innovations	0716
PSI (Cronbach's α = 0.894; CR = 0.9161; AVE = 0.5786)	
(1) The new service is profitable	0.629
(2) The market share of the new service is large	0.731
(3) The profitability exceeds expectation	0.717
(4) The service improves company's perceived image	0.802
(5) The service improves customer loyalty	0.779
(6) The service improves other products' profitability	0.799
(7) The service attracts a large group of new customers	0.822
(8) The service produces an important competitive advantage for the company	0.788

3. Results

3.1. Correlation Analysis

Table 3 shows the means, standard deviation, correlation, and square roots of the AVEs. CSR, dynamic capability, and service innovation are all significantly correlated at a medium level. Therefore, the model can be tested.

Table 3. Correlations and descriptive statistics.

Variables	Mean	SD	1	2	3
1CSR	5.3570	1.10017	**0.7622**		
2DNY_CAP	5.0501	1.07856	0.443 **	**0.7365**	
3PERF	5.2957	0.94851	0.520 **	0.548 **	**0.7607**

Note: N = 298; SD = standard deviation; the statistical result is the Pearson correlation coefficient; ** $p < 0.01$; the numbers in bold show the square root of AVE for constructs measured with multiple items, and other numbers show the correlation coefficient between latent variables. CSR = corporate social responsibility; DNY_CAP = dynamic capability; PERF = performance.

3.2. Examination of Hypotheses and Analysis

3.2.1. Structural Model Assessment

We used structural equation modeling (SEM) to examine the conceptual model. Here, both CSR and the performance of service innovation were operationalized as latent variables, i.e., the CSR is an aggregate of community and environmental CSR activities, and the performance of service innovation is the overall performance that encompasses financial and non-financial performance. The results for the direct effects are shown in Figure 2. Every fitting index was acceptable, and the fitness was good. Hypothesis 1 proposed that CSR positively influences the performance of service innovation. The'results support the hypothesis and show that CSR is directly, positively, and significantly ($\beta = 0.59$, $p < 0.01$) related to the performance of service innovation.

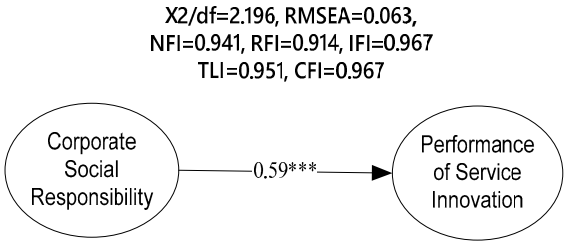

Figure 2. Structural model results for direct effects.

A separate model was estimated to test the indirect effects. The results are depicted in Figure 3. Hypothesis 2 predicted that CSR positively affects dynamic capability. The results show that the path index between CSR and dynamic capability is 0.51, significant at the 0.001 level, indicating that CSR positively influences dynamic capability. Thus, Hypothesis 2 is supported. Hypothesis 3 proposed that dynamic capability mediates the influence of CSR on the performance of service innovation. The results show that the path index between dynamic capability and the performance of service innovation is 0.40, significant at the 0.001 level, indicating that CSR also positively influences the performance of service innovation through dynamic capability. The estimated path for the direct influence of CSR on the performance of service innovation is still significant ($\beta = 0.39$, $p < 0.01$), indicating that dynamic capability partially mediates this path. Therefore, Hypothesis 3 is supported.

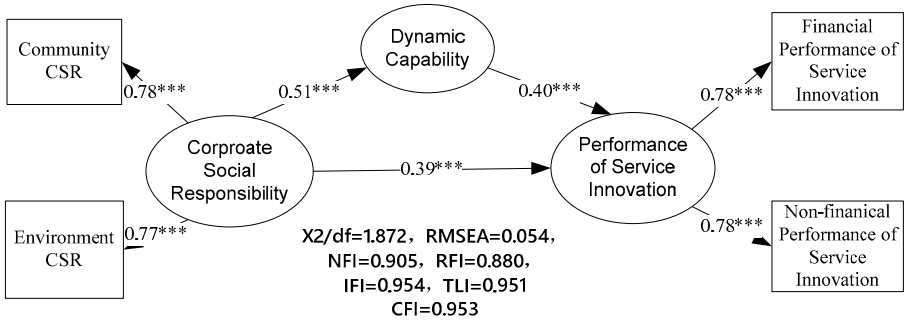

Figure 3. Structural model results.

