



(RESEARCH ARTICLE)



## Impact of financial and internet support on SME performance: Moderating effect of technology adoption during COVID-19 pandemic

Mohammad Sarwar Hossain Islam <sup>1,\*</sup>, Mohammad Rabiul Basher Rubel <sup>2</sup>, Mohammed Imam Hossain <sup>3</sup>, Md. Kamruzzaman <sup>4</sup>, Sathi Akter <sup>5</sup>, Md. Halimuzzaman <sup>6</sup> and Mohammad Rezaul Karim <sup>7</sup>

<sup>1</sup> Department of Business Administration, Atish Dipankar University of Science & Technology, Bangladesh.

<sup>2</sup> BRAC Business School, BRAC University, Bangladesh.

<sup>3</sup> BIGD - BRAC Institute of Governance and Development, BRAC University, Bangladesh.

<sup>4</sup> Chief Human Resources Officer (CHRO), Alchemy International Limited (AIL), Bangladesh.

<sup>5</sup> Department of Management and Economy, Gävle University, Sweden.

<sup>6</sup> Ph. D. Scholar, School of Business, Galgotias University, Uttar Pradesh, India.

<sup>7</sup> Department of Business Administration, Shanto-Mariam University of Creative Technology, Bangladesh.

World Journal of Advanced Engineering Technology and Sciences, 2024, 13(02), 105–118

Publication history: Received on 27 August 2024; revised on 15 October 2024; accepted on 17 October 2024

Article DOI: <https://doi.org/10.30574/wjaets.2024.13.2.0533>

### Abstract

Small and medium-sized enterprises (SMEs) are widely recognised as significant catalysts for economic growth at a worldwide level. The benefits that are frequently highlighted for their promotion, particularly in developing nations like Bangladesh, include their relatively high labor intensity, reliance on local technology and skills, contributions to the growth of entrepreneurialism and innovativeness, and industrial linkage expansion. The objective of this study is to examine the influence of financial and internet support on the performance of small and medium enterprises (SMEs) in Bangladesh during the COVID-19 pandemic while also considering the moderating effect of technology adoption. By going through the literature, the study identified a number of factors namely financial support, ICT support, technological support played a strong role on SME performance during COVID-19. The present study utilises Partial Least Square (PLS) path modelling, a variance-based technique within the framework of Structural Equation Modelling (SEM), to investigate the correlations. A well-structured questionnaire is prepared for collecting primary data from the SME owners or managers and finally 378 data have been collected from the different types of SME entrepreneurs through using purposive sampling technique. Eight hypotheses are tested and found seven positive relationships with moderating interaction of technology adoption between influential factors and SME performance (financial and non-financial).

**Keywords:** SME; SME Performance; Technology Adoption; Financial Performance; PLS; Non-Financial Performance; Bangladesh.

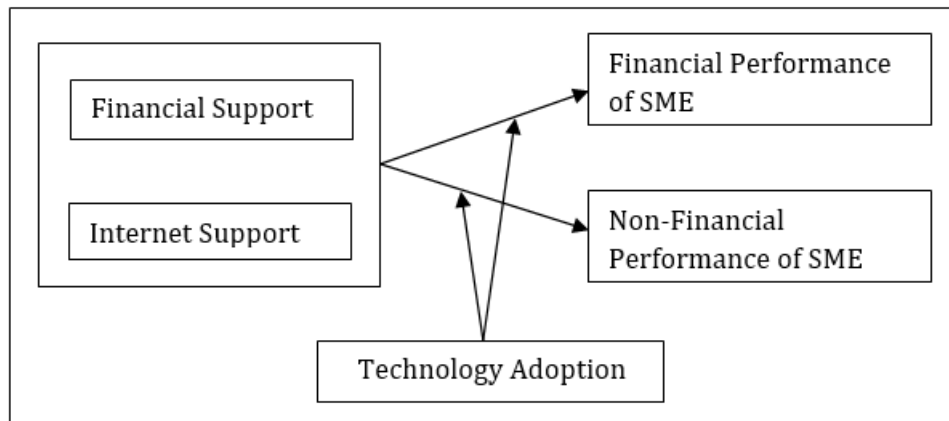
### 1. Introduction

The COVID-19 pandemic is an unforeseen worldwide disease that has effectively halted international trade, impacted the global economy, and carried significant implications for sustainable businesses and society. The COVID-19 pandemic has necessitated corporations to develop inventive resolutions to the prevailing global challenges. The emergence of COVID-19 has presented notable difficulties for Small and Medium Enterprises (SMEs), encompassing both financial and non-financial aspects of their operations. Consequently, commercial enterprises encounter difficulties in carrying out their customary operational activities (Sansa, 2020). The anticipation of unforeseen consequences for aggregate output, unemployment, and poverty in Bangladesh aligns with the ongoing global discourse surrounding the potential

\* Corresponding author: Asadullah Muhammad Hossain Saad.

