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Banking with purpose: the impact of CSR-S on customer behavior during the COVID-19

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Abstract

Purpose – This article examines the impact of banks' corporate social responsibility communication through social media (CSR-S), electronic word of mouth (eWOM), and brand reputation on consumer behavior during the COVID-19 crisis, with a focus on purchase intention.

Design/methodology/approach – The study employed a quantitative approach to analyze data from a survey of 621 Egyptian bank customers who followed the banks' social media pages and interacted with CSR-S initiatives. A genetic algorithm selected the most relevant variables affecting purchase intention. A Bayesian regression model was used to analyze the impact of CSR-S communication, eWOM, and brand reputation on purchase intention.

Findings – CSR-S initiatives, eWOM, and brand reputation were found to influence customer purchase intention. CSR-S initiatives can boost purchase intention by encouraging brand reputation and initiative sharing with friends and other customers. However, CSR-S negatively moderates the positive impact of eWOM and brand reputation on the predisposition to contract products and services with the bank.

Originality/value – This study addresses critical research gaps in CSR literature. Firstly, it examines the impact of CSR-S actions on customer behavior, a perspective less explored in previous research. Secondly, it investigates the intricate relationships between CSR-S, eWOM, brand reputation, and purchase intention, shedding light on their interplay, particularly during the COVID-19 pandemic. Additionally, this research extends CSR-S investigations to the competitive banking industry and focuses on a developing country context, enhancing the applicability of findings for Egyptian banks. Lastly, the study employs advanced methodologies to improve the accuracy of results.

Keywords Social media, Corporate social responsibility, CSR-S initiatives, COVID-19, Banking industry, Customer behavior

Paper type Research paper

1. Introduction

The rise of social media (SM) has transformed people's lives and interactions with companies (Dalla-Pria and Rodríguez-de-Dios, 2022). SM allows individuals to interact easily with each other and brands, letting them broaden their communication and promote brands (Camilleri, 2019). As a result, SM is becoming a vital part of corporate communication, allowing businesses to interact with the public and disseminate information daily (Troise and Camilleri, 2021). Corporate social responsibility (CSR) initiatives have also benefited from the

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widespread use of SM, which has transformed the way companies communicate their CSR activities to the public. Unlike offline CSR, online CSR enables people to interact and participate in the social responsibility activities of companies via SM platforms.

It is cost-effective and has a higher throughput than offline CSR communication. The competition between brands to communicate their emotional, ethical, and social position on the environment, society, and customers has made the use of SM for CSR programs a rich source of differentiation for brands, specifically during the unprecedented challenges posed by COVID-19. This pandemic triggered a crisis that swept the world (Qiu *et al.*, 2021). It forced people to stay at home, leading to a surge in SM usage. Banks and other companies quickly adapted to this change by using SM to manage their businesses and implement CSR strategies (Elia *et al.*, 2020). The pandemic posed major CSR-related challenges for companies in the banking industry. It tested their ability to meet their ethical and social obligations and develop CSR programs that targeted problems stemming from the outbreak of COVID-19 (Puriwat and Tripopsakul, 2022a, b; Al-Omoush, 2024).

It also presented an opportunity for banks to create new CSR programs and activities outside their core business (Chu *et al.*, 2020). CSR communication through SM platforms (CSR-S) has a range of effects on customer behavioral outcomes, including participation in charitable activities, CSR activities, and purchase intention. Although, recently, marketers and the banking sector have used SM as a brand communication tool (Yadav and Rahman, 2018), the psychological mechanisms through which CSR-S affects customers' attitudes and behaviors toward brands remain unclear. As a result, there is a lack of knowledge of how banks use SM to disseminate CSR initiatives to influence customer behavioral intentions, particularly during crises such as COVID-19. In this study, we analyze the effects of CSR-S initiatives adopted by banks on customer actions, eWOM, brand perception, and purchasing intention.

This research not only offers a new perspective into the dynamics of CSR communication via SM but also provides a unique lens into the banking industry in Egypt, shedding light on effective CSR-S communication that can benefit society during times of crisis. Our research methodology is advanced, enhancing the understanding of how CSR-S can drive change in the face of complex global challenges. The present study makes significant contributions to the existing body of literature. First, it examines the relationships between CSR-S, eWOM, brand reputation, and purchase intention in the banking industry throughout the COVID-19 pandemic, which makes it distinctive. More precisely, the study determines how CSR-S communication can enhance eWOM, brand reputation, and purchase intention using the initiatives proposed by banks through their SM accounts.

This research offers an original viewpoint by investigating the importance of CSR-S in the context of a worldwide emergency, such as the COVID-19 pandemic. By examining how banks can employ CSR-S initiatives, the research aims to address the challenges posed by the pandemic and promote societal well-being. Second, in contrast to the majority of prior research which has predominantly focused on organizational outcomes of CSR (Singh and Misra, 2021; Franco *et al.*, 2020), the present study examines the influence of bank-related CSR attributes that are communicated through SM on customer behavior. Concerning social issues, these CSR attributes are more likely to generate discussion on SM than those about products or services. The study also aims to improve scholars' understanding of how CSR-S in the banking industry can encourage customers to participate in charitable activities during the pandemic.

Third, the banking industry in Egypt was the focus of this study for two primary reasons. Firstly, the service sector has received minimal attention when exploring CSR. Secondly, the majority of CSR research has been conducted in developed countries. However, given the context-dependent nature of CSR, these findings cannot be extrapolated to developing countries such as Egypt. The banking sector in Egypt, like in other developing countries, is

homogeneous and competitive, with a strong emphasis on customer retention. With most banks offering similar products and services, retaining customers is difficult and customer switching is a significant risk. In this context, implementing CSR-S initiatives can be an effective marketing strategy to build a positive brand reputation and spread positive eWOM. Finally, the study employed a sophisticated combination of techniques to achieve precise results. A metaheuristic optimization algorithm, known as the genetic algorithm, enabled the selection of the most relevant variables for subsequent Bayesian regression models.

This approach is particularly effective for dealing with consumer heterogeneity. Overall, this study offers a fresh perspective, rigorous methodology, and an expanded framework, thereby significantly enhancing its contribution to the existing body of knowledge.

2. Literature review and hypothesis devolvement

Several theories are used to identify links between the variables under study. These theories are highly relevant to this research. The theory of norm reciprocity (Gouldner, 1960) suggests that individuals feel obliged to respond positively when others do something beneficial for them. When a bank performs socially responsible actions on SM, it establishes a positive norm that creates an expectation of customer reciprocity. Thus, customers are more inclined to make purchases when they perceive the bank as socially responsible. Attribution theory (Heider, 1958) provides insights into the underlying reasons behind individual and consumer behaviors (Singh *et al.*, 2021).