3.2.2. Hierarchical Regression Analysis

To ensure the robustness of the results, we examined the relationship model with hierarchical regression analysis. The results are shown in Table 4. M1 shows that CSR positively affects the dynamic capability of the firm ($\beta = 0.443$, $p < 0.001$); thus, Hypothesis 2 is supported. M2 shows that CSR positively affects the performance of service innovation ($\beta = 0.520$, $p < 0.001$). Therefore, Hypothesis 1 is supported. M3 shows that the effect of CSR on the performance of service innovation dropped significantly ($\beta = 0.345$, $p < 0.001$) when involving dynamic capability in the model, indicating

that dynamic capability plays a partial mediating role between CSR and the performance of service innovation. Thus, Hypothesis 3 is supported. The results are consistent with those of SEM.

Table 4. The mediating effect of dynamic capability between CSR and the performance of service innovation.

	Dynamic Capability	**Performance of Service Innovation**	**X**
	M1	M2	M3
Independent variables			
CSR	0.443 ***	0.520 ***	0.345 ***
Mediating variables			
Dynamic capability			0.396 ***
R	0.443	0.425	0.630
R^2	0.196	0.271	0.397
Adjusted R^2	0.193	0.268	0.393
R^2 change	0.072	0.271	0.126
F-test	72.159 ***	109.935 ***	96.973 ***
Max-*VIF*	1.000	1.000	1.244

Notes: $N = 298$; *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; + $p < 0.1$.

3.3. Supplementary Analysis

To further explore the constructs, we conducted supplementary analysis. This involved two steps to exploit the data: firstly, CSR was examined by social involvement (i.e., community CSR) and environmental protection (i.e., environmental CSR); secondly, the performance of service innovation was divided into financial and non-financial performance.

The direct effects of social involvement and environmental protection on the financial and non-financial performance of service innovation were tested separately. The results for these main effects are shown in Model 1 of Table 5. The table shows that the direct effects of both social involvement and environmental protection on the financial and non-financial performance of service innovation are significant.

Table 5. Structural model results for supplementary analysis.

Relationship	**Model 1 Direct Effects**	**Model 2 Mediation Effects**
Social involvement–Financial performance	0.352 **	0.272 **
Social involvement–Non-financial performance	0.353 ***	0.295 **
Environmental protection–Financial performance	0.257 +	−0.004
Environmental protection–Non-financial performance	0.299 **	0.128
Social involvement–Dynamic capability		0.195 +
Environmental protection–Dynamic capability		0.386 ***
Dynamic capability–Financial performance		0.534 ***
Dynamic capability–Non-financial performance		0.356 ***
Chi-square		537.757
p-value	0.000	0.000
GFI	0.930	0.886
NFI	0.940	0.909
IFI	0.965	0.958
TLI	0.948	0.946
CFI	0.965	0.957
RMSEA	0.066	0.052
X^2/df	2.281	1.793

Notes: $N = 298$; *** $p < 0.001$; ** $p < 0.01$; + $p < 0.1$.

The mediation effects of dynamic capability on the relationship between the two types of CSR and financial and non-financial performance of service innovation were also tested. The results are shown in Model 2 of Table 5. The results show that the effects of social involvement on the financial and non-financial performance of service innovation are partially mediated by dynamic capability, whereas such effects of environmental protection are fully mediated by dynamic capability. The results also show that the division of financial and non-financial performance of service innovation does affect the relationship, with the direct and indirect influence of CSR on the two categories of performance indicating a similar level and direction of effects.

Again, to ensure the robustness of the results, the model was re-examined using hierarchical regression analysis. The results are shown in Table 6. The table shows that the results are consistent with SEM in terms of directions and levels of the influences.

Table 6. Hierarchical regression model for supplementary analysis.