economic ramifications of the COVID-19 pandemic. Furthermore, according to the findings of McCloskey and Heymann (2020), the occurrence of supply chain disruption, trade discontinuity, and reduced market demand can potentially result in a state of economic sluggishness. The economy of Bangladesh, similar to that of other nations, has seen significant and adverse repercussions on a global scale. Nevertheless, the adverse effects of the current situation have been felt across all economic sectors, with small and medium-sized enterprises (SMEs) experiencing the most substantial ramifications. Small and medium-sized enterprises (SMEs) are of paramount importance in the economic machinery of many countries, as they contribute significantly to employment creation, the opening of new markets, and the promotion of sustainable economic development (Puriwat and Tripopsakul, 2021). The advent of the financial and economic crises has posed challenges for small and medium-sized enterprises (SMEs) that contribute to the advancement of economic growth. Small and medium-sized enterprises (SMEs) experience significant adverse effects during times of crisis due to their comparatively limited knowledge base, heightened vulnerability, increased dependence on local and governmental institutions, and increased reliance on owners for financial support (Islam, *et al.* 2020). According to Le *et al.* (2020), the ongoing epidemic has presented challenges for small and medium-sized enterprises (SMEs) in fulfilling their financial responsibilities. These challenges include increased shortages in inventory, rising operational expenses, and difficulties in making credit payments to financial institutions. The COVID-19 pandemic has had severe economic repercussions on nations due to the prolonged lockdown measures implemented, resulting in poor economic situations. The most severe consequences of economic operations have been experienced by individuals with low incomes who have faced job loss and encountered limited availability of food and social safety services. Despite encountering numerous challenges, small and medium-sized enterprises have limitations in realizing their complete growth potential, a crucial factor in achieving sustainable objectives (Nseobot, *et al.*, 2020). Government officials, legislators, credit disbursing organizations, and small and medium enterprises (SMEs) have consistently sought strategies to mitigate the significant impacts on their business entities resulting from the issue of survival. Concerns have been raised by proprietors regarding the operational efficacy of small enterprises. The aforementioned phenomenon has exerted a significant influence on society, leading to the emergence of unemployment, imbalances in social security, disruptions in financial activities, and changes in aggregate output (Fernandes, 2020). The COVID-19 pandemic has had a substantial impact on the enduring profitability and sustainability of small and medium-sized enterprises (SMEs). Moreover, this prevailing circumstance has created a novel opportunity for investigating the adaptability and performance of SMEs (Emejulu *et al.*, 2020; Hadi and Supardi, 2020), as well as alleviating their financial challenges (Nyanga and Zirima, 2020). According to McGeever *et al.* (2020), there is evidence to suggest that productivity can be enhanced. Several studies have proposed that strategic resource assistance, encompassing technological integration, efficient financial intermediation, and government incentives, may enhance the likelihood of survival during pandemics (Liguori and Pitz, 2020; Fitriyasari, 2020). However, existing literature indicates a lack of research that examines the impact of both financial support and internet support on the performance of small and medium enterprises (SMEs) in Bangladesh, encompassing both financial and non-financial aspects within a single model. Therefore, the primary objective of this study is to address the existing research gap by exploring potential avenues for future research on the performance of small and medium-sized enterprises (SMEs) in developing nations such as Bangladesh. This study also demonstrates the moderating influence of technology adoption on the link between financial support and SME performance, as well as internet support and SME performance. These aspects also represent significant areas of research that have not been extensively explored in the context of Bangladeshi SME performance. The measurement of both financial and non-financial performance elucidates the various dimensions of small and medium-sized enterprises (SMEs) performance, enabling SME owners and managers to enhance their decision-making processes in order to foster the sustainable development of the SME sector in Bangladesh. In summary, the study aims to achieve the following objectives:

- To examine the relationship between financial support and SME performance (financial and non-financial).
- To assess the relationship between internet support and SME performance (financial and non-financial).
- To examine the moderating effect of technology adoption between financial support and SME performance (financial and non-financial).
- To examine the moderating effect of technology adoption between internet support and SME performance (financial and non-financial).



**Figure 1** Research framework

## 2. Underlying Theory

According to earlier research (Lutfi, *et al.*, 2022), the resource-based view (RBV) hypothesis is used to quantify factors that influence SME performance. The RBV theory postulates that a firm's internal assets and competencies produce competitive advantages (Barney, 2001). According to Barney (2001), organizations' performance is expedited by unique sets of resources that are challenging to replace and duplicate. According to a study by Ismail *et al.* (2014), the RBV theory's base is made up of the variety of resources that businesses employ. As a result, the RBV theory provides an appropriate theoretical framework to describe issues that affect company performance (Kura *et al.*, 2020).

## 3. Literature Review

On March 8th, Bangladesh saw the first COVID-19 case, and on March 18th, the first death. The global economy, as well as public health and human lives, have been adversely affected by the COVID-19 pandemic. The global economy is currently experiencing a profound recession that is anticipated to last for an extended period of time. Based on the findings of the World Bank (2020), it is anticipated that a majority of nations would experience a period of economic recession in the year 2020 as a direct consequence of the COVID-19 pandemic. Furthermore, it is projected that advanced economies will have a contraction of approximately 7%. For the first time in a span of sixty years, it is projected that emerging and developing economies will experience a contraction of 2.5%. The pandemic's repercussions on the Bangladeshi economy can already be seen in a number of economic indicators from the previous fiscal year. In the absence of a successful vaccine, the virus is anticipated to persist in the environment. The economic effects will, therefore, probably continue even though the crisis is under control. Due to the pandemic and ensuing lockdown, domestic and international demand decreased, and as a result, manufacturing facilities stopped producing. To cut down on spreadsheets, the government declared a national vacation at the end of March. Due to increased supply constraints brought on by such a stoppage, overall output levels eventually decreased. On the other hand, due to an increase in global demand for RMGs, the apparel and knitwear industries started to recover in May 2020. However, in May 2020, cement and petroleum products both had major declines, bucking the recovery trend. The public holiday had an impact on building, which the numbers for cement may have reflected. In contrast, the industry for medications and pharmaceuticals, which also includes medical compounds, had positive growth. Due to COVID-19, supply disruptions and SMEs' operations have been hampered by frequent lockdowns, business and retail sector closures, social estrangement, and supply disruptions. In particular, the region had adverse economic consequences that had a detrimental impact on small and medium enterprises (SMEs), who play a significant role in contributing to 30% of the region's GDP, exports, and employment possibilities. Due to COVID-19, the livelihood of a large portion of workers in SMEs was severely impacted. Today, a lot of businesses must make up for lost sales and millions of laid-off workers. It is imperative to ascertain the extent of the repercussions of COVID-19 on small and medium-sized enterprises (SMEs) and the economy of South Asian nations (Ozili and Arun, 2020).

## 4. Hypotheses Development

### 4.1. Financial Support and SME Performance

According to Cheruiyot (2020), financial support is the process of obtaining the necessary capital at a fair price for the efficient operation of an organization. The productivity and growth of SME are positively correlated with financial support availability, which is necessary for its sustainable growth and development (Cravo and Piza, 2018). However, there are many barriers to financial services' expansion and development, particularly in developing nations like Bangladesh (Sarker and Palit, 2015). All types of organizations can clearly benefit from easy access to funding for accelerating its performance (Memon, *et al.*, 2020). Thus, it is hypothesized:

H1: Financial support is positively related with the financial performance of SME.

H2: Financial support is positively related with the non-financial performance of SME.

