

**THE IMPACT OF CORPORATE SOCIAL
RESPONSIBILITY (CSR) ON CUSTOMER VALUE
CO-CREATION:
THE MEDIATING ROLE OF CUSTOMER SATISFACTION**
**تأثير المسؤولية الاجتماعية للشركات على المشاركة في خلق قيمة العملاء:
الدور الوسيط لرضا العملاء**

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Abstract:

This study investigates the relationships between Corporate Social Responsibility (CSR), Customer Value Co-Creation, and Customer Satisfaction through a quantitative analysis of 389 survey responses across multiple sectors. Using Structural Equation Modeling and Smart PLS software, the research examines both direct effects and mediating relationships between these variables. Results demonstrate that CSR significantly impacts customer satisfaction ($\beta=0.613$, $p<0.01$) and value co-creation ($\beta=0.466$, $p<0.01$), while value co-creation shows a strong influence on customer satisfaction ($\beta=0.735$, $p<0.01$). The mediation analysis reveals that value co-creation effectively mediates the CSR-customer satisfaction relationship, with an indirect effect coefficient of 0.314 ($p<0.01$). The model demonstrates excellent fit (SRMR=0.004, NFI=0.954) and explains 48.3% of the variance in customer satisfaction. These findings suggest that organizations should integrate CSR initiatives with co-creation opportunities to enhance customer satisfaction, providing valuable implications for both theoretical understanding and practical business strategy in contemporary market environments.

Keywords: Corporate Social Responsibility, Customer Value Co-Creation, Customer Satisfaction, Structural Equation Modeling, Mediation Analysis.

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ملخص:

تبحث هذه الدراسة في العلاقات بين المسؤولية الاجتماعية للشركات، والمشاركة في خلق القيمة للعملاء، ورضا العملاء من خلال تحليل كمي لـ 389 استجابة للاستطلاع عبر قطاعات متعددة. باستخدام نمذجة المعادلات البنوية وبرنامج Smart PLS، ويدرس البحث كلاً من التأثيرات المباشرة والعلاقات الوسيطة بين هذه المتغيرات. وتوضح النتائج أن المسؤولية الاجتماعية للشركات تؤثر بشكل كبير على رضا العملاء ($\beta=0.613, p<0.01$) والمشاركة في خلق القيمة ($\beta=0.466, p<0.01$)، في حين تُظهر المشاركة في خلق القيمة تأثيراً قوياً على رضا العملاء ($\beta=0.735, p<0.01$). ويكشف تحليل الوساطة أن المشاركة في خلق القيمة تتوسط بشكل فعال العلاقة بين المسؤولية الاجتماعية للشركات ورضا العملاء، مع معامل تأثير غير مباشر 0.314 ($p<0.01$). ويوضح النموذج ملاءمة ممتازة ($SRMR=0.004, NFI=0.954$)، ويفسر 48.3% من التباين في رضا العملاء. وتشير هذه النتائج إلى أن المنظمات يجب أن تدمج مبادرات المسؤولية الاجتماعية للشركات مع فرص الإبداع المشترك لتعزيز رضا العملاء؛ مما يوفر أثراً قيمة لكل من الفهم النظري والاستراتيجية التجارية العملية في بيئات السوق المعاصرة.

الكلمات المفتاحية: المسؤولية الاجتماعية للشركات، المشاركة في خلق قيمة العملاء، رضا العملاء، نمذجة المعادلات البنوية، تحليل الوساطة.

1. Introduction

In recent decades, Corporate Social Responsibility (CSR) has undergone a fundamental transformation from being viewed as merely a philanthropic obligation to becoming an integral component of strategic business operations. This evolution reflects broader changes in societal expectations, where businesses are increasingly held accountable not only for their financial performance but also for their social and environmental impact. The growing emphasis on CSR has prompted organizations to seek deeper understanding of how their social responsibility initiatives influence various business outcomes, particularly in terms of customer relationships and value creation.

The contemporary business environment has witnessed a parallel shift in how value is created and delivered to customers. Traditional models of value creation, where businesses independently developed and delivered products or services, have given way to more collaborative approaches. Customer value co-creation has emerged as a pivotal concept in modern business strategy, recognizing that customers are active participants in value creation rather than passive recipients of predetermined value. This shift has fundamentally altered how businesses interact with their customers and conceptualize their value proposition.

