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Supportive tactics for innovative and sustainability performance in emerging SMEs

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Abstract

For this research, we examined the influence of access to domestic and international financing on sustainability performance with a mediating role of innovative performance and a moderating role of access to government support. Data were collected from 317 small and medium-sized enterprises (SMEs) through structured questionnaires. The results indicated that access to domestic and international financing significantly contributes to sustainability and innovative performances. Accordingly, we found a partial mediating role of innovative performance between access to domestic financing and sustainability performance as well as between access to international financing and sustainability performance. Access to government support significantly moderates the relationship between access to domestic finances and innovative performance as well as between access to international finances and innovative performance. Practitioners and policymakers should encourage national and international financial institutions and banks to facilitate SMEs by lending them funds for innovative activities and sustainability performance. Moreover, the government should support SMEs, so that they can contribute to economic growth and the gross domestic product. The implications from these matters will be further discussed in this paper.

Keywords: Domestic finance, Government support, International finance, Foreign direct investment, Innovative performance, Sustainability, SMEs

Introduction

In addition to financial performance, innovation and sustainability performance has become one of the most important goals for today's business organizations. A plethora of research has been carried out to examine the determinants of innovation and sustainability activities in small and large firms (Ching and Gerab 2021; Dasgupta and Das 2021). Studies have revealed that small and medium-sized enterprises (SMEs) have a lack of interest in practicing environmental and sustainability practices because of poor financial situations (Khattak 2020; Memon et al. 2020). Moreover, it has also been scrutinized that a lack of financing hinders SMEs from investing in advanced technologies and innovative activities (Nikolić et al. 2015).

Notably, SMEs encompass more than 95% of businesses and contribute more than 40% to the global gross domestic product (GDP). Surprisingly, their contribution to sustainable and environmental activities is very poor (Wu 2017). Since the environment is impoverished, therefore, SMEs need to establish a more significant role in the current scenario.

Sustainability is now seen as the business paradigm for the twenty-first century. It is defined as “the use of resources to meet the needs of the present without compromising the ability of the future generation to meet their own needs” (e.g., Sezen and Çankaya 2013). Innovation and sustainability practices are the pioneering endeavors of sustainable business organizations (Kuzma et al. 2020; Rajeev et al. 2017) but unfortunately they have been neglected in emerging economies. Nevertheless, studies have tried to discover factors that influence the commitment of SMEs toward environment and sustainability (Ayuso and Navarrete-Báez 2018; Jansson et al. 2017; Jorge et al. 2015) and innovative performance (Memon et al. 2020). However, the prominent factors that spur innovative and sustainable performance in emerging SMEs have been rarely touched upon. More precisely, the real problems faced by SMEs in developing economies toward improving innovation and sustainability performance have yet to be explored. In general, a lack of financing and poor support are deemed as major causes of lower innovative and sustainability performance in SMEs (e.g., Anwar et al. 2018a, b; Degong et al. 2018; Memon et al. 2020). Hence, SMEs need financing and support to configure their innovative and sustainable activities. To fill this gap, our study examines the influence of international and domestic financing on sustainability performance with a mediating role of innovative performance and the moderating role of government support.

Innovative performance corresponds to the innovative practices and results in terms of products, services, and processes (e.g., Anwar 2018). Despite the well-known reasons, studies on the relationship between innovativeness and sustainability performance have been neglected (Jin et al. 2019). Moreover, the low amount of previous studies presents some shortcomings as most of them have focused on developed economies while emerging economies have been neglected (Rajeev et al. 2017). Furthermore, the role of government support as a moderator with financial resources and innovative performances has been barely considered by previous studies. In addition, studies in the context of sustainability in Pakistani SMEs are lacking, and to the best of our knowledge, we could not report any study that presents the importance of financial resources and government support toward sustainability performance. Therefore, this research is an attempt to fill the gap and involves an examination of the role of domestic finances (financial resources available to firms in the host country); international finances (access of firms to international financial resources in host countries) (Khattak 2020); and government support (non-financial support including advising, organizing programs, training etc. offered by the government) in innovative performance which in turn can enhance sustainability performance.

There are several reasons why sustainability performance among SMEs is lacking;

- There is a high level of uncertainty to introduce programs that are beyond their conventional range (Wright 2001).

- The substantial financial investment required for various environmental programs and a relatively long time is needed for return (Simpson et al. 2004).
- Firms become apprehensive after comparing the sustainability cost with benefits (Figge and Hahn 2005).
- Lack of financial resources, lack of external support, and insufficient knowledge of green issues hamper them to be proactively environmental (Hillary 2000; Martin-Tapia et al. 2008).
- Problems in connecting all the internal activities to support environmental programs among various departments and members (Aragón-Correa et al. 2008; Brio and Junquera 2003; Masurel 2007).
- Lack of technical skills that are required for green technological development (Ammenberg and Hjelm 2003).

This research contributes to the existing literature in several ways. Our work adds to the resource-based view (RBV) theory that states the importance of tangible and intangible resources in a competitive advantage perspective. Accordingly, we tested the role of domestic finance and international finance (imported resources) that enable firms to enhance their innovative and sustainable performance. As claimed by the recent studies (e.g., Khan et al. 2019; Nair and Bhattacharyya 2019), we aim to extend and confirm the scope of the RBV theory toward resources and environmental issues. For instance, testing the role of financial resources in innovation and the environment will strengthen the RBV literature. This research helps owners, managers, and practitioners to modify their strategies and policies to encourage domestic and international banks and financial institutions to gain satisfactory sustainability performance. Therefore, the government needs to promote SMEs and support them financially and non-financially so they will enable to enlighten environmental practices.

Theoretical background

The RBV theory posits that firms possess valuable, unique, and immutable resources which assist them to gain a competitive advantage and a superior performance (Barney 1991). Researchers have quoted resources in the form of tangible (finance, technology, material, etc.) and intangible (information, reputation, knowledge, etc.) that enable firms in gaining a competitive advantage and a superior financial performance (Anwar 2018; Khan et al. 2019). However, the RBV theory (Barney 1991) has recently been expanded so its scope covers environmental issues that can be solved and practiced via adequate tangible and intangible resources (Hasan and Habib 2017; Khan et al. 2019). For instance, Hasan and Habib (2017) described that Corporate Social Responsibility (CSR) activities give a sustainable competitive position but need sufficient financing. The same arguments are claimed in RBV theory that adequate resources (e.g., finance) are essential for environmental practices, operational activities, and sustainability activities (Knight et al. 2019). Finance is a key to sustainability activities and sustainable reporting (Naidoo 2020); subsequently, SMEs with sufficient financial resources easily practice green activities and environmental initiatives (Khan et al. 2021a). When enterprises have sufficient finances, they easily perform CSR activities (Khattak et al. 2021). However, SMEs sometimes have lack adequate financing which hinders them from investing in social

activities. In this case, they approach the government to help them with implementing environmental and community practices (Anwar and Li 2021). Similarly, financing is also considered a major source of innovative activities in business enterprises (Nikolić et al. 2015). For instance, while applying the RBV theory, Bakar and Ahmad (2010) state that organizational resources (tangible and intangible) are the key predictors of innovative performance in SMEs. In the same lens, Memon et al. (2020) also studied financial resources as a significant predictor of innovative activities in SMEs. Nevertheless, many SMEs, because of a lack of finances, are unable to adopt advanced technological and innovative tactics. Subsequently, they tend to receive support from multinational companies and international sponsors (Khattak 2020). In the meantime, external financing—such as from multinational companies, governments and firms—significantly support the push for innovative performance in business firms (Cecere et al. 2020). Therefore, we believe that international and domestic financial resources—as well as government incentives—play a key role in improving innovative and sustainable performance in SMEs.

Research hypotheses

Domestic and international finance and sustainability performance

Financial resources are not only needed for the smooth running of operational activities but are also required for environmental and sustainable practices (Knight et al. 2019). Most firms consider their financial strength and financial resources before initiating sustainability practices. In other words, the cost of sustainability practices should be considered or should be calculated (Artiach et al. 2010) and management should use their financial resources very efficiently while opting for environmental and sustainability activities (Al-Tuwaijri et al. 2004). Sometimes, when SMEs intend to adopt environmental and sustainability practices, financial shortages hamper them (Perrini et al. 2007). Owners and managers of SMEs are hesitant to articulate the financial resources in the way to promote sustainable performance (Roxas and Chadee 2012). Considering the constraints faced by SMEs for improving sustainability, we argue that enough financing is essential. Generally, SMEs do have not adequate financial resources (Degong et al. 2018), which pushes them to look for external support (financial and non-financial) (Anwar and Ali Shah 2020; Songling et al. 2018). Thus, international finance and government support in this perspective become crucial factors. It seems beyond doubt that targets for satisfactory environmental practices will not be met without adequate financial support and enough financial capital (Pollitt and Mercure 2018). Consequently, firms should mitigate risk, balance their credits, and efficiently manage their finances to gain their objectives and achieve a satisfactory performance (Kou et al. 2014; Shen et al. 2020).