### 4.2. Internet Support and SME Performance

The open market economy has become more globally networked as a result of modern technology and internet-based communication systems that have expanded information exchange between nations (Wilson, 2020). Due to the enormous opportunities and advantages of internet technology, it is now evident that many commercial companies use it. The internet is assisting us in every element of running a business, including financial transactions, production, marketing, online sales, and online networking with both clients and other businesses (Jiang *et al.*, 2019). The COVID-19 pandemic has had a profound impact on technological advancements in various industries, leading to significant transformations in business operations, customer and supplier interactions, and the emergence of novel business models and customer-centric strategies (Matarazzo *et al.*, 2021). Gomez-Trujillo and Gomez-Trujillo and Gonzalez-Perez (2021) define "digital transformation" as the strategic utilization of digital technology by enterprises to generate novel digital business models that contribute to and enhance their overall worth. These changes have an impact on organizational competencies, operational procedures, and business processes (Li, 2018). Thus, it is hypothesized:

H3: Internet support is positively related with the financial performance of SME.

H4: Internet support is positively related with the non-financial performance of SME.

### 4.3. Moderating Effect of Technology Adoption between Financial Support and SME Performance

Modern economics has made the fundamental conclusion that receiving financial support is necessary in order to increase an organization's performance (Zin and Ibrahim, 2020). We require enough financial intermediaries to connect the borrowers and lenders in order to provide the available financial support (Sanjaya and Lampung, 2020). Ombi *et al.* (2018) conducted a study examining the performance of small and medium-sized enterprises (SMEs), whereby they found that financial services exerted a significant influence on SME performance, whereas non-financial services had a negligible effect. The performance of SMEs is positively impacted by financial support, according to prior studies. The initiation of technology adoption acknowledges that the attractiveness of a certain technology does not necessarily make it superior or indispensable for organizations. A prominent technological solution is developed through a collaborative process involving negotiations with various parties, ultimately resulting in its selection. Organizations that proactively embrace emerging technologies and establish dominance in the market tend to have sustained survival and growth. Conversely, organizations that exhibit a lethargic approach towards diversifying their technological capabilities are more likely to face failure (Si *et al.*, 2020). The performance of small and medium-sized enterprises (SMEs) and technology adoption have a significant correlation, according to a study by Bagheri *et al.* (2019). According to Muscio and Ciffolilli (2018), the use of technology has a significant impact on the performance of small and medium-sized enterprises (SMEs) in Europe, facilitating the enhancement of their innovation capabilities. Hence, the present study posits that the use of technology has a moderating role in the relationship between financial support and the performance of small and medium-sized enterprises (SMEs). Therefore, the subsequent hypothesis is formulated.

H5: Technology adoption positively moderates the relationship financial support and financial performance of SME

H6: Technology adoption positively moderates the relationship financial support and non-financial performance of SME

### 4.4. Moderating Effect of Technology Adoption between Internet Support and SME Performance

According to a literature review, small and medium Enterprises (SMEs) are regarded as innovative businesses that support economic growth in a number of developing nations (Ali *et al.*, 2022). In general, effect of the COVID-19 pandemic made Bangladeshi's economic situation unstable (Alam *et al.*, 2021). This sector was the most negatively impacted by the pandemic. Due to the government's lockdown system, numerous businesses have endured bankruptcies or worsening financial difficulties (Rahmawati *et al.*, 2020). Due to this, SMEs face losses and operational constraints in conducting their day-to-day operations. On the other hand, this business is the foundation of a family

business that is anticipated to continue operating in a crisis. As a result, this digital era can change business models through information technology, particularly internet as it is widely used to support organization in carrying out business operations, selling products, and providing a range of services (Setiowati *et al.*, 2015). The adoption of new technologies has been widely regarded as a prominent avenue for small and medium-sized enterprises (SMEs) to obtain fresh and inventive trajectories (Davicik *et al.*, 2021; Hervas-Oliver *et al.*, 2021). However, there is a scarcity of empirical evidence in the existing literature regarding the precise moderating link between technology adoption, internet support, and the performance of small and medium-sized enterprises (SMEs). Huang and Chen (2019) emphasized the challenges faced by small and medium-sized enterprises (SMEs) in adopting technologies and examined the increasing significance of technologies in achieving a competitive edge. According to the findings of Lee *et al.* (2017), data was gathered from a total of 168 manufacturing firms the study suggests that the implementation of technology has the potential to enhance the performance of small and medium-sized enterprises (SMEs). Technology plays a crucial role in determining the innovative performance of small and medium-sized enterprises (SMEs), according to empirical research by Wen and Zheng (2020) in the manufacturing industries of the United States. Hence, this research posits that the adoption of technology has a moderating effect on the relationship between internet support and the performance of small and medium-sized enterprises (SMEs). Therefore, the subsequent hypothesis is formulated.

H7: Technology adoption positively moderates the relationship internet support and financial performance of SME

H8: Technology adoption positively moderates the relationship internet support and non-financial performance of SME.

## 5. Methodology

### 5.1. Population and Sample

The present study employed a cross-sectional design and utilised a correlational approach to gather data through survey methodology. The conclusions were derived based on a certain moment in time. The research was centred on the performance of small and medium-sized enterprises (SMEs) in Bangladesh. The data were gathered from small and medium-sized enterprise (SME) owners or managers located in the Dhaka, Chattogram, Rajshahi, and Rangpur divisions, which collectively host over 76% of Bangladesh's SMEs (SME Foundation, 2022). Consequently, the cities of Dhaka, Chattogram, Rajshahi, and Rangpur were chosen as the sampling frame for the present study. A meticulously designed questionnaire was established and disseminated to various small and medium-sized enterprise (SME) owners or managers in order to gather primary data. The current study employed the judgmental sampling technique. The judgmental sampling technique is classified as a non-probability sampling technique. This specific methodology emphasises the inclusion of specific individuals who possess the desired knowledge, either because they are the group that possesses it or because they align with certain assumptions established by the researchers (Sekaran and Bougie, 2010). Hair *et al.* (2017) argue that the utilisation of judgmental sampling technique is suitable in situations where a comprehensive list of potential respondents is not available. Given the absence of a comprehensive compilation of small and medium-sized enterprises (SMEs) in Bangladesh, the utilisation of this approach is deemed appropriate for the purposes of this investigation. In the specific context of Bangladesh, prior studies have also employed the judgmental sampling method as a means of conducting their research (Rubel *et al.*, 2018). To ensure efficient data collection, the present study employed the drop-off and pick-up (DOPU) technique to distribute the questionnaire among the chosen small and medium enterprises (SMEs). A sample size of 832 small and medium-sized enterprises (SMEs) was selected for the study, and a corresponding number of 832 questionnaires were administered to the owners or managers of these SMEs. A total of 407 questionnaires were received, out of which 378 questionnaires were deemed suitable for data analysis. A total of 29 questionnaires were discovered to be either blank or incomplete, rendering them unsuitable for analysis. Therefore, the response rate achieved was 48.91 percent. In the specific setting of Bangladesh, Rubel and Kee (2015) obtained a response rate of only 29 percent, however managed to yield pertinent findings. Therefore, the current response rate of 45.43 percent was deemed satisfactory.