In the present study, attribution theory explains how customers distinguish and evaluate socially responsible brands or organizations. The theory of planned behavior – TPB – (Ajzen, 1991) indicates that a positive brand reputation can positively impact customer attitudes, create favorable subjective norms, and enhance perceived behavioral control, ultimately increasing purchase intention. Finally, social support theory (Cohen and Wills, 1985) suggests that information obtained from reliable, trustworthy fellow customers, plays a role in shaping customer purchase intention. Then, the SM information and reviews about the CSR-S initiatives of banks influence the customer purchase intention.

2.1 The relationship between CSR-S initiatives and purchase intention

Research provides empirical evidence of a connection between a company's CSR and purchase intention (Bae *et al.*, 2019; Bianchi *et al.*, 2019; Chu and Chen, 2019; Wu and Zhu, 2021; Li *et al.*, 2024). The quantity and type of CSR information shared with customers are characteristics that affect the appraisal of goods, firms, and purchase intention (Badenes-Rocha *et al.*, 2019). Corporate responsibility can influence customer purchase decisions when a brand's products or services include ethical offerings that reflect a commitment to protecting consumer interests. Arachchi and Samarasinghe (2023) observed a significant positive relationship between perceived CSR and customer purchase intention among retail customers in Sri Lanka. To clarify the relationship between CSR-S and purchase intention, this study draws on attribution theory (Heider, 1958) and the theory of norm reciprocity (Gouldner, 1960).

Following these theories, customers should be more likely to view a company positively if they see that it engages in socially responsible practices. The theory of norm reciprocity also predicts that an organization's CSR-S initiatives will result in favorable customer support (Gouldner, 1960). Puriwat and Tripopsakul (2021) concluded that a company's social responsibility initiatives on SM affect customer purchase decisions and intentions. In such cases, customers feel that the company cares about their moral and economic desires and interests. Research suggests that consumers primarily view companies' CSR-S actions favorably, with such actions increasing the likelihood that they will make a purchase

(Bialkova and Te Paske, 2020; Chu and Chen, 2019; Cheng *et al.*, 2021). Therefore, a firm's CSR-S initiatives with customers contribute to developing a socially responsible brand image, which is crucial for influencing purchase intention and choices (Mostafa and ElSahn, 2016).

Amid intense market competition, numerous companies now view CSR-S as a strategic tool. Along with their products, companies see CSR-S as a way to establish positive relationships with stakeholders, achieve long-term growth, and enhance customer behavioral intentions, including purchase intention (Troise and Camilleri, 2021). The way consumers perceive a company's CSR initiatives can have a positive impact on their attitude toward the company. This positive attitude in turn influences purchase intention (Esposito and Ricci, 2021). In sum, it is assumed that when a bank communicates its CSR-S initiatives to customers on SM, customers are likely to reciprocate with positive behavior, ultimately influencing their purchase intention. Accordingly, the following hypothesis is proposed:

H1. During the COVID-19 pandemic, banks' CSR-S initiatives have had a positive influence on customer purchase intention.

2.2 The relationship between brand reputation and purchase intention

Brand reputation has been found to exert a positive impact on stakeholder outcomes and behavioral intentions through consumer perceptions and attitudes. Such behavioral intentions include customer purchase intention (Hengboriboon *et al.*, 2022). Positioning brand reputation as an attitude in the TPB provides a comprehensive theoretical approach and a valuable diagnostic tool for managers. Under this approach, a positive brand reputation influences attitudes, creates supportive subjective norms, and enhances perceived behavioral control, leading individuals to engage with the brand and purchase intentions. Additionally, signaling theory suggests that brand reputation communicates details about the inherent intangible features of products such as quality, especially in the absence of alternative methods of assessment. Consequently, brand reputation may have an immediate impact on customer behavioral intentions (Jufri *et al.*, 2022).

Multiple studies have confirmed the impact of brand reputation on purchase intention. According to Maden *et al.* (2012), a positive brand reputation causes customers to perceive transactions as advantageous, thereby reducing costs associated with searching for information amid uncertainty and asymmetry. Customers also link a favorable reputation to superior quality, which enhances their satisfaction with purchases (Ronaldo *et al.*, 2018). Furthermore, using a well-known brand has been found to boost consumers' sense of self-worth and pride (Agmeka *et al.*, 2019). Caruana *et al.* (2006) conceived brand reputation as an attitude that directly affects the intention to perform a specific behavior.

Scholars have also discovered that customer behavioral intentions are ultimately formed by customers' cognitive and emotional appraisals of brand reputation (Balakrishnan and Foroudi, 2020; Bianchi *et al.*, 2019; Qalati *et al.*, 2021). Balakrishnan and Foroudi, (2020) suggest that using SM in a balanced manner can greatly enhance the impact of brand reputation on purchase intention. Reputable businesses are more likely to attract more customers, and a positive brand reputation has a positive impact on consumer behavioral outcomes such as purchase intention. Based on these findings, the following hypothesis can be formulated:

H2. During the COVID-19 pandemic, the brand reputation of banks has a positive influence on customer purchase intention.

2.3 The relationship between eWOM and purchase intention

This study uses social support theory (Cohen and Wills, 1985) to explore the relationship between eWOM and purchase intention. Social support theory suggests that customers often

seek social support from other customers, friends, and relatives when making purchasing decisions. Hence, credible and influential eWOM is highly valued (Wang *et al.*, 2018) and an important precursor of purchase intention (Erkan and Evans, 2016; Elhajjar, 2022; Halim and Keni, 2022; Puriwat and Tripopsakul, 2022a). Aravindan *et al.* (2023) concluded that promoting positive eWOM by emphasizing sustainable practices sparks public interest in green purchases. Likewise, Mainardes *et al.* (2023) found that eWOM quality and credibility shape consumer attitudes toward eWOM and purchase intention of cosmetics. SM provides an ideal platform for users to share information and spread viral messages.

Rahaman *et al.* (2022) indicated that eWOM information quality, credibility, utility, and ease of use are crucial in determining online consumer intentions and buying behavior on SM. Nofal *et al.* (2022) investigated the connection between eWOM on discussion forums and purchase intention. They found that the similarity between forum topics and consumer interests affects purchase intention. Similarly, Wang *et al.* (2016) evaluated the effect of eWOM interactions on purchase intention in the context of SM platforms. They found that eWOM communication has positive effects on purchase intention.

In the context of the present study, reviews and comments about CSR-S initiatives on SM platforms are seen as trustworthy and reliable sources of information by consumers, making them a key reference for purchase decisions (Bialkova and Te Paske, 2020; Kunja *et al.*, 2022; Khan *et al.*, 2024). Therefore, given the social support theory and the reliance of many customers on social connections, it is assumed that the sharing of customer comments and reviews of CSR-S initiatives among friends and relatives positively affects purchase intention. Hence, the following hypothesis can be formulated:

H3. During the COVID-19 pandemic, the eWOM of customers has a positive influence on purchase intention in the banking industry.