Environmental practices decline in business firms from these well-known reasons: a lack of financial incentives and inadequate financial capital (Pollitt and Mercure 2018). In this perspective, managers' perceptions about government support can enable them to adopt environmental practices. However, in emerging economies, SMEs face a shortage of finance; so, international finance can be a significant factor to enhance their sustainability performance in a turbulent environment (e.g., Degong et al. 2018; Tan et al. 2015). Resource constraints (especially human, financial, and technical) often hinder

the adoption of environmental initiatives (Weerawardena and Mort 2006). For instance, López-Pérez et al. (2017) report a major reason for being less successful in sustainability practices is the lack of financial resources. Moreover, environmental innovation needs internal resources and external support (Cainelli et al. 2015). Financial capital is not only a significant driver of financial performance but also crucial for non-financial and environmental performance. Specifically, firms need enough financing to perform desirable economic and sustainability activities (Scholtens 2006). Multinational financial institutions play a significant role in developing a better sustainable water system in emerging economies such as China (Wu et al. 2018). Hence, host countries need to encourage international financial institutions because CSR, along with sustainability and environmental practices need sufficient financial resources and capital (Ayuso and Navarrete-Báez 2018). Therefore, managers who have access to finances prefer to invest in environmental activities while firms with limited access to financial capital have been noted as being disinterested in participating in environmental activities (Hang et al. 2019). Considering a recent study conducted by Khattak (2020), both domestic financing and international financing are absolutely vital in emerging SMEs so they can participate in social and environmental issues. Therefore, we present the following two hypotheses:

H1 Access to domestic finance has a positive effect on firm sustainability performance.

H2 Access to international finance has a positive effect on firm sustainability performance.

Domestic and international finance and innovative performance

Previous literature corresponds to Schumpeter's view that firms require a loan to finance their innovations (Creel et al. 2015). Finance is considered as a key lever of innovation—particularly relevant in the current era of the economic cycle—which might boost environmental and innovative outputs and directions (Ghisetti et al. 2015). Financial capital brings forth more innovations by enabling firms to focus on new ideas, encourages them to bring more qualified people to generate novel ideas, supports customer interaction, and spurs innovative and operational activities (Hoegl et al. 2008). By contrast, the existence of financial constraints and a lack of access to external capital and credit significantly reduces the likelihood of innovative activities of firms (Savignac 2008). Furthermore, SMEs are threatened with bankruptcy if they are unable to effectively manage their finances (Kou et al. 2021). For instance, Zouaghi et al. (2018) determined that a financial crisis causes a delay in growth opportunities and innovative performances of business organizations. Correspondingly, financial constraints and the lack of financial resources attenuate the progress of profitable RandD investment opportunities and innovative initiatives. Accordingly, being short of internal funds leads to a market failure in innovation which in turn negatively influences the operational cycle and RandD knowledge (Hall 1992). Notably, risks, costly investments, and financial difficulties in finding credit opportunities and sources may condense ventures' potentials to adopt environmental innovation, even more than they do for other kinds of innovation (Ghisetti et al. 2015). Considering the potential benefits of lower costs and fewer taxes and regulations of external credits that can create a negative net present value, firms

sometimes use their internal funds and self-financing in the long run for green investment and innovative activities (Kapoor et al. 2011). This has been pointed out by Adeyeye et al. (2018), who proposed that a lack of financing impedes firms in their adoption of innovative activities. Owing to the lack of internal financial resources, many firms have postponed their financial tactics, which in turn has resulted in lower innovative performance (Archibugi et al. 2013). According to the RBV theory (Barney 1991), both tangible (finance, technology, infrastructure, etc.) and intangible (human capital, knowledge, information, etc.) are needed for new and innovative activities that are intended for superior performance (Khan et al. 2019; Ryu and Lee 2018). In addition, as discussed earlier, SMEs must be innovative to enhance their sustainability performance (Gliedt et al. 2018) because less innovative and conventional firms do not perform satisfactorily in the current turbulent environment (Buenechea-Elberdin et al. 2018). However, for innovativeness, SMEs also need adequate resources and capabilities (Pikkemaat et al. 2018) but unfortunately, they do not have them. For instance, Hadjimanolis (1999) claims that firms in emerging economies relatively face more barriers in adopting innovation because of a lack of internal resources and external support. Frequently cited causes in small and large firms for the dearth of innovative performance are lacking funds, high-risk innovative projects, and expensive technology (Kaufmann and Todtling 2002). Thus, investment in technological and RandD becomes a central focus for the government (Firth and Mellor 1999).

Notably, financially stable firms can invest more in activities that can empower their abilities in the creation of new products and services. It is also indicated that very stable firms—in terms of finance—spend more on innovative ideas because they can afford to take more risks and can effortlessly deal with the cost of catastrophe (Santoro and Chakrabarti 2002). Firms that have more financial resources gain more advantageous new opportunities over those firms that face a shortage of financial resources. Adequate financial capital leads them to invest in innovative projects (Demirkan 2018). Sufficient financial capital helps firms in bringing outside talents as well as encourages them to introduce new and innovative practices that are significantly important for sustainable innovative performance (Bathelt et al. 2013). Cecere et al. (2020) demonstrate that SMEs with access to public funds and finance are persistently engaged in eco-innovation. Mina et al. (2021) describe the lack of financing as a big barrier to the innovative growth of SMEs. Aiello et al. (2020) claimed that SMEs cannot be innovative unless they use their internal finances for new and innovative activities. Given this, we argue that especially in emerging economies, both domestic and international financing are useful for innovative activities and performance (Bena et al. 2017). Subsequently, we present the next two hypotheses:

H3 Access to domestic finance has positive effects on firm innovative performance.

H4 Access to international finance has positive effects on firm innovative performance.

Innovative performance and sustainability performance

To spur sustainable performance, organizations need to improve their innovative abilities and configure their internal tactics in terms of product, process, design, and so on. (Sezen and Çankaya 2013). In other words, for the systemic improvement of

sustainability performance, firms need a practical business model consisting of innovation and innovative tactics (Schaltegger et al. 2012). Despite the significant role of innovation in sustainability, studies are still limited (Jin et al. 2019). Eco-innovation can directly as well as indirectly reduce environmental stress and guide firms in achieving environmental gains through new and modern technologies (Costantini et al. 2017). In an atmosphere where environmental and institutional uncertainty is at its peak, innovation can amplify effective strategies to boost environmental and sustainability performance (Gliedt et al. 2018). Innovation—being a driver of the reduction of omissions—is considered a suitable tool for changing hazardous climate into a favorable one. Such kinds of innovative practices are very important for spurring sustainability performance (Fernández et al. 2018). Companies seek innovation to improve their environmental and sustainability-orientated performances. In other words, highly innovative organizations can enjoy a satisfactory sustainability performance (da Silva et al. 2019). SMEs use their innovative tactics to contribute to sustainable development and environmental activities (Chege and Wang 2020). Furthermore, an innovative management system pushes firms toward environmental and sustainable products and processes that result in favorable sustainable outcomes (Arokiaraj et al. 2020).

Especially in emerging SMEs, innovative activities are considered very crucial for high environmental performance; also, a significant positive relationship between innovativeness and environmental performance is observed (Centobelli et al. 2019). Innovativeness is based on technological and non-technological aspects; accordingly, for stimulating the environmental performance, both are very important (González-Blanco et al. 2018). Given this, we present our fifth hypothesis:

H5 Innovative performance significantly influences the sustainability performance

Mediating role of innovative performance

Firms need various innovative approaches and practices to spur their sustainability performance (Inigo et al. 2017). This is especially the case in emerging economies, as government financial incentives such as special loans, taxes, and credits provide highly innovative performances that in turn facilitate sustainability performance (Guan and Yam 2015). Financial incentives offered by a country to its business sector significantly enlightens innovativeness while indirectly improves sustainability practices (Pergelova and Angulo-Ruiz 2014). As pointed out by the new classical theory, financial integration improves the economic growth of SMEs in emerging and less-developed economies as it transfers financial resources from developed and stable economies to needy markets (e.g., developing and underdeveloped economies). The integration (e.g., international finance) does not only enhance the economic growth of emerging firms but also helps with the exploration of new ideas and innovative activities that are essential for high sustainability performance (Giannetti and Ongena 2009). Firms acquire their sustainable competitive position through internal resources (e.g., internal finance). However, as pointed out earlier that emerging SMEs often face financial constraints, they rely on external and international funding to boost their operational and innovative activities (Degong et al. 2018). One of the most significant business factors is the innovation that

can configure financial and sustainability performance. Nevertheless, innovation development and innovative practices need adequate resources (financial and non-financial) (Anttila and Jussila 2019). Specifically, firms can expand their innovative activities through financial and non-financial resources to gain high sustainability performance.