### 5.2. Measurement Instrument

A comprehensive set of 27 items pertaining to both independent variables (financial support, internet support, and technology adoption) and dependent variables (financial performance and non-financial performance) were utilised in this study. These items were derived from prior research. Data was collected using a 5-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") for the independent variables, as well as a 7-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"). The present study draws upon the research of Ali *et al.* (2018), Ifinedo (2011), and Indarti and Langenberg (2004) to identify and adapt five elements pertaining to financial support. The measurement of internet support was conducted by gathering five items from the studies conducted by Utomo *et al.* (2019), Ghafoor, and Iqbal (2007). The measurement of technology adoption involved the utilisation of five items derived from the studies conducted by Jalil *et al.* (2021) and Shahadat *et al.* (2023). The measurement of financial

performance was derived from the research conducted by Maduekwe and Kamala (2016) and Ng *et al.* (2016), while the measurement of non-financial performance was modified from the work of Maduekwe and Kamala (2016) and Ahmad *et al.* (2011).

## 6. Result and Analysis

### 6.1. Demographic Information of the Respondents

**Table 1** Profile of the sample respondents

Demographic Data		Frequency (N= 378)	Percentage (%)
Gender	Male	275	72.8
	Female	103	27.2
Age	16-25 years	11	2.9
	26-35	115	30.4
	36-45	211	55.8
	46-55	34	9.0
	More than 56	7	1.9
Marital Status	Married	283	74.9
	Unmarried	85	25.1
Religion	Muslim	338	89.4
	Non-Muslim	40	10.6
Education	Secondary or less	17	4.5
	HSC	87	23
	Diploma	49	13
	Bachelor	102	27
	Post Graduate	123	32
Organization types	Small Enterprise	242	64
	Medium Enterprise	136	36
Industry Category	Manufacturing	233	61.6
	Service	145	38.4
Age of organization (Year)	3-6	32	8.5
	7-10	149	39.4
	11-15	115	30.4
	16-20	53	14.0
	More than 20	29	7.7
Position in the organization (owner/manager)	Owner	212	56
	Manager	166	44
Year of experience (owner/manager)	2-6	67	17.7
	7-10	203	53.7
	11-15	59	15.6

	16-20	35	9.3
	More than 20	14	3.7

## 6.2. Measurement Model

The measurement and structural model of the current study were assessed using the partial least squares (PLS) approach. There are four criteria that necessitate consideration in order to assess the reliability and validity of a measurement model. These criteria pertain to two overarching characteristics, namely convergent validity and discriminant validity. According to the findings of Hair et al. (2010), convergent validity pertains to the degree to which the items used as indicators of a certain concept demonstrate convergence by accounting for a greater amount of shared variance. Hair et al. (2010) argues that in order to evaluate convergent validity, it is necessary to determine the factor loadings, composite reliability (CR), and average variance extracted (AVE). The AVE metric quantifies the extent to which the latent construct explains the collective variance seen in the indicators. Once again, the CR values (refer to Table 4) illustrate the extent to which the indicators of the construct reflect the underlying hidden construct. According to the findings presented in Table 2, it can be observed that the loadings for all items exceeded the threshold of 0.5, as advised by Hair et al. (2010). According to Hair et al. (2010), the values for all AVEs and CRs above the respective cut-off thresholds of 0.5 and 0.7.

**Table 2** Output of the measurement model

Constructs	Measurement Items	Loading	AVE <sup>a</sup>	CR <sup>b</sup>	CA <sup>c</sup>
Financial Support	FS1	0.8137	0.6733	0.9142	0.881
	FS2	0.7829			
	FS3	0.8220			
	FS4	0.7939			
	FS5	0.8393			
Internet Support	IS1	0.8351	0.6846	0.9231	0.9038
	IS2	0.8284			
	IS3	0.8044			
	IS4	0.837			
	IS5	0.794			
Technology Adoption	TA1	0.8208	0.6241	0.8625	0.8319
	TA2	0.7518			
	TA3	0.7887			
	TA4	0.8004			
	TA5	0.8155			
Financial Performance	FP1	0.8084	0.6313	0.9121	0.9231
	FP2	0.8213			
	FP3	0.823			
	FP4	0.7894			
	FP5	0.8106			
	FP6	0.8127			
Non-Financial Performance	NFP1	0.7933	0.6069	0.8788	0.888
	NFP2	0.7885			
	NFP3	0.7384			

	NFP4	0.7949			
	NFP5	0.7842			
	NFP6	0.7359			

**Notes:** <sup>a</sup>Average variance extracted (AVE) = (summation of the square of the factor loadings) / {(summation of the square of the factor loadings) + (summation of the error variances)}.

<sup>b</sup>Composite reliability (CR) = (square of the summation of the factor loadings) / {(square of the summation of the factor loadings) + (square of the summation of the error variances)}. <sup>c</sup>CA = Cronbach alpha.

Subsequently, an examination was conducted on discriminant validity, which refers to the degree to which a certain concept is genuinely separate and distinguishable from other constructs (Hair et al., 2010). In order to evaluate the discriminant validity, we performed calculations to determine the square roots of the average variance extracted (AVEs). Our analysis revealed that these values significantly exceeded the correlations observed between the components. Fornell and Larcker (1981) proposed that if the square root of the average variance extracted (AVE) exceeds the inter-correlations between a concept and other constructs, it suggests the presence of discriminant validity. The current measuring model demonstrated acceptable levels of discriminant validity, as seen in Table 3.