	Dynamic Capability	**Service Innovation Performance**			
		Financial		**Non-Financial**	
Independent variables					
Social involvement	0.242 ***	0.296 ***	0.186 **	0.311 ***	0.241 ***
Environmental protection	0.273 ***	0.174 **	0.051	0.248 ***	0.169 **
Mediating variables					
Dynamic capability			0.451 ***		0.290 ***
R	*0.462*	0.424	0.583	0.502	0.564
R^2	*0.213*	0.180	0.340	0.252	0.318
Adjusted R^2	0.208	0.174	0.333	0.247	0.311
R^2 change	*0.213*	0.180	0.160	0.252	0.066
F-test	39.994 ***	32.324 ***	50.501 ***	49.595 ***	45.634 ***
Max-*VIF*	1.567	1.567	1.662	1.567	1.662

Notes: $N = 298$; *** $p < 0.001$; ** $p < 0.01$.

4. Discussion

Based on social capital and dynamic capability theory, we investigated how CSR interacts with service innovation through the firm's dynamic capability within the context of SMEs. We reasoned that the performance of service innovation is largely dependent upon the dynamic capability of the firm, and the level of dynamic capability is, to a significant extent, influenced by the willingness of stakeholders to share knowledge and information with the firm. To gain stakeholders' support, firms ought to take actions to cultivate a good relationship and build trust with them, thus protecting stakeholders' interests, i.e., enacting CSR, is a logical choice. Based on social capital theory, CSR activities improve the public image of the firm, facilitate cultivation of the firm's social capital, and enrich the firm's resource base. This effect improves the firm's capability to adapt to the external environment, absorb new knowledge, and develop new services, i.e., the dynamic capability of the firm. Given the positive impact of dynamic capability on service innovation, we proposed that CSR influences the performance of service innovation through the mediating effect of dynamic capability.

We tested the conceptual model with a structural equation model and hierarchical regression analysis with a data set of 298 SMEs from China. The results of the empirical analysis revealed that CSR positively affects the performance of service innovation, and dynamic capability plays a mediating role in the effect. The supplementary analysis showed that the type of CSR makes a difference in the relationship, with the impact of community-friendly activities on the performance of service innovation partially mediated by dynamic capability, and the impact of environmentally friendly activities fully mediated by dynamic capability.

4.1. Theoretical Contributions

We provide several important contributions to the literature. First, although extant research has examined the effects of various factors on service innovation, and the effects of CSR on product and technological innovation have been tested, the relationship between CSR and service innovation remains largely unexplored. Given the importance of stakeholder support to corporate innovation and the role played by CSR in generating such support, an investigation dedicated to the influence of CSR on service innovation is imperative. We add to the service innovation literature by proposing and empirically examining the effect of CSR on the performance of service innovation.

The results strongly support the hypotheses by demonstrating that CSR positively influences the performance of service innovation. This result is consistent with social capital theory, which suggests that the firm could build a strong and supportive social network with its stakeholders by undertaking CSR actions. This network facilitates the sharing of information by reducing the exchange cost, lowering the barriers to knowledge transfer between the firm and its stakeholders, and improving the effectiveness of knowledge integration within the firm and the adaptive and innovative capability of the firm [50,71]. This effect is achieved through improved trust, goodwill, shared norms, and perceived obligations between the firm and its stakeholders, and leads to an upgrading of the firm's dynamic capability as a whole, in turn improving the performance of service innovation.

Second, given the absence of research on the relationship between CSR and service innovation, the influencing mechanism between the two is naturally ignored. The results of this study enrich scholars' knowledge by revealing the influencing mechanism of CSR on the performance of service innovation. By investigating the connection between CSR and dynamic capability, which affects the performance of service innovation, the results showed that dynamic capability plays a mediating role between CSR and service innovation. The result confirms the hypothesis that, as a type of advanced ability of the firm to integrate, reconstruct, adapt, and reallocate resources and capabilities and as a source of sustainable competitive advantage of the firm, dynamic capability serves as a bridge, transferring the positive impact of CSR to service innovation. These findings contribute to the literature by demonstrating that corporate activities that are sustainable for society improve the sustainable competitive advantage of the firm through advanced dynamic capabilities, which in turn improve both the long- and short-term performance of service innovation.

We further contribute by revealing that the types of CSR make a difference in the relationship. Environmentally friendly activities only influence the performance of service innovation through the mediation of dynamic capability, indicating that the improvement in the performance of service innovation using this CSR strategy can only be achieved through an advanced dynamic capability. However, the positive impacts of community-friendly activities are partially mediated by dynamic capability, as social involvement improves the performance of service innovation, either directly or through other mediators. As social involvement requires direct interaction with communities, firms are likely to obtain the needed information and knowledge from community members for particular service innovation programs, thus improving their performance. Therefore, the understanding of the relationship between CSR and service innovation is extended further by this study, which demonstrated that different types of CSR activities improve the immediate and sustainable performance of service innovation through different mechanisms and by different paths.