2.4 The relationship between CSR-S initiatives, brand reputation, eWOM, and purchase intention

Attribution theory holds that an individual's current and past behavior predicts future behavior (Weiner, 1985). Consumers try to understand the causes that incentivize the actions of firms (Kelley and Michela, 1980). These attributional inferences affect how perceptions toward the organization affect purchase intention, with these perceptions derived from company reputation or eWOM (Ellen, 2006; Reimer and Benkenstein, 2018). The literature cites two drivers of corporate behavior: altruistic motivations and selfish motivations. Altruistic motivations are built on ethical ideals (Ellen *et al.*, 2000).

In such cases, consumers consider a company's concern for a social cause as the trigger for their willingness to act (Becker-Olsen *et al.*, 2006). However, people may also believe that companies are driven by financial interests (Ellen, 2006). This conclusion is especially common in the banking sector, where banks are rarely viewed as socially responsible organizations (Forcadell and Aracil, 2017). Skepticism can explain this negative attitude toward intrinsic motivations (Mangleburg and Bristol, 1998).

Skepticism is a feeling that causes customers to question the social commitment of a company because they feel that it is driven by the selfish goal of maximizing profits (Alcañiz *et al.*, 2010; Skarmeas and Leonidou, 2013). In normal circumstances, CSR activities may encourage consumers to develop positive perceptions of such behaviors. However, at specific times, such as during the COVID-19 crisis, the poor image of financial institutions means that consumers may be unconvinced that they have a genuine interest in CSR. This skepticism may be especially strong if the companies are more socially responsible than they had been previously. In this context, doubts arise about the reasons for CSR actions and about the willingness to display an ethical long-term commitment to society (Parguel *et al.*, 2011). Given these cognitive biases, when CSR-S increases, the positive effect of eWOM and brand

reputation on purchase intention is expected to weaken. Therefore, the following hypotheses are proposed:

H4. During the COVID-19 pandemic, the interaction of brand reputation and purchase intention is moderated by banks' CSR-S initiatives.

H5. During the COVID-19 pandemic, the interaction of eWOM and purchase intention is moderated by banks' CSR-S initiatives.

3. Methodology

3.1 Data collection and sample characteristics

The data were collected using web-based surveys in large metropolitan areas in Egypt where banking institutions actively engaged in CSR-S efforts during the COVID-19 pandemic. These cities were chosen because they had numerous branch offices of the selected banks and large populations. The questionnaire included two screening questions. The first confirmed that the participant had a bank account and followed at least one of the bank's SM accounts. The second assessed participants' level of SM activity. The questionnaire comprised three sections. The first collected preliminary data (SM usage, bank name, and screening questions). The second collected data on the main variables. The third collected demographic data. The authors selected respondents who met specific inclusion criteria.

These inclusion criteria were being an Egyptian citizen, aged older than 18 years, an SM user, having interacted with the bank's social responsibility messages, and regularly engaging with the bank's SM accounts. A total of 621 Egyptian customers participated in the study. The sample was almost equally split between men (52.5%) and women (47.5%) with many participants holding a bachelor's degree (52.5%).

The main variables were measured using pre-existing scales adopted from other studies (see Table 1). Respondents answered using a five-point Likert scale that ranged from 1 (*strongly disagree*) to 5 (*strongly agree*). The scales used in this study were translated into Arabic to ensure linguistic accuracy and cultural relevance. Two bilingual translators independently translated the scales from the original language to Arabic, while maintaining semantic equivalence. A reconciliation meeting was held to address any discrepancies and reach a consensus on the final translated version. To assess the clarity and appropriateness of the translated scales, a pilot study was conducted with Arabic-speaking participants. Their feedback was collected and used to refine the translation, ensuring understanding and cultural suitability. The translation process aimed to address validity concerns.

The psychometric properties of the measurement model were evaluated (Hair *et al.*, 2021). The estimated CFA model in Table 1 suggests an acceptable fit ($\chi 2 = 372.58$, $p < 0.01$; SRMR = 0.036; CFI = 0.960; TLI = 0.953; RMSEA = 0.050). The internal consistency of all constructs was above the recommended thresholds, with all Cronbach's alpha and composite reliability (CR) scores exceeding 0.70. Convergent validity was ensured because the standardized factor loadings of all items were high and significant. Also, the average variance extracted (AVE) was greater than 0.50 for all factors. Following the Fornell and Larcker (1981) criteria, discriminant validity was also met, with the AVE of the constructs being greater than the square of the correlations between factors.

3.2 Data analysis

This subsection presents a pioneering method designed to meet the research aims. A genetic algorithm was used to select the most relevant variables affecting the purchase intention [1]. A Bayesian regression model was used to deal with consumer heterogeneity and analyze the

Table 1. Measurement scale

Variables	Adapted/ adopted/self-mad	Citation	Items	Std. loading	Alpha Cronbach	CR	AVE
CSR-S	Adapted	Kang and Hustvedt (2014), Puriwat and Tripopsakul (2021)	CSR1. The bank has committed to using a portion of its profits to help communities and societies via social media during the COVID-19 pandemic	0.688*	0.848	0.848	0.527
			CSR2. During the COVID-19 pandemic, the bank gave back to the communities where it does business via social media platforms	0.718*			
			CSR3. The communities and societies have benefited from bank contributions through social media platforms during the COVID-19 pandemic	0.737*			
			CSR4. The bank integrates digital charitable contributions into its business during the COVID-19 pandemic	0.725*			
			CSR5. The bank is interested in corporate giving through social media platforms during the COVID-19 pandemic	0.759*			
BR	Adapted	Veloutsou and Moutinho (2009)	BR1. I think this bank's brand on social media is very successful among other bank brands	0.705*	0.803	0.804	0.506
			BR2. I think the bank brand is highly regarded and honesty on social media platforms	0.717*			
			BR3. I think the bank brand is trusted on social media platforms	0.684*			
			BR4. I believe the bank's brand on social media platforms will have excellent development prospects	0.740*			
eWOM	Adapted	Chu and Chen (2019), Kwok *et al.* (2019)	eWOM1. I would "Like" those bank social responsibility initiatives and messages on social media	0.679*	0.859	0.860	0.507
			eWOM2. I would "Share" those bank social responsibility initiatives and messages	0.715*			
			eWOM3. I would "Comment positively" those bank social responsibility initiatives and messages	0.705*			
			eWOM4. I will spread the positive word among my friends and acquaintances about the bank's social responsibility initiatives on social media	0.747*			
			eWOM5. I would recommend this bank products and services to my friends on social media	0.724*			
			eWOM6. If my friends or acquaintances are looking to deal with a bank through social media platforms, I will tell them about my experience of dealing with this bank	0.698*			

(*continued*)

Table 1.