### 6.3. Discriminant Validity

**Table 3** Discriminant validity of constructs-fornell-larcker correlation check.

	<b>FP</b>	<b>FS</b>	<b>IS</b>	<b>NFP</b>	<b>TA</b>
FP	0.8251	0	0	0	0
FS	0.4512	0.7854	0	0	0
IS	0.4872	0.3547	0.8363	0	0
NFP	0.4789	0.5432	0.5987	0.7648	0
TA	0.4126	0.4561	0.5827	0.7677	0.8421

**Note:** Diagonals (in bold) represent the squared root of the average variance extracted; (AVE) while the other entries represent the correlations; FS= Financial Support, IS= Internet Support, TA= Technology Adoption, FP= Financial Performance, NFP= Non-Financial Performance.

### 6.4. Structural Model

The relationships between the constructs developed for the research model are described by the structural model (Santhanamery and Ramayah, 2015). The efficacy of the theoretical framework is assessed based on the variance explained (R<sup>2</sup>) of the endogenous constructs and the statistical significance of all path estimations (Chin, 2010). According to Chin (2010), both the R<sup>2</sup> and the path coefficients serve as indicators of the degree to which the data provide support for the proposed model. The present study elucidated those four components of SME performance accounted for 39.25% of the variance in financial performance and 61.53% of the variance in non-financial performance, as depicted in Table 5. According to the data shown in Table 4, it can be observed that seven out of the eight routes demonstrate a statistically significant positive association. The results indicate that there is a significant positive association between financial support and both financial performance ( $\beta = 0.2324, p < 0.01$ ) and non-financial performance ( $\beta = 0.1727, p < 0.05$ ). The findings of this study indicate that internet support has a significant positive effect on the financial performance ( $\beta = 0.1123, p < 0.01$ ) and a substantial positive correlation with the non-financial performance ( $\beta = 0.2972, p < 0.01$ ) of small and medium-sized enterprises (SMEs) in Bangladesh. Similarly, the positive moderating effect of technology adoption on the relationship between financial support and financial success is evident ( $\beta = 0.127, p < 0.01$ ). In line with this, the adoption of technology was found to have a positive moderating effect on the association between internet support and both financial performance ( $\beta = 0.264, p < 0.01$ ) and non-financial performance ( $\beta = 0.213, p < 0.01$ ). The remaining portion of the hypothesis showed no substantial impact on the non-financial performance of small and medium-sized enterprises (SMEs). In addition, the blindfolding technique was utilised to calculate the predictive relevance (Q<sup>2</sup>) of the model's fit. The Q<sup>2</sup> statistic evaluates the effectiveness of the model in accurately representing the observed data and estimating its parameters (Chin, 2010). A model with a Q<sup>2</sup> value greater than zero indicates that the model possesses the essential attributes required for predictive relevance. The study achieved a cross-validated redundancy Q<sup>2</sup> of 0.2756 for financial performance and 0.4634 for non-financial performance, indicating predictive significance according to the recommendation of Fornell and Cha (1994), using an omission distance of 7. The model's goodness of fit (GoF) was also calculated in order to assess the model's performance. This study employed the criteria values outlined by Wetzels *et al.* (2009) to evaluate the goodness-of-fit



(GoF) values and ascertain the presence of global confirmation for the partial least squares (PLS) model. The present investigation observed a GoF value of 0.5874, which surpassed the established threshold of 0.36 for a substantial effect size of R<sup>2</sup>. Accordingly, the model exhibited a higher level of estimation accuracy compared to the baseline values, as indicated by the goodness-of-fit statistics (GoF small = 0.1, GoF medium = 0.25, GoF big = 0.36) presented in Table 5.

**Table 4** Summary of path coefficient and hypothesis testing for direct path.

Hypothesis	Direct Path	Std. Beta	Std. Error	t-Value	Decision
H1	Financial Support > Financial Performance	0.2324	0.1012	3.00*	Supported
H2	Financial Support > Non-Financial Performance	0.1727	0.0234	1.96*	Supported
H3	Internet Support > Financial Performance	0.1123	0.1299	2.84*	Supported
H4	Internet Support > Non-Financial Performance	0.2972	0.1423	2.61**	Supported
The stars indicate level of significance. **p < 0.01 (level of significance at 99%) and *p 0.05 (level of significance at 95%) (based on One-tailed test with 1000 bootstrapping)					

**Table 5** Summary of path coefficient and hypothesis testing for moderator.

Hypothesis	Path	Std. Beta	Std. Error	t- Value	P Values	Decision
H5	Moderating Effect 1 -> FP (FS*TA- FP)	0.127	0.051	2.88**	0.009	Supported
H6	Moderating Effect 2 -> FP (IS*TA- FP)	0.264	0.046	4.55**	0	Supported
H7	Moderating Effect 3 -> NFP (FS*TA- NFP)	0.158	0.041	0.110	0	Not Supported
H8	Moderating Effect 4 -> NFP (IS*TA- NFP)	0.213	0.042	5.61	0	Supported

Note: \*\*p < 0.01, \* p < 0.05, (based on two-tailed test with 1000 bootstrapping)

**Table 6** Goodness of Fit (GoF).

Constructs	AVE	R <sup>2</sup>
Financial Performance	0.6231	0.3925
Financial Support	0.6422	
Internet Support	0.6869	
Non-Financial Performance	0.6042	0.6153
Technology Adoption	0.6678	
Goodness of Fit (GoF)	0.5874	