Customer satisfaction, long recognized as a crucial determinant of business success, has become increasingly complex in this evolving landscape. While traditional factors such as product quality and service delivery remain important, customers now consider a broader range of factors in their satisfaction assessments, including a company's social responsibility initiatives and opportunities for meaningful engagement in value creation processes. This complexity necessitates a more nuanced understanding of how different organizational initiatives and practices interact to influence customer satisfaction levels.

Despite the recognized importance of both CSR and customer value co-creation, research examining the interplay between these elements and their combined impact on customer satisfaction remains limited. Previous studies have typically focused on examining these relationships in isolation, failing to capture the potential synergies and complex interactions between them. This gap in understanding is particularly significant given the substantial resources organizations invest in both CSR initiatives and co-creation platforms.

The present research addresses this knowledge gap by proposing and testing a comprehensive model that integrates CSR, customer value co-creation, and customer satisfaction. The study examines both direct relationships between these variables and the potential mediating role of value co-creation in the CSR-customer satisfaction relationship. This approach allows for a more nuanced understanding of how organizations can leverage their CSR initiatives and co-creation opportunities to enhance customer satisfaction effectively.

The research employs a rigorous quantitative methodology, analyzing data collected from 389 customers across diverse sectors including construction, banking, airlines, FMCGs, gambling, manufacturing, petrochemicals, education, and hospitality. This broad sectoral coverage ensures that the findings have wider applicability while also allowing for the identification of potential industry-specific variations in these relationships. The study utilizes advanced statistical techniques, including Structural Equation Modeling (SEM) through Smart PLS software, to analyze these complex relationships effectively.

The findings of this research hold significant implications for both theoretical understanding and practical application. From a theoretical perspective, this study contributes to the evolving literature on CSR, value co-creation, and customer satisfaction by providing empirical evidence of their interconnections and mutual influences. For practitioners, the research offers valuable insights into how organizations can integrate their CSR initiatives with co-creation opportunities to enhance customer satisfaction more effectively.

The study's objectives encompass several key dimensions: first, to evaluate the direct impact of CSR initiatives on customer satisfaction; second, to assess how CSR influences customer value co-creation; third, to examine the relationship between value co-creation and customer satisfaction; and finally, to investigate the potential mediating role of value co-creation in the relationship between CSR and customer satisfaction. These objectives are pursued through a systematic analysis that combines theoretical rigor with practical relevance.

2. Literature review

Each organization knows the importance of the corporate social responsible activities (CSR); however, this does not apply in the large numbers of organizations effectively. Besides, their stakeholders are aware but do not find an interest in applying CSR activities, especially in the Egyptian market.

2.1. Corporate Social Responsibility (CSR)

Each organization must use the organization's capabilities and resources to increase the quality of life for the whole community; this means that this may make changes in processes, policies or business activities. Moreover, the organization must: commit to the welfare of society and the environment; apply business activities to measure performance and contribute to sustainable development (Tsai, 2016).

The organization, which is applying CSR activities, is investing in increasing the ability to attract and retain customers, by creating a competitive advantage or gaining a good reputation. On the other hand, applying CSR activities increases the relationships with companies, governments, media, suppliers and customers, even if it is necessary to review or improve the organization actions and practices to meet the customer needs (Muhajir, Velian, Indarwati & Andarini, 2021).

Adding to the pre-mentioned, organizations should offer voluntary obligation to achieve social, environmental, consumer and human rights goals in the organization's strategy on daily basis (Europa.eu, 2018) by accounting for the three elements "economic, social and environmental performance" (Aguinis, 2011, p. 855).

When an organization makes profitability and growth, that is called economic performance. As for social responsibilities, they are activities that benefit the greater good, such as serving the community and fostering human rights, working conditions and living wages. Regarding the environment, it refers to activities that preserve and protect natural resources while maintaining Eco-System and reducing climate change (Alhaddi, 2015; Elkington, 1997). Most of the studies on CSR use stakeholder theory to maximize the value of shareholders (Harrison & Wicks, 2013). Furthermore, CSR has different activities that are applied for different levels of organizations (Small businesses and large corporates) due to the financial resources and organizations capabilities.

In addition, the dimensions of CSR are summarized by (Rahman, 2011) as the: obligation to society, involvement of the stakeholders, improvement of the quality of life, economic development, ethical business practice, compliance with the law, voluntary tasks, human rights, protection of environment and transparency & accountability.