Umar et al. (2020) discovered that there is a need for advancing innovation to achieve environmental sustainability targets. On the other hand, financial constraints impede firms when they try to invest in R&D activities and other innovative endeavors, leading to a lack of innovative performance, which in turn results in a weak financial, economic, (Brown et al. 2009) and sustainability performance. Financial resources can be a source which provides a sustainable competitive advantage even though they are not themselves difficult to imitate nor unique. This is habitual because ventures with enough financial resources can get benefits from new opportunities and are better fortified to respond to threats from external pressures and environments. Financial resources support firms in their innovative performance (Romijn and Albaladejo 2002) which in turn enhances sustainability (Fernández et al. 2018). Hence, financially stable firms have a significant opportunity to adopt innovative activities and overperform in terms of innovation that in turn spurs their economic performance (Peteraf 1993). Yet, financial capital (internal and external) significantly enhances innovative performance but also needs the support of a firm's internal factors (e.g., Demirkan 2018). Guo et al. (2020) demonstrated that investments in RandD partially affect the relationship between the financial slack and sustainable activities of firms.

Therefore, we have the following:

H6 Innovative performance mediates the relation between access to domestic finance and sustainability performance.

H7 Innovative performance mediates the relation between access to international finance and sustainability performance.

Moderating the role of government support

The Porter hypothesis suggests how a firm responds to environmental regulations or other pressures to enhance its environmental performance. If rules are favorable for firms, it can be beneficial to them to adopt dynamic approaches (Wu et al. 2012). Considering this, it is argued that the government can affect the path between firms' capabilities, practices and resources, and environmental performance. Notably, in emerging economies, the role of government in this context should not be under-emphasized as valuable resources are possessed by governments (e.g., Anwar et al. 2018b; Songling et al. 2018). In emerging economies, the government invests money in different innovative and research projects that configure innovative performance and in turn enhances industrial performance (Wei and Liu 2015). As pointed out earlier, SMEs in emerging economies face several constraints. Hence, government financial and non-financial incentives (e.g., investment in technology, industrial development, growth, etc.) stimulates the innovative performance of SMEs which in turn sustains their competitive position (Doh and Kim 2014). Additionally, Ma and

Gao (1997) also studied that both financial and non-financial support of government empowers firms to strongly emphasize their innovative, economical, and financial performance.

Chundakkadan and Sasidharan (2020) used reported data and determined that the path between financial resources and innovation is significantly strengthened by the non-financial support of the government. They also demonstrated that firms with government support have a higher level of innovation as compared to firms with a lack of or no governmental support. Ji and Miao (2020) revealed that both direct and indirect government incentives assist Chinese ventures in enhancing their innovation. In a similar vein, Lin and Luan (2020) state that government subsidies are one of the important strategies for firms to use to enhance innovation. Jugend et al. (2020) conducted a review and summarily disclosed that governments support firms in different ways to configure innovation in the industrial sector.

Firms' activities are aligned with government regulations (e.g., government regulations influence firms' environmental practices) that in turn influence sustainability benefits and outputs (Ramanathan et al. 2017). Therefore, firms' environmental and economic performances can be improved through internal resources, but in the meantime are needed for external sources and should not be ignored to enhance high profitability (Ramanathan et al. 2017). In emerging economies such as Pakistan, small firms are not supported enough to expand their business (Anwar et al. 2018c). Moreover, in the market, small firms are busy building networks with government and political bodies to acquire valuable resources that are decisive for innovativeness and competitiveness (Anwar and Ali Shah 2020). Accordingly, we posit that government support and incentives can influence small firms to adopt the technology, promote innovative ideas, and develop new products which in turn can improve a country's growth. Consequently, we have these hypotheses.

H8 Access to government support as a moderator strengthens the relation between access to domestic finance and innovative performance.

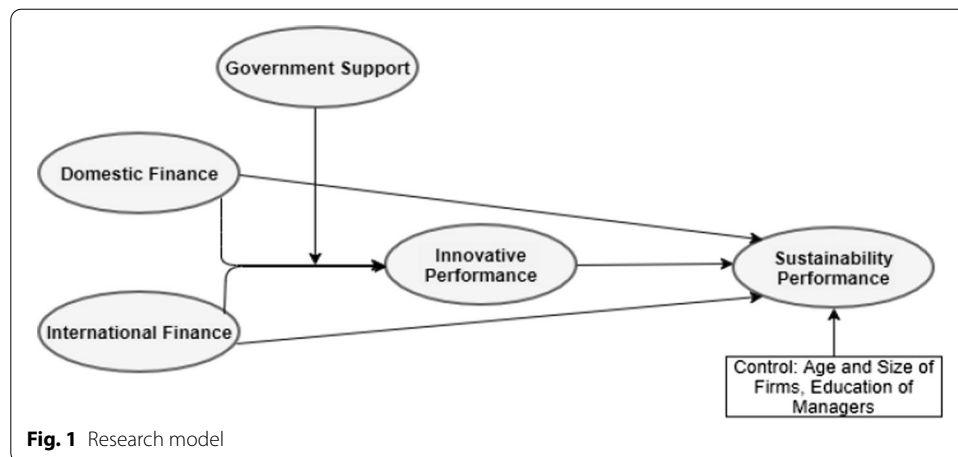
H9 Access to government support as a moderator strengthens the relation between access to international finance and innovative performance.

Figure 1 shows the model of the research.

Methodology

Sample and data

This research is quantitative where cross-sectional data are collected from SMEs. The same empirical method is applied in a previous study where there is an impact of financial resources on sustainable development goals in SMEs (Khattak 2020). We focused on SMEs who are operating in the following three major cities: Rawalpindi, Islamabad, and Lahore. The registered firms' lists were obtained from the Rawalpindi Chamber of Commerce and Industry (around 5800 firms), Islamabad Chamber of Commerce and Industry (around 4000 firms), and the Lahore Chamber of Commerce



and Industry (around 5500 firms), hereby totaled 15,200 firms. We applied the probability-based sampling size formula—for example, 95% confidence and 5% margin of error—and confirmed that a sample size above 300 firms can give an effective representative sample.

Procedure

A total of 900 questionnaires were randomly distributed among the firms. We used a hard copy method for data collection because an email survey has been criticized for having a lack of response rate in emerging economies such as Pakistan (Anwar and Ali Shah 2020). The survey was conducted from December 2019 to February 2020. To reduce the bias, we discussed at the start of the questionnaire about the privacy of the data. For instance, we mentioned that the data of this survey are used only for research purposes and the firm information will not be disclosed anywhere. We requested that owners and top managers should be more aware of their operational activities, strategic planning, and performances. Degong et al. (2018) and Khattak (2020) tested and validated the survey with acceptable reliability and validity values in the same markets (e.g., Pakistani SMEs). The questionnaire was written in the English language (spoken as a second language in Pakistan) to be easily understood by the respondents. In the first section of the questionnaire, the firms were asked about the nature of the business, the number of employees, the educational background of the firms, and the year they started operating. The second section concerned the main variables of the research. While SMEs are often reluctant to provide their financial information, we promised in the cover letter of the questionnaire that the data would be used only for research purposes. Subsequently, we received 351 questionnaires of which 34 responses were excluded because of missing values and mistakes. We used only 317 questionnaires in the analysis as these responses filled the criteria of our survey. The response rate was 35.22%. The participating firms in the research are shown in Table 1.

Measurement of variables

In this research, we used the constructs that were adopted from previous studies but were slightly modified as per the study requirements. In other words, the items that are used in this study have satisfactory validity and reliability scores.

Table 1 Demographic detail of the firms

Description	Frequency	Percentage
Industry profile		
(1) Manufacturing	114	36.0
(2) Trading	130	41.0
(3) Services	73	23.0
Size of the firms		
(1) 20–50 employees	71	22.4
(2) 51–100	32	10.1
(3) 101–150	55	17.4
(4) 151–200	81	25.6
(5) 201–250	78	24.6
Age of the firms		
(1) 10 years and less	84	26.5
(2) 11–20 years	112	35.3
(3) 21 and above years	121	38.2
Educational background		
(1) Intermediate and below	80	25.2
(2) Bachelor	78	24.6
(3) Master	136	42.9
(4) PhD	23	7.3
Total	317	100

Domestic finance

This refers to the financial resources and financial capital available to a firm in a host country. In other words, finance, loan, or equity that is offered by the host banks, financial institutions, and investors to the firms. We used six items to measure the domestic financing that was adopted from the prior studies (e.g., Songling et al. 2018; Zamberi Ahmad and Xavier 2012) and are modified accordingly.