## 7. Discussion

This study examined the influence of financial and internet support on the performance of small and medium-sized enterprises (SMEs), taking into account the moderating role of technology adoption. This study aimed to investigate the associations between financial support, internet support, financial performance, and non-financial performance of small and medium-sized enterprises (SMEs) in Bangladesh. The findings from the PLS-structural equation modelling (SEM) research revealed that both financial and internet support exhibited a statistically significant beneficial influence on the financial and non-financial performance of small and medium-sized enterprises (SMEs). Several of the results obtained from this study exhibit similarities with the findings reported in another research. This study has identified a statistically significant positive correlation between financial support and both the financial and non-financial performance of small and medium enterprises (SMEs) in Bangladesh. This discovery bears resemblance to the research conducted by Pham (2020) and Memon *et al.* (2019). It is imperative to offer the necessary financial and non-financial assistance to small and medium enterprises (SMEs) in order to bolster their operational effectiveness. The Present study

found the strong positive relationship among internet support, financial performance and non-financial performance of SME. Wilson, 2020 and Felix *et al.* (2019) found relationship between internet facilities and SME performance. Modern internet facility helps to upgrade SME policies and facilitates to avail different opportunities. Thus, it is obvious that internet support is most important for enhancing organizational performance. Moreover, the results of this study indicated a positive moderating impact of technology adoption on financial support, internet support, financial performance, and non-financial performance. This research suggests that the effective implementation of technology adoption might lead to enhanced performance in small and medium-sized enterprises (SMEs). The present study's findings establish a connection with prior research conducted by Ishtiaq *et al.* (2020) and Nuh (2019).

### *Limitations of the Study*

This study is conducted in certain locations in Bangladesh, thereby limiting its generalizability to the opinions and practices of small and medium-sized enterprises (SMEs) across the entire country. The present study employed a cross-sectional research approach, which is limited in its ability to establish causal relationships due to its temporal constraints. Conducting comprehensive confirmatory research on a large scale is necessary for an exploratory study in order to examine the hypotheses that have been proposed as a consequence of the investigation. Furthermore, it is important to conduct a comprehensive, large-scale survey in order to validate the findings. The authors proposed to examine the potential mediating role of technology adoption in the relationship between several support elements and the performance of small and medium-sized enterprises (SMEs).

---

## **8. Conclusion**

The significance of the SME sector cannot be overlooked by any nation, particularly in the case of Bangladesh, where the economy is facing challenges mostly attributed to inadequate funding, limited technological advancements, insufficient government support, and an ineffective marketing strategy. The government ought to implement a range of measures in order to bolster the resilience, expansion, and enhancement of the small and medium-sized enterprise (SME) sector. Therefore, the findings of this study ultimately indicate a noteworthy correlation between several elements, such as financial assistance and internet access, and the performance of small and medium-sized enterprises (SMEs), encompassing both financial and non-financial aspects. Additionally, the study reveals a beneficial moderating influence of technology adoption on this relationship. Furthermore, this study will function as a valuable reference for scholars conducting research on the small and medium-sized enterprise (SME) industry. Furthermore, this research has addressed a gap in the existing literature by examining the influence of financial and internet support on the performance of small and medium-sized enterprises (SMEs), while also considering the moderating effect of technology adoption. Moreover, this study proposes the utilization of technological adaptation as a moderating variable in the relationship between influencing factors and the performance of small and medium enterprises (SMEs), particularly in developing nations.

---

## **Compliance with Ethical Standards**

### *Disclosure of conflict of interest*

No conflict of interest to be disclosed.

---

## **References**

- [1] Ali, S., Wu, W. and Ali, S., 2022. Adaptive marketing capability and product innovations: the role of market ambidexterity and transformational leadership (evidence from Pakistani manufacturing industry). *European Journal of Innovation Management*, 25(4), pp.1056-1091.
- [2] Ali, Z., Gongbing, B. and Mehreen, A., 2018. Does supply chain finance improve SMEs performance? The moderating role of trade digitization. *Business Process Management Journal*, 26(1), pp.150-167.
- [3] Ahmad, N. Wilson, C., and Kummerow, L. 2011. Assessing the Dimensionality of Business Success: The Perspectives of Malaysian SME Owner-Managers. *Journal of Asia-Pacific Business*. 12(3): pp207–224.
- [4] Alam, M. M., Awawdeh, A. E. and Muhamad, A. I., 2021. Using E-Wallet for Business Process Development: Challenges and Prospects in Malaysia. *Business Process Management Journal*, 27(4), pp. 1142–1162. DOI: 10.1108/BPMJ-11-2020-0528.

- [5] Bagheri M, Mitchelmore S, Bamiatzi V., 2019. Internationalization orientation in SMEs: The mediating role of technological innovation. *Journal of International Management*. 25(1): pp.121–139.
- [6] Barney, J., 2001. Is the resource-based 'view' a useful perspective for strategic management research? Yes. *Academic of Management Review*, 2(1), 41–56.
- [7] Cheruiyot, A. K., 2020. The effect of financial perspective as a determinant of Performance in Small and Medium Enterprises a case of Elgeyo Marakwet Country, Kenya. *American Journal of Strategic Studies*, 2 (1), pp1-11.
- [8] Chin, W. W., 2010. How to write up and report PLS analyses. In *Handbook of partial least squares: Concepts, methods and applications* (pp. 655–690). Berlin and Heidelberg: Springer.
- [9] Cravo, T.A. and Piza, C., 2019. The impact of business-support services on firm performance: a meta-analysis. *Small Business Economics*, 53, pp.753-770.
- [10] Davcik, N.S., Cardinali, S., Sharma, P. and Cedrola, E., 2021. Exploring the role of international R&D activities in the impact of technological and marketing capabilities on SMEs' performance. *Journal of Business Research*, 128, pp.650-660.
- [11] Emejulu, G.; Agbasi, O.; and Nosike, C., 2020. Strategic agility and performance of small and medium enterprises in the phase of Covid-19 pandemic. *Int. J. Financ. Account. Manag.* 2(1), 41–50
- [12] Fernandes, N., 2020. Economic Effects of Coronavirus Outbreak (COVID-19) on the World Economy. IESE Business School Working Paper No. WP-1240-E.
- [13] Fitriasari, F., 2020. How do Small and Medium Enterprise (SME) survive the COVID-19 outbreak? *J. Inov. Ekon.* 5, 53–62.
- [14] Fornell, C., and Cha, J., 1994. Partial least squares. In R.P. Bagozzi (Ed.), *Advanced methods of marketing research*, Cambridge, MA: Blackwell. (pp. 52–78).
- [15] Fornell, C. and Larcker, D., 1981. Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18 (2), 382-388.
- [16] Hadi, S. and Supardi, S., 2020. Revitalization strategy for small and medium enterprises after Corona virus disease pandemic (covid-19) in Yogyakarta. *J. Xian Univ. Archit. Technol.* 12(5): pp 4068–4076.
- [17] Hervas-Oliver JL, Sempere-Ripoll F and Boronat-Moll C., 2021. Technological innovation typologies and open innovation in SMEs: Beyond internal and external sources of knowledge. *Technological Forecasting and Social Change* 5(2): pp.120-138.
- [18] Heymann, D.L., 2020. Data sharing and outbreaks: best practice exemplified. *The Lancet*, 395(10223), pp.469-470.
- [19] Hair Jr, J., Matthews, L., Matthews, R. and Sarstedt, M., 2017. PLS-SEM or CBSEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), pp.107-123.
- [20] Hair, J. F., Black, W. C., Babin, B. J., and Anderson, R. E., 2010. *Multivariate data analysis* (7th ed.): Englewood Cliffs: Prentice Hall.
- [21] Huang YL and Chen KP., 2019. Technological diversification and market performance - evidence from Taiwan's electronics industry. *Institutions and Economies*, 8(3): 71–84.
- [22] Ghafoor, Z. and Iqbal, M., 2007. Role of Internet in the SME Growth Strategies. *Luea University of Technology*, 7 (64), pp1-85.
- [23] Gomez-Trujillo, A.M. and Gonzalez-Perez, M.A., 2021. Digital transformation as a strategy to reach sustainability. *Smart and Sustainable Built Environment*, 11(4), pp.1137-1162.
- [24] Islam, M.A.; Igwe, P.A.; Rahman, M.; Saif, A.N.M., 2020. Remote working challenges and solutions: Insights from SMEs in Bangladesh during the COVID-19 pandemic. *Int. J. Qual. Innov.*
- [25] Ifinedo, P., 2011. Internet/e-business technologies acceptance in Canada's SMEs: an exploratory investigation. *Internet Research*, 21(3), pp.255–281.
- [26] Indarti, N. and Langenberg, M., 2004. Factors affecting business success among SMEs: Empirical evidences from Indonesia. *Proceedings of the Second Bi-Annual European Summer University 2004*, (19) 20 & 21 September 2004, University of Twente, Enschede, The Netherlands.