Variables	Adapted/ adopted/self-mad	Citation	Items	Std. loading	Alpha Cronbach	CR	AVE
PI	Adapted	Prendergast *et al.* (2010)	PI1. After looking at the social responsibility campaigns and initiatives that the bank shared on social media platforms during the COVID-19, dealing with this bank will be my first choice compared to other banks	0.695*	0.805	0.806	0.509
			PI2. I will purchase the bank's products and services the next time I need these services in the future	0.716*			
			PI3. I recommend the bank's products and services to friends or others on social media	0.712*			
			PI4. After looking at the social responsibility campaigns and initiatives that the bank shared on social media platforms during the COVID 19, I will try its products and services	0.731*			

Note(s): *$p < 0.01$
Source(s): Table by authors

impact of the main variables on purchase intention. This sophisticated combination of techniques contributes to research on CSR-S in the banking industry.

3.2.1 Genetic algorithm. This machine learning tool selects the most useful subset of predictors to explain the customer purchase intention. First, a population of 50 chromosomes was randomly created to represent different combinations of variables used in the regression. These candidate models were coded with sequences of identical length that matched the total number of predictors. Each element in the chains is identified with each variable.

These elements took the value 1 if the regressor was present when the estimation was performed, and 0 otherwise. To evaluate the fitness of each of these potential solutions, the Akaike information criterion (AIC) is used (Scrucca, 2013). The AIC enabled the selection of the model that most adequately described a high-dimensional unknown reality. Only the fittest chromosomes reproduced, thus transmitting their genetic information to their offspring. In this competitive environment, there are two important aspects: exploration and exploitation. Exploration creates diversity in the population through crossover (which combines part of the genotype of two parent chromosomes belonging to the mating group) and mutation (which randomly alters these genes).

Following Scrucca (2013) probabilities of 80 and 10% were assigned to each of these genetic operators, respectively. Exploitation aims to reduce heterogeneity by selecting the chromosomes with the highest fitness at each stage. An elitist strategy was employed by allowing 5% of the variable combinations with the lowest AIC to survive. This stochastic search algorithm was used to perform a sequential eval 100 generation convergence criterion was met at the end of all iterations, this statistical technique returned the optimal solution $\varphi^* \equiv \arg max_{\varphi_i^{(k)}} AIC(\varphi_i^{(k)})$.

3.2.2 Bayesian regression models. Once the subset of predictors had been selected, Bayesian regressions were used to explain purchase intention. Bayesian models were chosen for two reasons: (1) the parameters included in these regressions are considered random (so their distribution can be estimated, and probabilistic judgments can be made about the hypothesized relationships) (Muth *et al.*, 2018); and (2) these models are more accurate for small samples (which is the case in most studies that use surveys to collect data) (Hahn and Doh, 2006). The main equation used to evaluate the theory and hypotheses presented in this paper is the following:

$$PI_n = \beta_0 + \beta_1 CSR\_S_n + \beta_2 BR_n + \beta_3 eWOM_n + \sum_{h=4}^{8} \beta_h z_{hn} + \omega_n \quad (1)$$

Here, z_{hn} is the set of control variables included in the model, and ω_n is the error term. Because no studies have used this methodology to make causal inferences, the parameters β of the predictors are considered *a priori* to follow a normal distribution with mean 0of and standard deviation 1of 00. A Gaussian specification was used for the error term, with variance $\sigma_\omega^2 \sim InvGamma(0.01, 0.01)$.

Using such uninformative values prevented incurring significant biases in the estimations. Finally, the impact of two moderating effects was evaluated by interacting the variable CSR_S_n with BR_n and $eWOM_n$ in Equations (2) and (3), respectively:

$$PI_n = \beta_0 + \beta_1 CSR\_S_n + \beta_2 BR_n + \beta_3 eWOM_n + \beta_4 CSR\_S_n \times BR_n + \sum_{h=5}^{9} \beta_h z_{hn} + \omega_n \quad (2)$$

$$PI_n = \beta_0 + \beta_1 CSR\_S_n + \beta_2 BR_n + \beta_3 eWOM_n + \beta_4 CSR\_S_n \times eWOM_n + \sum_{h=5}^{9} \beta_h z_{hn} + \omega_n \quad (3)$$

In these regressions, the Markov Chain Monte Carlo (MCMC) method was used. This method enabled the simulation of the posterior distribution. Specifically, the Gibbs algorithm was used because of its high efficiency in taking less time to explore these domains. To avoid pseudo-convergence problems arising from the possible multimodality of the posterior distribution, the procedure used 75,000 iterations (with different initial values) of four sequences of random vectors that satisfied the Markov property. The first 50,000 draws were not used to ensure that all chains converged stationarily to the same set of values. The autocorrelation was reduced by using 1 out of 25 iterations of the 25,000 computed per sequence. For further methodological details (Rossi *et al.*, 2005).

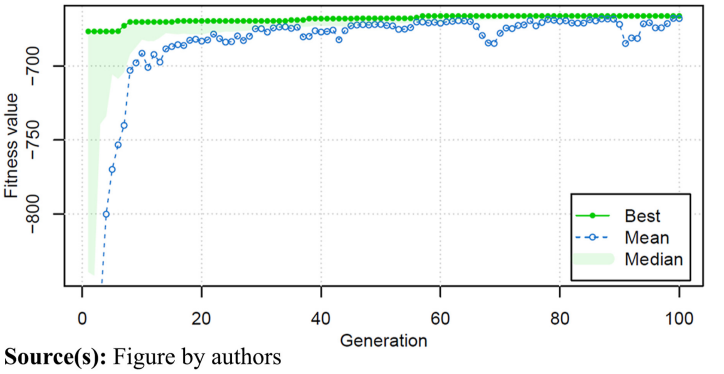
4. Findings

To identify the most effective predictors of consumer purchase intention in the estimated Bayesian regressions, a genetic algorithm was used. Figure 1 summarizes this stochastic search process by plotting the fitness values associated with each of the 100 generations considered.

Table 2 shows the descriptive statistics and correlation matrix. First, the constructs related to banks' CSR on SM, brand reputation, and eWOM were calculated using the mean of the items in the scales. The variable relating to the number of hours per day that individuals spent on SM in their relations with banks was included, as was a dummy variable that took the value 1 if the most heavily used platform by individuals was the bank app, and 0 otherwise. This item was included to determine whether they preferred Facebook, Twitter, Instagram, WhatsApp, or YouTube. Lastly, sociodemographic predictors for age, employment status (full-time employment or otherwise), and education level (included as an ordinal variable).