International finance

This denotes the financing provided by international investors, international banks, and international financial institutions to the host firms. We used six items adapted from a recent study of Degong et al. (2018) who used the measures in the SMEs' context.

Government support

Government support is used as a moderator in this research. It demonstrates the facilities, support, and programs provided by the government for boosting the business and industrial sectors. We relied on the measures used by Songling et al. (2018) where seven items were used to measure government support.

Innovative performance

This can be measured in various aspects such as product innovation, process innovation, design innovation, new technology process, and so on. In this research, we used

six items (slightly modified) to measure innovative performance that are adopted from the study of Williams et al. (2016). These items were tested and validated in emerging firms.

Sustainability performance

Sustainability performance is a multidimensional concept that encompasses environmental, social, and economic performance. To cover multiple aspects, we relied on six items used by Gelhard and Von Delft (2016). Please refer to the appendix for the measurement.

All the variables were measured with 5-point Likert scales ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). The constructs are shown in the appendix at the end of the references.

Control variables

In a research model, control variables reduce the spurious results and can ensure the validity of the results. In this study, we controlled for the size of the firms, age of the firms, the nature of the industry, and educational background. The nature of the industry (because of the categorical nature) was tested through an analysis of variance (ANOVA) utilizing IBM’s SPSS software. The results indicated that the nature of the industry does not play a significant role in the model. In this regard, we dropped this variable to be controlled in the future. The structural model reported that only age has a substantial influence while the size of firms and educational background do not play a considerable role in sus.

tainability performance.

Empirical model

To analyze the hypothesized relationships, the following equations were estimated:

$$SP_{i,t} = \beta_0 + \beta_1(DF)_{i,t} + \beta_2(IF)_{i,t} + \beta_3(EDU)_{i,t} + \beta_4(AGE)_{i,t} + \beta_5(SIZE)_{i,t} + \varepsilon t_{i,t} \quad (1)$$

$$IP_{i,t} = \beta_0 + \beta_1(DF)_{i,t} + \beta_2(IF)_{i,t} + \beta_3(EDU)_{i,t} + \beta_4(AGE)_{i,t} + \beta_5(SIZE)_{i,t} + \varepsilon t_{i,t} \quad (2)$$

$$SP_{i,t} = \beta_0 + \beta_1(IP)_{i,t} + \beta_2(EDU)_{i,t} + \beta_3(AGE)_{i,t} + \beta_4(SIZE)_{i,t} + \varepsilon t_{i,t} \quad (3)$$

$$SP_{i,t} = \beta_0 + \beta_1(DF)_{i,t} + \beta_2(IF)_{i,t} + \beta_3(IP)_{i,t} + \beta_4(EDU)_{i,t} + \beta_5(AGE)_{i,t} + \beta_6(SIZE)_{i,t} + \varepsilon t_{i,t} \quad (4)$$

$$IP_{i,t} = \beta_0 + \beta_1(DF)_{i,t} + \beta_2(IF)_{i,t} + \beta_3(GS)_{i,t} + \beta_4(DF * GS)_{i,t} + \beta_5(IF * GS)_{i,t} + \beta_6(EDU)_{i,t} + \beta_7(AGE)_{i,t} + \beta_8(SIZE)_{i,t} + \varepsilon t_{i,t} \quad (5)$$

In the above model: β_0 is slope intercept; $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$, symbolize the expected regression coefficients of the variables; SP represents sustainable performance; DF represents domestic finance; IF represents international finance; IP represents innovative performance; GS represents government support; εt shows error term; Age firm age; Size firm size; EDU manager/owner education.

Data analyses

Structural equation modeling (SEM) in AMOS was applied to analyze the data. First, we conducted descriptive statistics (see Table 2) to check the mean, standard deviation (SD) and the normality of the data. Table 2 shows that the data are normal as all the factors have skewness and kurtosis values in the acceptable range of ± 2 as per the recommendation of George (2011). Moreover, to check for multicollinearity in the data, we used the variance inflation factor (VIF) in SPSS where sustainability performance is used as a dependent variable and international and domestic finance and government support as independent variables. The results displayed that there is no multicollinearity problem in the data as the VIF value is lower than 3.

Confirmatory factor analysis

A confirmatory factor analysis (CFA) was conducted to ensure the standardized factor loading, validity, and reliability of the items and factors. The model fitness of the measurement model was ensured that have shown in Table 4. For instance, the model fitness X/df value is lower than 3 which shows an acceptable model fit (Hair et al. 2010; Hu and Bentler 1999). The values of the goodness of fit index (GFI), adjusted goodness of fit index (AGFI), normed fit index (NFI), and the Tucker–Lewis Index (TLI) also indicate adequate model fits as Hair et al. (2010) and Hu and Bentler (1999) recommend that these values should be higher than 0.90. Similarly, the Root Mean Square Residual (RMR) and Root Mean Square Error of Approximation (RMSEA) values are found in the recommended range (less than 0.08) as per the recommendation of the prior studies (Hair et al. 2010; Hu and Bentler 1999). All the items have significant standardized factor loadings ($p < 0.001$) and are shown in Table 3.

Convergent validity (see Table 3) is confirmed as per the suggestion of Hair et al. (2010) and Hu and Bentler (1999) who describe that the value of convergent validity will be greater than 0.50 after taking the square root of the average variance extracted (AVE).

The square root of the AVE will be greater than the correlations between the constructs. Discriminant validity (see Table 3) also provided an acceptable value (greater than 0.70) as per the recommendation of the studies of Hair et al. (2010) and Hu and Bentler (1999). All the factors show acceptable composite reliability (e.g., greater than 0.70) as argued by Nunnally and Bernstein (1994).

Table 2 Descriptive statistics

Variables	Minimum	Maximum	Mean	SD	Skewness	Kurtosis	VIF
International finance	1.00	4.56	3.5820	0.52589	−0.907	1.523	1.119
Domestic finance	1.04	4.62	3.2421	0.63859	−0.569	1.165	1.027
Govt. support	1.16	5.00	3.7455	0.70287	−0.816	0.831	1.147
Innovative performance	0.77	3.26	2.5909	0.40479	−1.027	1.212	
Sustainability Performance	1.61	3.61	2.6692	0.29584	−0.147	0.176	

Sustainability performance is used as a dependent variable for VIF

SD standard deviation, VIF variance inflation factor

Table 3 Factor loading, validity, and reliability

Variables and items	Estimate	AVE	$\sqrt{\text{AVE}}$	C.R
Domestic finance		0.65	0.81	0.92
df6	0.793			
df5	0.825			
df4	0.783			
df3	0.809			
df2	0.825			
df1	0.783			
International finance		0.58	0.76	0.89
if6	0.775			
if5	0.738			
if4	0.735			
if3	0.747			
if2	0.776			
if1	0.796			
Government support		0.67	0.82	0.91
gvs6	0.828			
gvs5	0.802			
gvs4	0.804			
gvs2	0.819			
gvs1	0.826			
Innovative performance		0.57	0.75	0.89
ip6	0.549			
ip5	0.787			
ip4	0.786			
ip3	0.802			
ip2	0.798			
ip1	0.763			
Sustainability performance		0.50	0.71	0.83
sp5	0.641			
sp4	0.59			
sp3	0.694			
sp2	0.726			
sp1	0.869			

C.R. composite reliability, AVE average variance extracted, $\sqrt{\text{AVE}}$ discriminant validity

Common method bias

We tested the model on cross-sectional data that may lead to common method bias. We conducted Harman's single factor test in SPSS to check the potential threat of common method bias. We found only five factors that have eigenvalues greater than one, of which the first factor displayed only 23.43% variance which is less than 50% which confirmed the absence of common method bias (Podsakoff and Organ 1986). Owing to the criticism of Harman's single factor test by several researchers, we further employed a common latent factor test in AMOS. Accordingly, we compared the fitness of the CFA: $X/df=1.382$, $RMR=0.023$, $RMSEA=0.035$, $GFI=0.91$, $AGFI=0.89$, $TLI=0.97$, and $NFI=0.97$. Moreover, there is the common latent factor's model of $X/df=1.822$, $RMR=0.026$, $RMSEA=0.051$, $GFI=0.87$, $AGFI=0.85$, $TLI=0.94$ and $NFI=0.89$.