- [27] Ishtiaq, M., Songling, Y., Hassan, A., and Hayat, A., 2020. The Role of Financial Literacy in Resource Acquisition and Financial Performance; Moderating Role of Government Support. *International Journal of Business and Economics Research*. Vol. 9, No. 1, 2020, pp. 29-39.
- [28] Ismail, W. N., Mokhtar, M. Z., & Ali, A. R. (2014). Do IT helps SMEs gain better performance: A conceptual analysis on RBV. *International Journal of Management and Sustainability* 3, (5), 307–320.
- [29] Jalil, M.F., Ali, A., and Kamarulzaman, R. (2021). Does innovation capability improve SME performance in Malaysia? The mediating effect of technology adoption. *The International Journal of Entrepreneurship and Innovation*, SAGE, 3(5), PP1-15
- [30] Jiang, H., Siponen, M., and Tsohou, A., 2019. A Field Experiment for Understanding the Unintended Impact of Internet Monitoring on Employees: Policy Satisfaction, Organizational Citizenship behavior and Work Motivation. In Proceedings of the 27th European Conference on Information Systems (ECIS), Stockholm & Uppsala, Sweden, June 8-14, 2019. ISBN 978-1-7336325-0-8 Research Papers.
- [31] Kura, K. M., Abubakar, R. A., and Salleh, N. M., 2020. Entrepreneurial Orientation, Total Quality Management, Competitive Intensity, and Performance of SMEs: A Resource-Based Approach. *Journal of Environmental Treatment Techniques*, 8(1), pp61-72.
- [32] Le, H.; Nguyen, T.; Ngo, C.; Pham, T., and Le, T., 2020. Policy related factors affecting the survival and development of SMEs in the context of Covid 19 pandemic. *Manag. Sci. Lett.* 10, 3683–3692.
- [33] Lee CY, Huang YC and Chang CC., 2017. Factors influencing the alignment of technological diversification and firm performance. *Management Research Review*, 40(4): 451–470.
- [34] Liguori, E.W. and Pittz, T.G., 2020. Strategies for small business: Surviving and thriving in the era of COVID-19. *J. Int. Counc. Small Bus.* 1, 106–110.
- [35] Felix, C. A., Joy. E. E., and Irene. N. E., 2019. Monitoring IT and Internet Usage of Employees for Sustainable Economic Development in Nigeria: Legal and Ethical Issues. *Journal of Information Engineering and Applications*, 9(50), pp21-27
- [36] Lutfi, A.; Alkelani, S.N.; Al-Khasawneh, M.A.; Alshira'h, A.F.; Alshirah, M.H.; Almaiah, M.A.; Alrawad, M.; Alsyof, A.; Saad, M.; and Ibrahim, N., 2022. Influence of Digital Accounting System Usage on SMEs Performance: The Moderating Effect of COVID-19. *Sustainability*, 14, 15048. <https://doi.org/10.3390/su142215048>
- [37] Maduekwe, C.C., and Kamala, P., 2016. Performance measurement by small and medium enterprises in Cape Metropolis, South Africa, *Problems and Perspectives in Management*, 14 (2), pp.46-55.
- [38] Matarazzo, M., 2021. Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective', *Journal of Business Research*, 123(October 2020), pp. 642–656. DOI: 10.1016/j.jbusres.2020.10.033.
- [39] McGeever, N.; McQuinn, J.; and Myers, S., 2020. SME Liquidity Needs during the COVID-19 Shock. *Financial Stability Notes 2/FS/20*, Central Bank of Ireland.
- [40] Memon, A., Yong An, Z. and Memon, M.Q., 2020. Does financial availability sustain financial, innovative, and environmental performance? Relation via opportunity recognition. *Corporate Social Responsibility and Environmental Management*, 27(2), pp.562-575.
- [41] Muscio A and Ciffolilli A., 2018. Technological diversity in Europe: Empirical evidence from agri-food research projects. *Regional Studies* 52(3): 374–387.
- [42] Ng, H. S., Kee, D. M. H., and Ramayah, T., 2016. The role of transformational leadership, entrepreneurial competence and technical competence on enterprise success of owner-managed SMEs. *Journal of General Management*, 42(1), 23-43.
- [43] Nseobot, I.R., Simeon, I.I., Effiong, A.I., Frank, E.I., Ukpong, E.S. and Essien, M.O., 2020. COVID-19: The aftermath for businesses in developing countries. *International Journal of Business Education and Management Studies (IJBEMS)*. 7(3), pp92-110
- [44] Nuh, R., Ibrahim, M. D., and Rahman, A. A., 2019. The effect of Financial and non-financial Services on micro entrepreneurs' Economic Performance in Thailand: Moderating effect of Bank Monitoring. *International Journal of Entrepreneurship and Management Practices*, 2 (7), pp48 – 60.
- [45] Nyanga, T.; and Zirima, H., 2020. Reactions of small to medium enterprises in masvingo, Zimbabwe to covid 19: Implications on productivity. *Bus. Excell. Manag.* 10 (4), pp.22–32.