Table 3 displays the results of the three Bayesian models (see Methodology). To ensure the validity of the results, multiple tests were conducted. First, multicollinearity was tested by analyzing the variance inflation factor (VIF). The average value of this test was 1.55 in Model 1, 8.63 in Model 2, and 8.42 in Model 3. Multicollinearity did not appear to exist in this study because these values did not exceed the threshold of 10 established in the literature (Hair *et al.*, 2021).

Second, the Gelman-Rubin test ($\widehat{R}$) verified whether all four Markov chains reached the same stationary posterior distribution. This statistic did not exceed the threshold of 1.2 established by (Brooks and Gelman, 1998). Hence, it was assumed that there were no convergence problems. The average efficiency was greater than 99% for all models. Furthermore, the acceptance rate of the proposed magnitudes for the parameters was 100%. Consequently, no convergence problems were detected. We reach the same conclusions when analyzing the graphs linked to the main theoretical predictors of interest included in Figure 2. Regarding the goodness of fit, the deviation information criterion (DIC) was calculated, along



Source(s): Figure by authors

Figure 1.
Graphical summary of the fitness values of the chromosomes in each of the generations used in the genetic algorithm

Table 2. Descriptive statistics of the main variables and correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Consumers' purchase intentions	1								
(2) CSR-S	*0.6097*	1							
(3) BR	*0.6582*	*0.5908*	1						
(4) eWOM	*0.7619*	*0.6482*	*0.7210*	1					
(5) Time in social media (with banks)	*0.0807*	−0.0090	0.0406	0.0644	1				
(6) Bank app	*0.1892*	*0.2478*	0.0740	*0.1594*	*−0.1126*	1			
(7) Age	*0.1269*	*0.1487*	−0.0003	0.0632	*−0.0897*	*0.3884*	1		
(8) Work status (full time)	0.0719	−0.0159	−0.0136	−0.0034	−0.0609	−0.0086	*0.1053*	1	
(9) Education	0.0235	*−0.1073*	−0.0060	−0.0650	0.0192	−0.0614	0.0472	*0.2431*	1
Observations	621	621	621	621	621	621	621	621	621
Mean	3.9682	3.9021	4.0636	4.0048	2.6377	0.1804	32.1288	0.3929	3.0032
SD	0.6772	0.7404	0.6726	0.6520	1.1691	0.3848	11.8893	0.4888	0.8443
Min	1	1	1	1	1	0	18	0	1
Max	5	5	5	5	4	1	70	1	4

Note(s): Correlations marked in italic are statistically significant at a 95% confidence level
Alpha Cronbach (α) = CSR-s **(**0.85), BR (0.80), eWOM (0.86), PI (0.81)
Source(s): Table by authors

Table 3.
Results of Bayesian regression models using consumers' purchase intentions as the dependent variable (standard errors in parentheses)

	Model 1				Model 2				Model 3			
	Estimat	Probability coefficients + or −	$\widehat{R}$	Efficie	Estimat	Probability coefficients + or −	$\widehat{R}$	Efficie	Estimat	Probability coefficients + or −	$\widehat{R}$	Efficie
Intercept	0.1362 (0.1403)	83.55%	1.0000	0.9937	−0.2420 (0.3266)	77.05%	1.0001	0.9945	−0.1905 (0.3212)	72.36%	1.0000	0.9896
Predictors												
CSR-S	0.1374 (0.0311)	100.00%	1.0000	0.9971	0.2472 (0.0912)	99.65%	1.0000	0.9921	0.2333 (0.0898)	99.49%	1.0000	0.9925
BR	0.1955 (0.0371)	100.00%	1.0001	1.0000	0.2971 (0.0873)	99.96%	1.0001	1.0000	0.1927 (0.0369)	100.00%	1.0000	0.9909
eWOM	0.5344 (0.0405)	100.00%	1.0000	0.9932	0.5308 (0.0401)	100.00%	1.0003	0.9870	0.6242 (0.0889)	100.00%	1.0000	0.9943
Interaction effects												
CSR-S × BR					−0.0283 (0.0221)	90.10%	1.0001	0.9941				
CSR-S × eWOM									−0.0252 (0.0222)	87.06%	1.0000	0.9936
Control variables												
Time in social media (with banks)	0.0309 (0.0143)	98.45%	1.0000	1.0000	0.0317 (0.0144)	98.56%	1.0000	1.0000	0.0319 (0.0144)	98.62%	1.0001	1.0000
Bank app	0.0815 (0.0482)	95.56%	1.0000	0.9930	0.0844 (0.0482)	96.04%	1.0000	1.0000	0.0856 (0.0482)	96.19%	1.0001	1.0000
Age	0.0028 (0.0015)	96.69%	1.0000	0.9941	0.0029 (0.0015)	96.97%	1.0001	1.0000	0.0028 (0.0015)	96.76%	1.0001	0.9927
Work status (full time)	0.0872 (0.0352)	99.40%	1.0001	0.9888	0.0886 (0.0351)	99.46%	1.0001	0.9941	0.0894 (0.0351)	99.46%	1.0000	0.9930
Education	0.0467 (0.0205)	98.91%	1.0001	0.9931	0.0476 (0.0205)	98.98%	1.0000	1.0000	0.0472 (0.0205)	98.91%	1.0000	0.9937
σ_w^2	0.1693 (0.0097)	100.00%	1.0000	1.0000	0.1692 (0.0097)	100.00%	1.0000	0.9964	0.1693 (0.0097)	100.00%	1.0001	1.0000

(*continued*)

	Model 1 Probability coefficients + or −			Model 2 Probability coefficients + or −			Model 3 Probability coefficients + or −		
	Estimat	$\widehat{R}$	Efficie	Estimat	$\widehat{R}$	Efficie	Estimat	$\widehat{R}$	Efficie
Observations	621			621			621		
Avg. accept. rate	100.00%			100.00%			100.00%		
Avg. efficiency	99.53%			99.62%			99.46%		
Avg. DIC	668.4618			668.7275			669.0391		
Avg. log (ML)	408.3498			416.0728			416.2789		
Log (BF)				−7.7230			−7.9291		

Source(s): Table by authors

Table 3.