Finally, we contribute to the CSR literature by identifying the performance of service innovation as a business return. The results demonstrate that, if properly adopted, CSR could be a useful strategy to improve the corporate capabilities that are crucial to the sustainable competitive advantage of the firm and to the innovation performance of the firm. In addition to the extant research on strategic CSR, these results provide evidence of the strategic importance of CSR activities and demonstrate that CSR should not be treated as a cost of doing business, but rather as a strategy to create a sustainable competitive advantage within the firm.

4.2. Implications for Practice

The results have important implications for practice. The findings suggest that firms pursuing an improved service innovation performance could do so by undertaking socially responsible actions. Particularly when compared with prior literature [12,81], the findings provide more specific information. Because the findings suggest that the positive influence of community CSR on service innovation performance is partially mediated by dynamic capability, we suggest that practitioners in SMEs continuously improve their dynamic capability in incorporating both CSR and service innovation. Because the effects of CSR are different according to different dimensions, we remind practitioners of SMEs, who generally possess limited resources, to make precise and well-targeted investments in CSR activities as CSR improves the dynamic capability of firms, which in turn improves firms' service innovation. Dynamic capability could be improved by strategically enacting CSR. Involving CSR in the overall strategy of the firm to upgrade and renew its dynamic capability could be an effective choice to cope with uncertainty. In particular, if the firm intends to achieve better performance in service innovation through investment in environmental protection, it must eliminate obstacles to ensure the improvement in dynamic capability; otherwise, the effects of their strategy could be undermined.

4.3. Limitations and Further Research

Despite our important findings, this study is not without limitations. First, China is an emerging market that is different from developed countries in many ways, and SMEs are different from large companies in terms of their resources and capabilities. Therefore, one must be cautious when applying these results to other contexts. Second, given the causal relationship among CSR, dynamic capability, and the performance of service innovation, it would be better to collect the data in stages, rather than all at once. Future studies might consider doing so if possible. Third, the partially mediating role played by dynamic capability between social involvement and service innovation suggests that CSR might affect service innovation through paths other than dynamic capability. Future studies could explore this question from other perspectives. Factors that could be considered might include knowledge acquisition and social networks. Caputo and Pizzi [96] and Jamali et al. [75] noted that there are differences in CSR between SMEs and larger firms. This might be a limitation in thinking of the model proposed in this study, which may require further (perhaps comparative) assessment. We do not want to highlight the generalizability of this study; on the contrary, we intended to offer the experiences of China's SMEs for those who wish to do business in China or for businesses in other contextual frameworks. A further limitation is that we did not systematically study the potential endogeneity effect, which might re-orient the results in terms of causality, a notion which is to be interpreted with caution. Refer to Li for further guidance in handling this issue [97]. Another useful approach is to use firm size, which might affect the independent and dependent variables simultaneously. See Dang et al. for an example of proper research practices in this context [98]. Dunbar et al. [99] found that CSR has risk-reducing effects and firms should encourage risk taking through innovation by providing risk incentives. Our findings support this proposition.

Finally, the importance of CSR as a strategy to improve corporate dynamic capability has not been realized by the extant research. The results of this study extend the academic understanding of the antecedents of dynamic capability. The identification of CSR's positive effect on dynamic capability reveals a new perspective for understanding dynamic capability. This indicates that the effects of factors, such as social capital, social networks, and knowledge acquisition, play a part in this process and could be further explored in the future.

Author Contributions: L.L. and G.L. are the major writers and data analyzers for the first draft of the manuscript; F.T., H.L., and C.L. reviewed and edited the paper, and were responsible for the R&R processes.

Funding: The authors gratefully acknowledge the National Social Science Fund of China (15BGL087), Henan Soft Science Foundation (172400410353), Program for Science & Technology Innovation Talents in Universities of Henan Province (2016-cx-003), Henan University Philosophy and Social Sciences Outstanding Scholar Funding Project (2019-YXXZ-14), and National Natural Science Foundation of China (Project 71672164) for financial support.

Conflicts of Interest: The authors declare no conflicts of interest.

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