Table 4 Correlation

Variables	1	2	3	4	5	6	7	8
(1) Size of firms	–							
(2) Age of firms	0.275**	–						
(3) Education of manager	0.077	0.077	–					
(4) Domestic finance	– 0.034	– 0.113*	– 0.154**	–				
(5) International finance	– 0.002	– 0.007	0.000	0.037	–			
(6) Government support	– 0.056	– 0.008	– 0.062	0.161**	0.326**	–		
(7) Innovative performance	– 0.037	– 0.047	0.043	0.232**	0.206**	0.326**	–	
(8) Sustainability performance	0.161**	0.274**	– 0.019	0.237**	0.270**	0.230**	0.228**	–

* Correlation is significant at the 0.05 level (2-tailed)

** Correlation is significant at the 0.01 level (2-tailed)

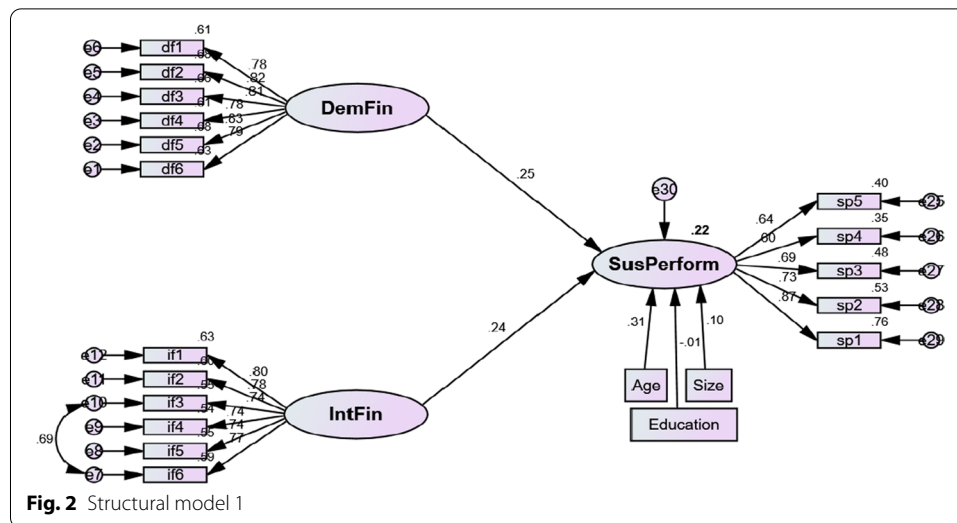
Additionally, the difference between the standardized loading was very low (0.012–0.023) that confirmed the absence of common method bias. To summarize, we did not find any significant difference that could harm the results. Hence, we confirmed that the sample is free of the threat and no common method bias is reported in the data set.

Correlation coefficients

Correlation coefficients of the factors have been checked in SPSS and are shown in Table 4. There is a significant positive relation between domestic finance and innovative performance ($r = 0.232$, $p < 0.01$) and also a significant positive relation between domestic finance and sustainability performance ($r = 0.234$, $p < 0.01$). Similarly, international finance is significant and positively related to innovative performance ($r = 0.206$, $p < 0.01$) and to sustainability performance ($r = 0.270$, $p < 0.01$). The relation between innovative performance and sustainability performance is also positive and significant ($r = 0.228$, $p < 0.01$). There is no multicollinearity issue in the data as none of the correlation values are higher than 0.80 (Anwar 2018).

Structural model

The hypotheses were tested through the structural model in AMOS. We conducted separate structural models for direct relations, a separate for the mediator, and a separate for the moderator.

**Table 5** Model Fits

Models	X/df	RMR	RMSE	GFI	AGFI	NFI	TLI
Measurement model	1.382	0.023	0.035	0.91	0.89	0.92	0.97
Structural model 1	1.705	0.040	0.047	0.91	0.90	0.91	0.96
Structural model 2	1.565	0.041	0.042	0.92	0.90	0.92	0.97
Structural model 3	1.800	0.041	0.050	0.92	0.92	0.96	0.94
Structural model 4	1.515	0.035	0.040	0.91	0.87	0.90	0.96

Structural model 1

The first structural model (see Fig. 2) was performed to test the influence of domestic and international finance on sustainability performance. The model fitness such as X/df, GFI, AGFI, TLI, NFI, RMR, and RMSEA are ensured (see Table 5) as per the recommendation of the prior studies (Hair et al. 2010; Hu and Bentler 1999).

The results show (see Table 6) that domestic and international finance have a significant influence on sustainability performance ($\beta = 0.117$, $p < 0.05$ and $\beta = 0.134$, $p < 0.05$) that supported H1 and H2, respectively. Only the age of the firms is significant while the size and educational background do not play a significant role in the model. The R-squared demonstrates a 22% variance in sustainability performance that is explained by domestic and international finance.

Structural model 2

In the second structural model (see Fig. 3), the impact of domestic and international finance on innovative performance was executed. The model fitness such as X/df, GFI, AGFI, TLI, NFI, RMR, and RMSEA are ensured (see Table 5) as suggested by Hair et al. (2010) and Hu and Bentler (1999).

Table 6 Hypotheses testing (without mediation)

Hypotheses	Estimate	S.E	C.R	P
<i>Structural model 1</i>				
Control effects				
Sustainability performance \leftarrow Age of firms	0.122	0.023	5.231	0.000
Sustainability performance \leftarrow Size of firms	0.022	0.012	1.900	0.057
Sustainability performance \leftarrow Education of managers	− 0.004	0.018	− 0.195	0.845
Main effects				
Sustainability performance \leftarrow Domestic finance	0.117	0.029	4.061	0.000
Sustainability performance \leftarrow International finance	0.134	0.035	3.825	0.000
<i>Structural model 2</i>				
Control effects				
Innovative performance \leftarrow Age of firms	− 0.013	0.031	− 0.410	0.682
Innovative performance \leftarrow Size of firms	− 0.009	0.017	− 0.547	0.584
Innovative performance \leftarrow Education of managers	0.040	0.027	1.525	0.127
Main effects				
Innovative performance \leftarrow Domestic finance	0.138	0.041	3.395	0.000
Innovative performance \leftarrow International finance	0.136	0.049	2.778	0.005
<i>Structural model 3</i>				
Control effects				
Sustainability performance \leftarrow Age of the firms	0.113	0.024	4.803	0.000
Sustainability performance \leftarrow Size of the firms	0.024	0.012	1.970	0.049
Sustainability performance \leftarrow Education of managers	− 0.019	0.019	− 0.991	0.322
Main effects				
Sustainability performance \leftarrow Innovative perform	0.163	0.048	3.427	0.000

The results show (see Table 6) that both domestic and international finance significantly influence innovative performance ($\beta = 0.138$, $p < 0.05$ and $\beta = 0.136$, $p < 0.05$) that supported H3 and H4. None of the control variables has a significant role in the model. The R-squared describes that 9% variance is explained in innovative performance by domestic and international finance.

Structural model 3

In this structural model (see Fig. 4), the impact of innovative performance on sustainability performance is executed. The model fitness such as X/df, GFI, AGFI, TLI, NFI, RMR, and RMSEA are ensured (see Table 5) as per the recommendation of the prior studies (Hair et al. 2010; Hu and Bentler 1999).

The results (see Table 6) indicate that innovative performance has a significant influence on sustainability performance ($\beta = 0.138$, $p < 0.05$) that supported H5 in this study. The age and size of the firms are significant while educational background plays an insignificant role in the model. The R-squared confirmed a 15% variance in sustainability performance that is explained by innovative performance.

Structural model 4

This model (see Fig. 5) was executed to test the mediating role of innovative performance between domestic finance, international finance, and sustainability performance. The model fitness in terms of X/df, GFI, AGFI, TLI, NFI, RMR, and RMSEA are ensured

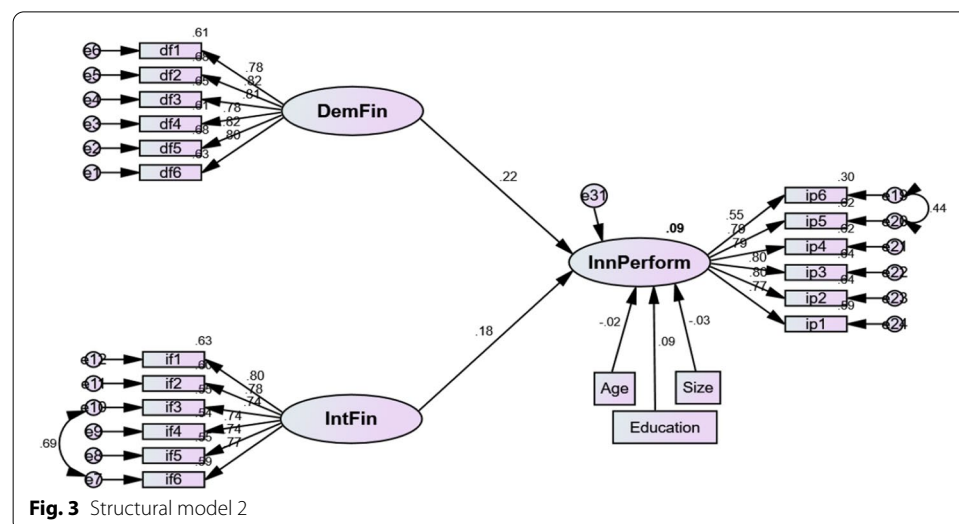
(see Table 5) as per the recommendations of the prior studies (Hair et al. 2010; Hu and Bentler 1999).