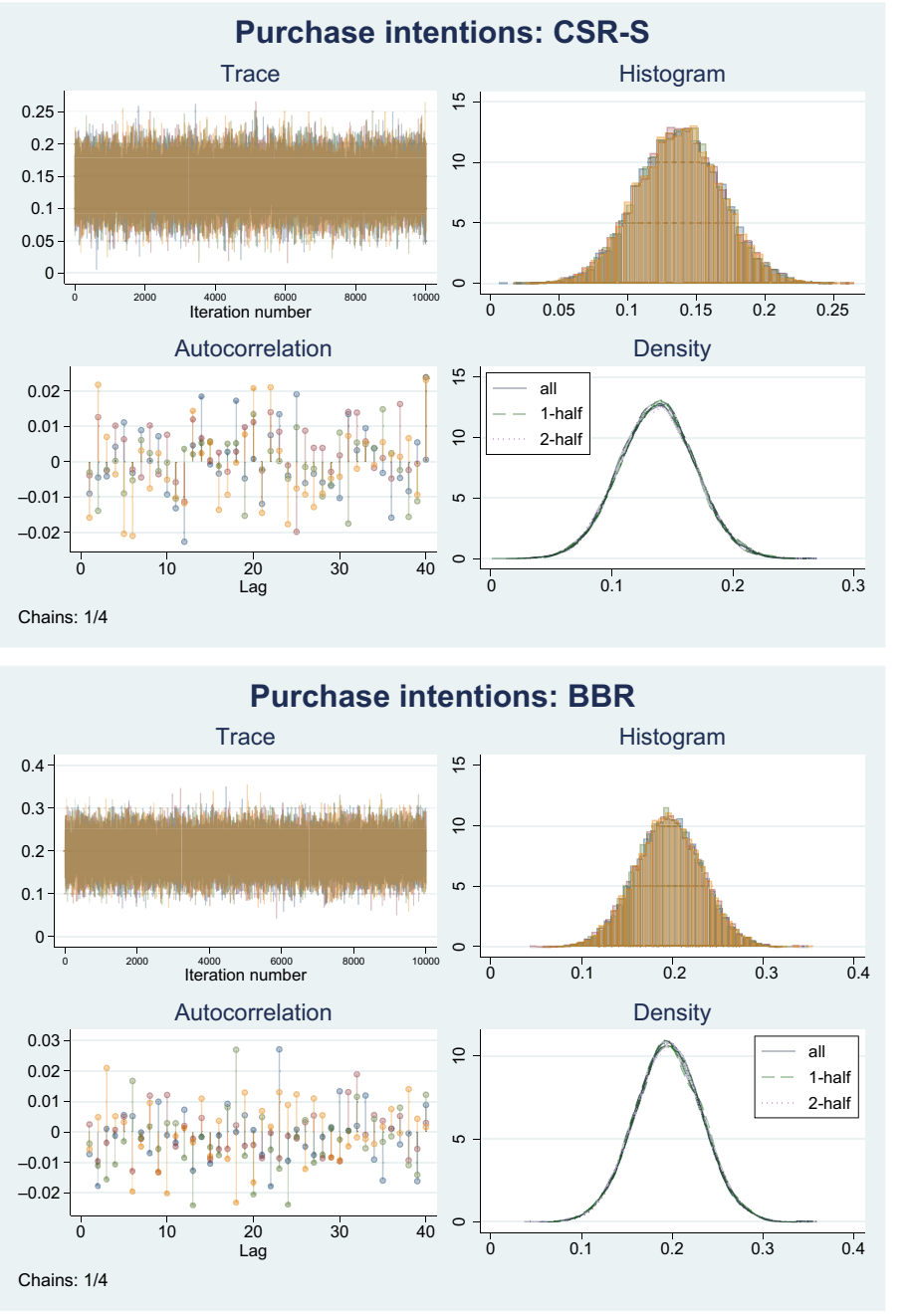
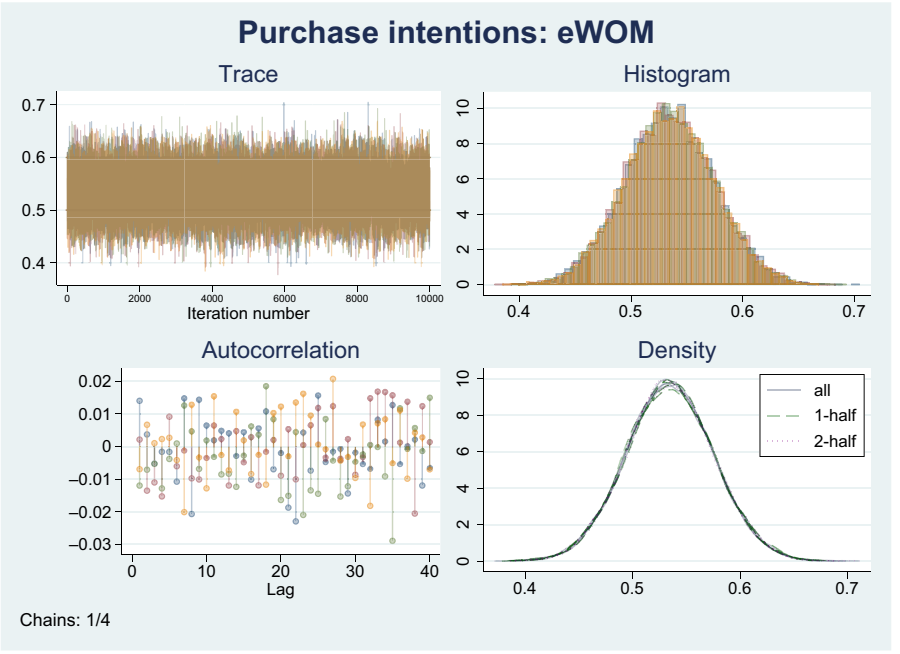
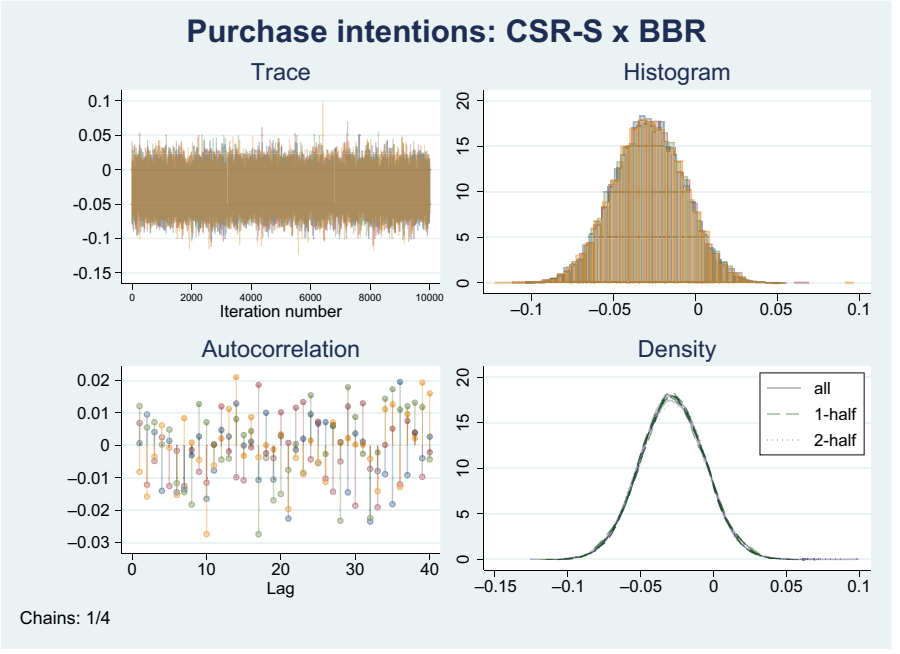


Figure 2.
Graphical summaries and convergence diagnostics for simulated posterior distribution: trace plots, auto correlation plots, and distributional plots

(*continued*)





(*continued*)

Figure 2.