- [46] Ombi, N., Ambad, S. N. and Bujang, I., 2018. The Effect of Business Development Services on Small Medium Enterprises (SMEs) Performance. *International Journal of Academic Research in Business and Social Science*, 8(3), pp117-130.
- [47] Ozili, P. K., and Arun, T. (2020). Spillover of COVID-19: impact on the global economy. *European Journal of Innovation Management*, 21(3), pp.105-125.
- [48] Pham, T. M. D., 2020. On the relationship between total quality management practices and firm performance in Vietnam: The mediating role of non-financial performance. *Management Science Letters* 10 (2). pp1743–1754.
- [49] Puriwat, W. and Tripopsakul, S., 2021. Customer Engagement with Digital Social Responsibility in Social Media: A Case Study of COVID-19 Situation in Thailand. *J. Asian Financ. Econ. Bus.*, 8, 475–483.
- [50] Rahmawati, L., 2020. Fintech Syariah: Manfaat Dan Problematika Penerapan Pada UMKM. *Jurnal Masharif al-Syariah: Jurnal Ekonomi dan Perbankan Syariah*, 5(1), pp. 83–84.
- [51] Rubel, M. R. B. and Kee, D. M. H., 2015. High Commitment Compensation Practices and Employee Turnover Intention: Mediating Role of Job Satisfaction. *Mediterranean Journal of Social Sciences*, 6(6-S4), pp.321-332.
- [52] Rubel, M.R.B., Rimi, N.N., Yusliza, M.Y. and Kee, D.M.H., 2018. High commitment human resource management practices and employee service behaviour: Trust in management as mediator. *IIMB Management Review*, 30(4), pp.316-329.
- [53] Sanjaya, V. F., and Lampung, U. R., 2020. The mediating Role of company Non-financial Performance and Religiosity as a Moderating variable between learning orientation and Company Financial Performance. *Jurnal Manajemen Bisnis Islam*, 2 (1), pp.31-46.
- [54] Santhanamery, T., and Ramayah, T., 2015. Understanding the effect of demographic and personality traits on the e-filing continuance usage intention in Malaysia. *Global Business Review*, 16(1), 1–20. <https://doi.org/10.1177/0972150914553459>
- [55] Sansa, N.A., 2020. The Impact of the COVID-19 on the Financial Markets: Evidence from China and USA. *Electron. Res. J. Soc. Sci. Humanit.* 3(2), pp40-58
- [56] Sarker, S., and Palit, M., 2015. Strategic orientation and performance of small and medium enterprises in Bangladesh. *International Journal of Entrepreneurship and Small Business*, 24(4), pp51-66
- [57] Sekaran, U., and Bougie, R., 2010. *Research methods for business: A skill building approach* (5th ed.). London: John Willey & Sons Ltd.
- [58] Setiowati, R., 2015. The effects of ICT adoption on marketing capabilities and business performance of Indonesian SMEs in the fashion industry. *Journal of Business and Retail Management Research*, 10(1), pp. 100–115.
- [59] SME Foundation. (2022). SME Statistics, <http://www.smef.gov.bd/>
- [60] Shahadat, M.H., Nekomahmud, M., Ebrahimi, P. and Fekete-Farkas, M., 2023. Digital Technology Adoption in SMEs: What Technological, Environmental and Organizational Factors Influence in Emerging Countries? *Global Business Review*, 6(3), p.44-60.
- [61] Si S, Zahra SA, Wu X., 2020. Disruptive innovation and entrepreneurship in emerging economics. *Journal of Engineering and Technology Management* 13(5):pp.1–12. DOI:10.1016/j.jengtecman.2020.101601.
- [62] Utomo, M. N., Ariani, M., Safitri, J., and Kaujan, K., 2019. Entrepreneurship strategy for improving business performance using internet technology based business application. *European Journal of Management Issues*, 27(1-2), 36-45. doi:10.15421/191905.
- [63] Wilson, W. H., 2020. On the Strategic Impact of Internet of Things: The Development of a Research Framework. [https://www.researchgate.net/publication/333074480\\_The\\_Internet\\_of\\_Things\\_Review\\_and\\_Theoretical\\_Framework](https://www.researchgate.net/publication/333074480_The_Internet_of_Things_Review_and_Theoretical_Framework)
- [64] Wen J and Zheng L., 2020. Geographic technological diversification and firm innovativeness. *Journal of Financial Stability* 48:pp.1–14.
- [65] Wetzels, M., Odekerken-Schroder, G., and Van Oppen, C., 2009. Using PLS path modeling for assessing hierarchical construct models: guidelines and empirical illustration. *Management Information Systems Quarterly*, 33(1), 177-194.

- [66] Wilson, W. H., 2020. Effect of Internet of Things on Business Strategy: The Mediating Role of Marketing Intelligence Capability. 15(9):pp33-51
- [67] World Bank., 2020. The economic impacts of the COVID-19 crisis, <https://www.worldbank.org/en/publication/wdr2022/brief/chapter-1-introduction-the-economic-impacts-of-the-covid-19-crisis>
- [68] Zin, M. L. M and Ibrahim, H., 2020. The Influence of Entrepreneurial Supports on Business Performance among Rural Entrepreneurs. Annals of Contemporary Developments in Management & HR (ACDMHR), 2 (1), pp.31-41.