The results show (see Table 7) that the indirect influence of domestic finance and international finance is significant ($\beta=0.029$, $p<0.05$ and $\beta=0.025$, $p<0.05$) and the direct influence of domestic finance and international finance also remained significant. These figures bolster the argument for the partial mediating role of innovative performance and hereby partially support H6 and H7. In the control variables, only age is significant while the size of the firms and educational background have an insignificant role in the model. The R-squared indicates that domestic finance brings a 24% variance and international finance in sustainability performance when innovative performance plays a mediating role.

Structural model 5

Structural Model 5 (see Fig. 6) was executed for the moderating role of government support. The results of the moderation analysis are shown in Table 8. It shows that government support significantly moderates the relationship between domestic finance and innovative performance ($\beta=0.031$, $p<0.05$) supporting H8. Similarly, the moderating role of government support between international finance and innovative performance was also found to be significant ($\beta=0.129$, $p<0.05$) and thus supported H9 of the research. The total effect of DF and IF on sustainability performance is significant (0.245, $p<0.05$ and 0.237, $p<0.05$). To summarize, considering the total effect, DF has a greater influence on sustainability performance as compared to IF.

Overall, comparing the results of the structural model in terms of variation, we discovered that the first structural model has the highest variation (e.g. 22% in sustainability performance). However, Structural Model 5 of moderation is the highest variation (e.g., 72% in innovative performance). Considering the beta value, the indirect model (Structural Model 4) shows a higher variation than the direct model (Structural Model 1) for both domestic finance and IF.



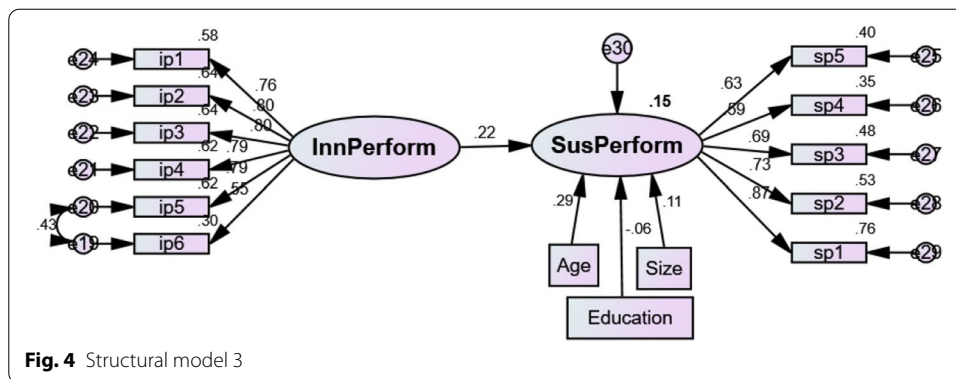


Fig. 4 Structural model 3

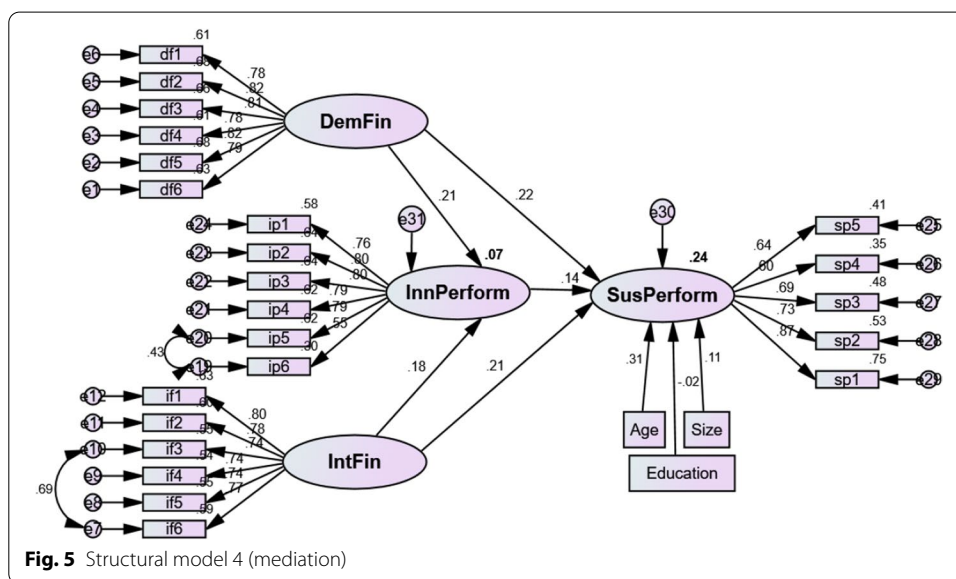


Fig. 5 Structural model 4 (mediation)

Interaction term

We discussed the interaction term of DFXGS and IFXGS in certain figures. Accordingly, Fig. 7 shows the interaction term of DFXGS for innovative performance. This figure also shows that government support strengthens the path between domestic finance and innovative performance. Nevertheless, because of the negative value of government support on innovative performance, government support as a mediator does not show a significant change in the path between domestic finance and innovative performance. The same issue pertains to Fig. 8, where the moderator role of government support is shown between international finance and innovative performance. Therefore, we argue that government support as a moderator does not substantially strengthen the link between financial resources (DF and IF) and innovation performance.

Robustness tests

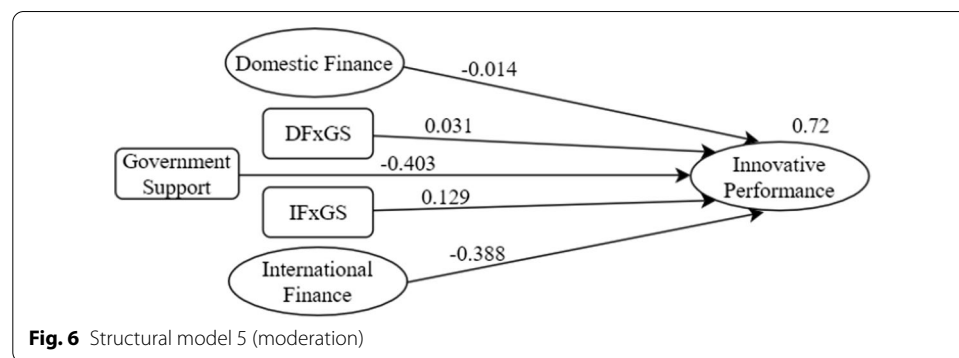
We performed a regression analysis to test the validity of the model and results. The regression results performed in SPSS also endorsed the results of AMOS (see Table 9).

Table 10 shows the final results of the hypotheses.

Table 7 Hypotheses testing (mediation)

Hypotheses	Direct effect	p	Indirect effect	P	Total Effect	p
Control effects						
Sustainability performance \leftarrow Age of the firms	0.311	0.001	–	–	0.311	0.001
Sustainability performance \leftarrow Size of the firms	0.129	0.054	–	–	0.129	0.054
Sustainability performance \leftarrow Education of managers	–0.123	0.697	–	–	–0.123	0.697
Main effects						
Sustainability performance \leftarrow DF (through IP)	0.216	0.001	0.029	0.011	0.245	0.001
Sustainability performance \leftarrow IF (through IP)	0.212	0.002	0.025	0.019	0.237	0.017
Innovative performance \leftarrow DF	0.207	0.001	–	–	0.207	0.001
Innovative performance \leftarrow IF	0.179	0.017	–	–	0.179	0.017
Sustainability performance \leftarrow Innovative performance	0.139	0.026	–	–	0.139	0.026