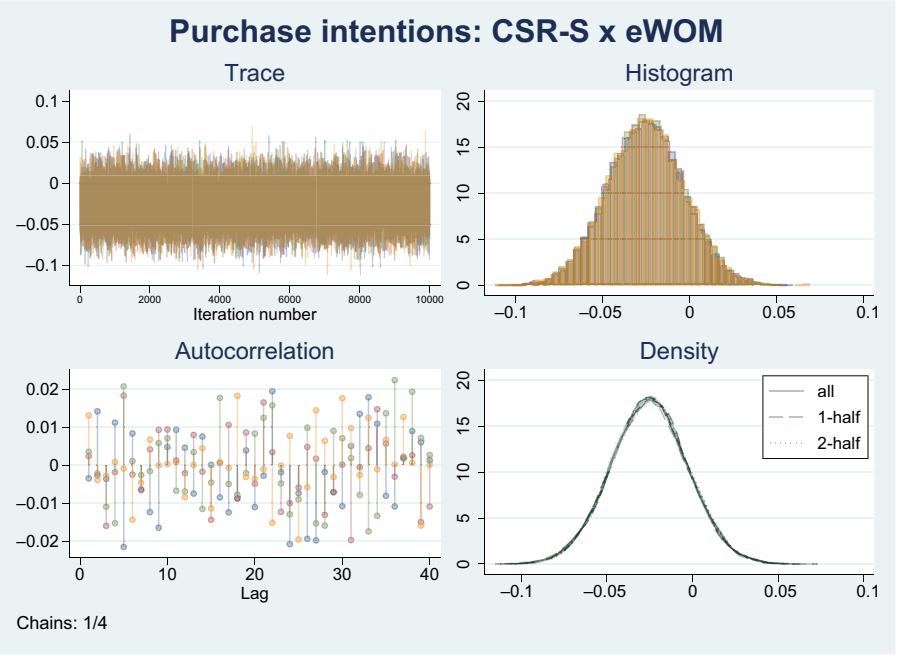


Figure 2.

with the log marginal likelihood (using the Laplace-Metropolis approximation) of the three specifications. Model 1 was preferable to the other two models because of its lower value for the first of the indicators (668.4618) and higher value for the second (−408.3498). Finally, Model 1 had the highest posterior probability (99.92%) based on the observed data. Thus, the results are interpreted concerning the first regression. The discussion only refers to the other two regressions about the interaction effects.

Third, measures were taken to address the possible existence of omitted covariate endogeneity. The impact threshold of confounding variables (ITCV) and the robustness of inference to replacement (RIR) tests were employed. For methodological details (Busenbark *et al.*, 2022). According to the ITCV, the square root of the product of the correlations between the omitted covariate and the dependent variable and the omitted covariate and the predictors of theoretical interest should be greater than 0.325 to give a spurious finding ($\alpha = 0.05$). The controls used in this study had no correlations with these variables above these thresholds (see Table 2). Therefore, it was highly unlikely that the existence of confounding factors would invalidate the results. The same conclusions were reached using the RIR. In the worst-case scenario, at least 55.582% of the estimated effect would have to be biased to alter the findings.

Results in Table 3 are used to test the hypothesized relationships. First, 100% of the posterior distribution of the variable CSR-S in Model 1 has positive values. Therefore, a greater perception that the bank used SM for CSR activities during the COVID-19 pandemic increases consumer purchase intention. This result supports Hypothesis 1.

Regarding Hypothesis 2, brand reputation has a positive impact on the customer's purchase intention. If the bank's brand has a higher reputation on SM and excellent development prospects, it is 100% likely to increase consumer purchase intention. As for

Hypothesis 3, there is a 100% chance that eWOM has a positive influence on the customer purchase intention. These results validate Hypotheses 2 and 3.

Finally, the analysis examined the interaction between banks' CSR-S and brand reputation/eWOM and their effects on consumer purchase intention in Models 3 and 4. The results show that 90.10 and 87.06% of the values associated with the posterior distributions of these two parameters are negative. These results support Hypotheses 4 and 5 because it is highly likely that CSR-S negatively moderates the positive impact of brand reputation and eWOM on purchase intention.

5. Discussion

The outbreak of COVID-19 has accelerated digital transformation. Banks have played a crucial role in promoting digital social responsibility during this period. Consumers have reported that a brand's response to the pandemic heavily influenced their likelihood of purchasing products or services from that brand (Soto-Acosta, 2020). Although CSR-S, brand reputation, and eWOM are crucial parts of banks' strategy, researchers still have a limited understanding of their effects on purchase intention during crisis periods. To address this gap, this study evaluates a proposed model of relationships between CSR-S, brand reputation, eWOM, and purchase intention.

The conclusions of the study could benefit Egyptian banks that use SM to promote CSR-S during challenging times such as the COVID-19 pandemic. Based on data from 621 participants, the analysis showed a significant positive link between CSR-S initiatives and purchase intention. These findings are consistent with those of prior research (Bae *et al.*, 2019; Bianchi *et al.*, 2019; Chu and Chen, 2019; Wu and Zhu, 2021). CSR-S initiatives that promote social causes or engage with customers online can have a positive impact on customer attitudes, generating and enhancing purchase intention.

The analysis also revealed a positive relationship between brand reputation and purchase intention, which supports the findings of prior research (Balakrishnan and Foroudi, 2020; Bianchi *et al.*, 2019; Qalati *et al.*, 2021). When a bank has a higher reputation than other banks, customers feel proud to use that bank and consider it trustworthy. These feelings ultimately increase purchase intention. The findings suggest that banks should strengthen their reputation as socially responsible to improve the purchase intention of customers. The study also provided other noteworthy findings. For instance, eWOM has a significant positive impact on purchase intention. This finding is also consistent with those of previous studies (Elhajjar, 2022; Halim and Keni, 2022; Puriwat and Tripopsakul, 2022a, b).

The results also support Hypotheses 4 and 5. They confirm that CSR-S negatively moderates the positive impact of brand reputation and eWOM on customer purchase intention. This finding is important because it shows that a significant increase in the CSR-S initiatives of banks can also have a negative impact on consumer perceptions of those banks, especially when these actions take place in a period of strong social pressure such as the COVID-19 pandemic. In such contexts, consumers may become skeptical. They may believe that these supposedly disinterested actions hide a different motive, namely, to improve the image of companies and boost their profits (Reimer and Benkenstein, 2018; Riera and Iborra, 2023). This situation can cause the impact of brand reputation and eWOM on purchase intention to weaken.