IF international finance, IP innovative performance, DF domestic finance

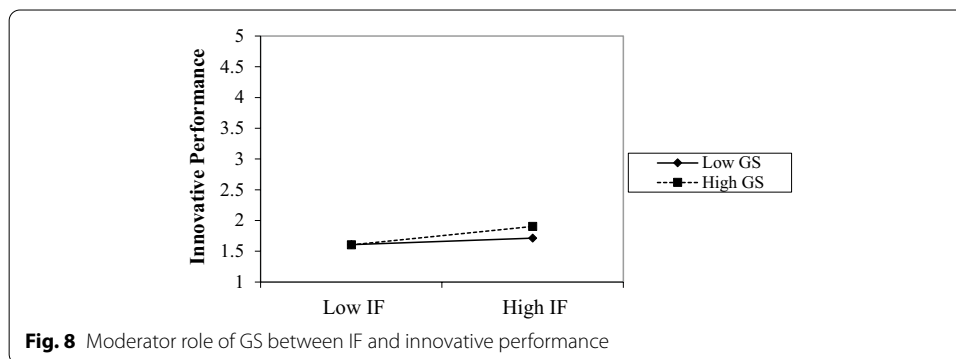
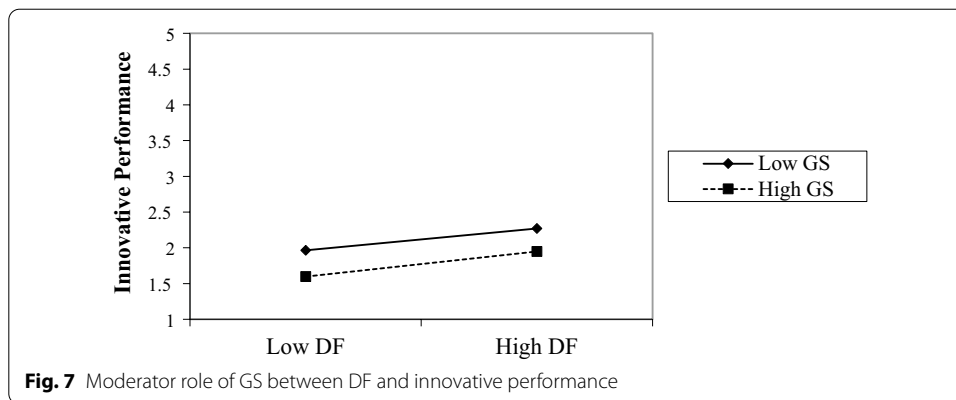
**Fig. 6** Structural model 5 (moderation)**Table 8** Hypotheses testing (moderation)

Hypotheses	Estimate	S.E	C.R	P
Innovative performance \leftarrow Govt. support	–0.403	0.029	–13.725	0.000
Innovative performance \leftarrow Domestic finance	–0.014	0.032	–0.445	0.656
Innovative performance \leftarrow IF	–0.388	0.039	–9.890	0.000
Innovative performance \leftarrow DF \times GS	0.031	0.006	5.412	0.000
Innovative performance \leftarrow IF \times GS	0.129	0.006	22.732	0.000

DF domestic finance, IF international finance, GS Govt. support, \times interaction term

Discussion

This study examined the role of domestic finance and international finance in sustainability performance with a mediating role of innovative performance and a moderating role of government support. Considering the importance of financial resources in emerging economies, this research tested the model on empirical evidence collected from the emerging market of Pakistan. Subsequently, SEM via AMOS was performed to test the hypotheses.



Despite the significant contributions of the prior studies, they suffer from several shortcomings. For instance, many previous studies have not considered the availability of international finance and government support toward sustainability performance. Notably, the studies are lacking in this perspective (e.g., sustainability practices) in emerging economies such as Pakistan. This research claims significant contributions to the existing literature involving domestic finance, international finance, innovative performance, and sustainability performance. For instance, unlike other studies where more emphasis is given to theoretical debate, this research tested the model based on empirical evidence collected from an emerging market. Moreover, in RBV theory, the role of domestic finance is over-discussed while the role of international finance and government support has been rarely considered. Our research presented that international finance and government support are not only the significant predictors of innovative performance but are also crucial for the increasing sustainability performance in SMEs. We reveal that both domestic and international financing are worthy of innovative and sustainable performances in manufacturing, trading, and services industries of all sizes (small and medium) as well as for new and established ventures. Particularly, the findings further reinforce the theme of RBV theory by articulating the importance of tangible resources (finance) in the environmental zone of all types of industries. In the past, RBV theory has extensively emphasized on superior performance and competitive advantage that

Table 9 Regression analysis

Model	Unstandardized coefficients		Standardized coefficients Beta	t	Sig
	B	Std. error			
1 (Constant)	2.444	0.062		39.296	0.000
Size	0.019	0.011	0.095	1.696	0.091
Age	0.093	0.021	0.251	4.464	0.000
Education	−0.014	0.017	−0.045	−0.834	0.405
2 (Constant)	1.473	0.142		10.365	0.000
Size	0.019	0.010	0.094	1.811	0.071
Age	0.104	0.019	0.280	5.357	0.000
Education	−0.002	0.016	−0.007	−0.139	0.889
Domestic finance	0.121	0.024	0.261	5.133	0.000
International finance	0.148	0.028	0.263	5.260	0.000
3 (Constant)	1.311	0.152		8.621	0.000
Size	0.020	0.010	0.098	1.913	0.057
Age	0.105	0.019	0.283	5.463	0.000
Education	−0.006	0.016	−0.019	−0.379	0.705
Domestic finance	0.105	0.024	0.227	4.386	0.000
International finance	0.132	0.028	0.234	4.638	0.000
Innovative performance	0.106	0.038	0.145	2.783	0.006

Dependent variable: sustainability performance

Table 10 Hypotheses remarks

Hypotheses	Remarks
H 1. Access to domestic finance has a positive effect on firm sustainability performance	Supported
H2. Access to international finance has a positive effect on firm sustainability performance	Supported
H 3. Access to domestic finance has positive effects on firm innovative performance	Supported
H4. Access to international finance has positive effects on firm innovative performance	Supported
H5. Innovative performance significantly influences the sustainability performance	Partially Supported
H6. Innovative performance mediates the relation between access to domestic finance and sustainability performance	Partially Supported
H7. Innovative performance mediates the relation between access to international finance and sustainability performance	Supported
H8. Access to government support as a moderator strengthens the relation between access to domestic finance and innovative performance	Supported
H9. Access to government support as a moderator strengthens the relation between access to international finance and innovative performance	Supported

can be gained through rare and unique resources. However, in addition to superior performance and competitiveness, recent discussions consider environmental and social activities in the scope of RBV theory. By testing the model, we confirmed that sufficient resources facilitate firms in gaining innovative and sustainability performance.

Furthermore, we discovered that the availability of domestic finance and international finance significantly improves sustainability performance—which supported H1 and H2. Supporting a similar view, Scholtens (2006) pointed out that firms need adequate financing for environmental practices. Similarly, Ortas et al. (2015) scrutinized that financial factors stimulate CSR and environmental management practices. Consequently,

our research favors Khattak (2020), who revealed that internal and external financial resources are very crucial for sustainable development in business firms. Our research confirmed that both types of finance—domestic and international—are necessary for high sustainability performance. Similarly, a recent study conducted by Khattak et al. (2021) indicates that entrepreneurial finance is the key to CSR and environmental activities in newly established ventures.

Our results show that the availability of domestic and international financing significantly configure the innovative performances of the firms that support H3 and H4, respectively. This is in line with Demirkan (2018), who claims that financial resources facilitate firms in recognition of new opportunities and encourages them to invest in innovative projects. Supporting this, Hoeglet al. (2008) demonstrate that financial capital is required to boost innovative projects and innovative activities among firms, which in turn stimulate innovative performance. This is consistent with Guo et al. (2020), who describe that financial resources are essential for RandD activities. Our findings are also related to Zhang and Zheng (2020), who proposed that financial capital significantly contributes to innovative performance while lack of financing hampers firms with regard to innovative activities. Therefore, we confirm that domestic and international financing are the significant drivers of innovative performance. A recent study also revealed that financial constraints significantly affect innovative activities in business firms (Khan et al. 2021b).

Our results indicate a significant role of innovative performance in sustainability performance which supports H5. Our results favor several other studies where a significant positive relation between innovative performance and sustainability performance has been scrutinized. For instance, Fernández et al. (2018) argued that innovation is the most significant driver in the reduction of emissions is considered a suitable tool for changing a hazardous climate into a favorable one. Such kinds of innovative practices are crucial for spurring sustainability performance. Our research also supports Chege and Wang (2020) who revealed that innovative strategies significantly contribute to sustainable development. Moreover, it is also claimed that despite the significant role of innovation in sustainability, studies are still limited (Jin et al. 2019).

This research shows that innovative performance partially mediates the relation between the availability of domestic finance and sustainability performance. It also partially mediates the relation between the availability of international financing and sustainability performance that partially supported H6 and H7. Despite this, the results are not fully aligned with Pergelova and Angulo-Ruiz (2014), who scrutinize that government financial incentives directly configure the innovative performance of the business sector and theses incentives indirectly enhance sustainability performance. However, we found that innovative performance partially affects the relationship. Thus, financial support should not be minimized. For instance, especially in emerging economies, government financial incentives such as particular loans, taxes, and credits provide highly innovative performances that in turn facilitate firms to enhance their sustainable performance (Guan and Yam 2015). However, because of the lack of resources in emerging economies, international financing influences firms with regard to innovation and

sustainability practices. As pointed out by Degong et al. (2018), SMEs in developing economies often face financial constraints, hence they rely on external and international financing to boost their operational and innovative activities.