In short, CSR-S can offer a powerful tool to forge favorable ties with customers. However, a large increase in such initiatives in times of crisis may be interpreted as a lack of integrity and transparency. Such activity by a bank could elicit suspicion among customers about whether the bank will be socially responsible in the long run. Therefore, banks must adopt developed strategies for CSR-S, addressing immediate requirements while maintaining constant and genuine involvement with social concerns. Banks may build confidence with consumers and navigate crises effectively by smoothly incorporating CSR-S into their strategy framework and guaranteeing alignment with fundamental values.

6. Conclusions

The COVID-19 crisis has placed consumers in a vulnerable position. The challenging context has not only increased the potential weakness of customers but has also undermined trust in the banking sector, thereby placing banks in exposed situations regarding their reputation and public image (Moliner *et al.*, 2020). In this specific situation, this study provides evidence of the influence of CSR-S initiatives, eWOM, and brand reputation on customer purchase intention. Specifically, CSR-S actions positively affect purchase intention. However, CSR-S moderates the positive impact of eWOM and brand reputation on purchase intention.

Consequently, this emphasizes the need for a well-rounded approach to CSR-S in the banking sector, which promotes social responsibility while maintaining the genuineness and credibility of a bank's brand. As a result, our study offers significant insights into navigating the intricate relationship between CSR-S, eWOM, brand reputation, and purchase intention. Thus, it gives strategic counsel for banks aiming to establish and uphold consumer trust during difficult periods.

6.1 Theoretical implications

Firstly, it adds to prior research on CSR-S by examining customer perceptions of CSR-S initiatives rather than other organizational factors that are unique to banks. Previous studies have predominantly explored CSR-S in other non-consumer contexts, such as organizations' financial performance (Singh and Misra, 2021; Hakimi *et al.*, 2023), quality management (Franco *et al.*, 2020), or the level of employer attractiveness (Seara *et al.*, 2023). This approach, therefore, illuminates the gaps in previous research, focusing on CSR-S through the lens of consumers and their perceptions of ethical practices. Secondly, drawing on the theory of norm reciprocity, attribution theory, theory of planned behavior, and social support theory, this study shows that customer engagement with CSR-S initiatives, brand reputation, and eWOM positively influence purchase intention.

However, according to the attribution theory, it also reveals that customers may perceive that banks' CSR-S efforts during a period of crisis such as the COVID-19 pandemic are not consistent with their previous actions. Consequently, the positive effect of brand reputation and eWOM on purchase intention weakens. In this situation, customers may conclude that they are carried out by banks to try to clean their image. Thirdly, this study provides new information about how customers' skepticism impacts their evaluation and reaction to banks' CSR-S initiatives, especially in times of crisis. This could be an interesting avenue for future research, as banks can design more successful and trustworthy CSR-S actions by understanding the role of skepticism. Finally, this study provides theoretical arguments to suggest that CSR-S initiatives should be timed carefully to shape customer perceptions. Implementing CSR-S during a crisis versus a non-crisis period could impact how customers perceive and respond to them, offering an avenue for future research.

6.2 Managerial implications

Regarding the managerial implications of our findings, it seems evident that banks should actively leverage SM platforms to disseminate specific information about their CSR activities. The positive correlation between the spread of this information via SM and consumers' intentions to acquire banking products emphasizes the importance of transparent communication. Secondly, this study highlights that fostering and cultivating a positive brand reputation and emphasizing CSR should be a strategic priority for banks. The findings suggest a direct link between a positive brand reputation and an increase in consumer intentions to engage in banking products or services.

Banks should consistently communicate their commitment to CSR through their SM to strengthen this association. Thirdly, the work highlights that banks should actively manage

eWOM channels, emphasizing their sustainable practices. Positive eWOM, specifically highlighting socially responsible initiatives, positively influences consumers' intentions to choose banking products or services. Banks should encourage and monitor discussions and content that highlights their commitment to sustainability, promoting a positive online narrative on their SM and online communication platforms. Fourthly, when organizational crises occur (e.g. the COVID-19 pandemic or an economic recession), banks should exercise caution when intensifying CSR activities beyond their usual practices.

While engagement in CSR is crucial, excessive increases may be perceived by consumers as a strategic move driven solely by financial interests. Banks should find a balance to ensure that CSR efforts align with authentic social responsibility rather than being perceived as opportunistic. Lastly, recognizing the prevalent perception that banks are not inherently seen as socially responsible organizations, the industry should proactively work to change this perception. Consistent and genuine CSR initiatives, even during non-crisis periods, can gradually reshape the image of banks as socially responsible organizations. This long-term strategy can contribute to reducing skepticism when banks intensify CSR-related activities during crises.

In this regard, to communicate CSR initiatives on SM effectively and to maintain an ongoing dialogue with consumers, banks should follow a structured approach. This includes creating an authentic and compelling narrative, using visual content, regularly updating about ongoing projects to increase the audience interest (e.g. through co-creation of CSR initiatives (Ahmad *et al.*, 2021), collaboration programs, or feedback mechanisms), encouraging user engagement, sharing achievements and lessons learned, and integrating CSR into the overall content strategy. Strategic use of hashtags and CSR-S reports are also essential.

6.3 Limitations

Although the present study contributes substantially to CSR-S theory and practice, it has certain limitations. The limitations of this study may serve as a guide for future research. First, this study was conducted in one region (Egypt) and one industry (banking). Therefore, it is difficult to generalize the findings across many geographies and sectors. Customer perceptions of CSR-S may vary depending on diverse cultural traits, so future studies should broaden their scope by collecting and comparing cross-country data. Additionally, this model could be applied to other less sophisticated service industries than banking. Second, this study was quantitative.

The analytical results of the questionnaire may have limited the findings. Future studies could benefit from using qualitative approaches such as interviews to identify new factors. Third, the current model was solely based on measuring the effect of CSR-S on positive behavioral intentions such as positive eWOM and purchase intention. It ignored negative aspects. Therefore, future studies should measure CSR-S effects on negative behavioral intentions such as negative eWOM and switching. These intentions are important indicators of customer dissatisfaction. Finally, the present study solely covered a limited number of constructs. Future empirical research could explore and verify additional constructs, such as customer loyalty, brand equity, and brand image.

Note

1. Multiple regression is not resistant to model misspecification (Bohrnstedt and Carter, 1971). Suitable selection ensures the parsimony of the estimation by eliminating irrelevant variables that do not provide substantive information. It also avoids overfitting the model by penalizing complexity. A genetic algorithm helps overcome this problem by selecting the regressors that give the regression the greatest predictive power (Calcagno and de Mazancourt, 2010).

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