We found that government support significantly moderates the relationship between the availability of domestic financing and innovative performance as well as international finance and innovative performance that supported H8 and H9. Our study supports the Porter hypothesis which argues that regulations (e.g., government and environmental) matter in business success. For instance, Porter suggests how a firm responds to environmental regulations or other pressures to initiate their environmental performance. If regulations are favorable for firms, it can benefit them to adopt dynamic approaches (Wu et al. 2012). Moreover, Ma and Gao (1997) also scrutinized that both financial and non-financial support of government empowers firms to increase their innovative, economic, and financial performance. Firms' environmental and economic performance can be improved through internal resources; in addition, external sources are also needed to enhance high profitability and therefore should not be ignored (Ramanathan et al. 2017). Consequently, our findings closely correspond to the view presented by Chundakkadan and Sasidharan (2020) who asserted that government non-financial assistance significantly strengthens the association between firms' resources and innovativeness.

Implications for practice

This research has several implications for owners, managers, and policymakers as well. We found that innovative performance mediates the relationship between domestic finance and innovative performance as well as between international finance and innovative performance. These results suggest that firms must design the essential organizational structure such as having formal encouragement for domestic and international finance. We found that domestic finance and international finance play a significant role in improving innovative performance as well as sustainability performance. Additionally, we found that government support as a moderator significantly increases the positive relationship between the availability of domestic financing and innovative performance as well as between international financing and innovative performance. Thus, firms should not only consider the benefits of domestic and international financing and should also be required to build a strong tie with government and political bodies to receive adequate attention of the government. Government intervention (e.g., support) makes it feasible for firms to gain the domestic and international financing that is necessary for innovative performance which in turn stimulates sustainability performance. Moreover, it is worthwhile for firms to arrange enough resources (e.g., domestic finance, international finance, and government support) for innovative performance as its desired sustainability performance. Our findings revealed that innovative performance is a partial mediator between financial resources and sustainability performance. Therefore, based on these findings, it is recommended that top-level managers emphasize both types of financial resources to improve their innovative and sustainable performances.

It is given that many firms often lack better opportunities on account of limited financial capabilities and a lack of external support. Hence, managers should not underemphasize the importance of internal and external finances to strengthen their operational

activities. In addition, this research suggests a few significant implications for policy-makers. It recommends that the government should encourage international financial institutions and banks to invest in environmental initiatives and green success. The consequences are not confined to the only emerging market in Pakistan but other developing and developed economies may take into consideration the importance of domestic finance, international finance, and government support to enhance innovative performance and sustainability performance. For instance, as pointed out by Anwar and Ali Shah (2020), more than 50% of ventures that fail in the initial stage are lacking resources and support. This high failure ratio of new enterprises across the globe calls for the promotion and encouragement of domestic financing, international financing, and government support to prepare the ventures for long-term survival. Additionally, Pakistan has many features in common with other emerging and developed countries across the globe. Hence, the findings of the current sample can be effectively used by neighboring countries.

The Small and Medium Sized Development Authority (SMEDA) and other responsible organizations in Pakistan need to encourage the inflow of foreign direct investment and international investors to invest in the industrial sector for innovative activities and environmental protection. Moreover, national banks and financial institutions are advised to provide interest-free loans to the industrial sector for technological development and CSR activities. In this way, both domestic and international finance can be encouraged and the industrial sector will be able to adopt new and innovative approaches which will positively affect the existing environment.

Conclusion

This research examined the influence of international and domestic financing on sustainability performance with a mediating role of innovation and the moderating role of government support. We surveyed 317 SMEs and applied AMOS to test the hypothesized model. The results indicate that access to domestic finance and international finance significantly contributes to sustainability performance and innovative performance. We found a partial mediating role of innovative performance between access to domestic finance and sustainability performance as well as between access to international finance and sustainability performance. Access to government support significantly moderates the relationship between access to domestic financing and innovative performance as well as between access to international financing and innovative performance.

Limitations and future research

Despite the significant implications for practicing managers, this study has a few constraints that are required to be addressed in future research studies. The first limitation adheres to the population as this research is only focused on the emerging market in Pakistan, which may not represent other emerging economies. In this way, the model can be tested in other markets in different environmental settings. This research collected data through a structured questionnaire that may cause potential common method biases. Therefore, we recommend asking open-ended questions and interviews that may give better results. Furthermore, rather than a cross-sectional study, a longitudinal one can provide more reliable insights from this perspective. The hypotheses of

this research are tested through an SEM that may endorse lacking validity, especially in moderating cases. Therefore, we recommend the PROCESS method for robustness to confirm the validity of the results. Specifically, we tested the moderating role of government support between financial capital (domestic and international) and innovative performance, rather than testing the moderator between financial capital and sustainability performance, which needs to be addressed in future studies. We tested the government support as a moderator between financial resources and innovative performance while ignoring the role of financial resources and sustainability performance, which is hereby recommended for aspiring future researchers. Additionally, a firm's networking abilities (political network, business network, and a financial network) may facilitate them in accessing scarce resources that are necessary for high performance (Anwar et al. 2018b). Hence, we suggest the role of networking to enhance the potential performance of sustainability. As noted earlier, many SMEs are not actively performing environmental practices due to high risk and uncertainty. Thus, considering top management's risk-taking behaviors and decision-making can generate more fruitful insights in this regard. While the present research is conducted in SMEs, large and stable firms can be considered in the future as they have more concern with environmental and sustainability issues. In the current study, we took into consideration the nature of industry, size, and age of the firms as control variables. However, in line with similar studies, these variables may have some significant influence in obtaining an optimal result in the future. Besides, it is also recommended to incorporate new variables such as eco-innovation, open innovation, and a circular economy which our current study lacked.

Appendix

The firms were asked “*when needed, how your firm can access to the following resources/support*”. Respondents were given 5 options against each question showing strongly disagree 1 to strongly agree 5.

Domestic finance

- | | |
|---|--|
| 1 | My firm easily accesses domestic equity funding available for business |
| 2 | My firm easily accesses domestic debt funding available for operational activities of business |
| 3 | My firm easily accesses government subsidies available for social and environmental activities |
| 4 | My firm easily accesses funding available from domestic private individuals (other than founders) for business |
| 5 | My firm easily accesses domestic venture capitalist funding available for business |
| 6 | My firm easily accesses domestic funding available through initial public offerings (IPOs) for business |

International finance

- | | |
|---|---|
| 1 | My firm accesses sufficient foreign equity funding available for business operation |
| 2 | My firm obtains sufficient foreign debt funding available for operational activities of business |
| 3 | My firm accesses sufficient foreign financial subsidies available for social and environmental support |
| 4 | My firm accesses adequate financing available from foreign individuals (other than founders) for business |
-

5	My firm obtains sufficient international venture capitalist funding available for business activities
6	My firm accesses sufficient funding available through foreign initial public offerings (IPOs) for business
<i>Government support</i>	
1	My firm easily accesses a wide range of government assistance for business through contact with a single agency
2	My firm easily accesses science parks and business incubators provide effective support for social events
3	My firm easily accesses an adequate number of government programs for social and environmental support
4	My firm easily accesses to the people working for government agencies who are competent and effective in supporting firms
5	My firm easily accesses to almost anyone who helps from a government program for business needs what they need
6	My firm easily accesses to government programs aimed at supporting firms for effective running
<i>Innovative performance</i>	
1	Increased in the speed of new product development
2	Increased in the number of annual new products
3	Increased in the success rate of product innovation
4	Increased sales of new products to total sales
5	Increased in the number of annual patents
6	Improved new and technological process
<i>Sustainability performance</i>	
1	We are the first that offer environmental-friendly products/services at the market-place
2	Our competitors consider us as a leading company in the field of sustainability
3	We develop new products/services or improve existing products/services that are regarded as sustainable for society and environment
4	Our reputation in terms of sustainability is better than the sustainability reputation of our competitors
5	Compared to our competitors, we more thoroughly respond to societal and ethical demands

Authors' contributions

FU and MA worked on the model and literature. Prof. MD supervised the manuscript. SH helped in data collection. RU worked on methodology and data analysis. All authors read and approved the final manuscript.

Availability of data and materials

The data used in the figures and tables have been gathered through a survey from top managers/owners of SMEs in Pakistan, and available on request from the corresponding author.

Declarations

Competing interest

The authors have no conflict of interest.

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