2.2. Customer Value Co-creation

In most of the different sectors in the Egyptian market, customer engage with the organization to provide high-quality services. Keeling et al. (2021) argued that the value co-creation is extremely relevant in the analysis of customer engagement; value co-creation is the outcome of interaction and collaboration between organization and customers that provides: benefits (to another and to themselves), operant resources, such as knowledge, skills (personal resources) and network resources (from family, peers, and other service providers). All are integrated with co-creation behaviors to realize benefits (McColl-Kennedy et al., 2020; Parkinson et al., 2019).

Central to value co-creation is represented in: action, multiple actors and well-being. From a competition perspective, when customers co-create with the organization to create value, it will build and increase the competitive advantage (Prahalad & Ramaswamy 2016). On the service dominant, the effective value creation will be built between customers and organizations due to the factor of customer experiences besides the good interaction between participants (Vargo & Lusch, 2016).

In the process of value co-creation, both the customer and the organizations are participants in the context of ethical consumption by extending the focus to customers and their relational contexts. In addition, when the customer perceives the value to be close to their own experience and identities, they are more likely to share their values. These are just assumptions as the relationship between CSR activities and customer value co-creation is limitedly explored. Therefore, this research looks to study the relationship between CSR activities and customer value co-creation.

Furthermore, the dimensions of customer value co-creation are information seeking, information sharing, responsible behavior, personal interaction, giving feedback, showing advocacy, helping and being tolerant (Yi & Gong, 2013).

2.3. Customer Satisfaction

The most important factor and stakeholder in the business is the customer, and the main objective for each organization is to increase their customer database, especially in the current globalized and liberalized market economy. Customers are present in the most important stage of business and organization today. Each organization compete to provide interests and preferences, requirements and expectations, purchasing powers and demand profiles. They allocate the organization's resources to understanding the customer's needs and complying with these requirements to gain customer satisfaction (Raza & Umer, 2020).

Customer satisfaction is the perception and expectation the customer requires; therefore, the organization needs to know more about the customer's need, which should be fulfilled without any tolerance or complaints due to that indicator for low performance and low customer satisfaction. However, the non-existence of customer complaints or the lack of customer feedback does not necessarily reflect high customer satisfaction (Cronin, 2000).

When the customer is satisfied with the quality of services or products provided by the organization, it will be supportive and effective to purchase and use these services again. That is to say, the organizations should determine customer satisfaction by examining the emotional response by consumers to the recent experience with the organization; whereas, cumulative customer satisfaction is based on the customer's overall experience with a particular organization over time. However, when customers interact with the organizations, such as purchase intent (request the quotation or request the information about the services), this means that the customer is satisfied with the organization, but the most important factor (for high customer satisfaction) is customer turnover and sales volume (Yoshida et al., 2021). In addition, if there is an intention to co-create value, the customer will tend to show different behaviors i.e. satisfaction.

It will not be done without continual customer satisfaction. That is why each organization should know their customers' needs and expectations about the services they provide, then adopt all resources to create value to meet these expectations (Malik & Ahsan, 2019). Besides that, the organization should have a good reputation; in the study of Chen, Yang and Leo (2017), the more positive the word of mouth, the more satisfied the customer is.

3. Research Gap

The research landscape reveals significant theoretical gaps in understanding the relationships between corporate social responsibility (CSR), value co-creation, and customer satisfaction.

Current literature typically examines these constructs independently, lacking comprehensive theoretical frameworks that integrate all three elements. There is limited understanding of how CSR initiatives translate into value co-creation opportunities and the mediating mechanisms that link these practices to customer satisfaction outcomes.

The contextual understanding of these relationships remains incomplete, with most studies confined to single industries or specific contexts. This has resulted in inadequate theoretical frameworks for explaining how these relationships vary across different business sectors, organizational sizes, and types. The absence of comprehensive models that account for sector-specific variations hinders the development of more nuanced theoretical understanding.

Measurement and methodology gaps persist in current research, particularly in empirically validating the relationship between CSR and value co-creation. There is a notable absence of robust measurement frameworks for assessing integrated CSR and co-creation initiatives. The field lacks sophisticated statistical approaches for analyzing complex interrelationships, and longitudinal studies examining the evolution of these relationships over time are scarce.

From a practical perspective, organizations face significant challenges in strategic implementation. There is limited guidance on integrating CSR initiatives with co-creation opportunities and measuring their combined return on investment. Organizations struggle with resource allocation decisions between CSR and co-creation activities, lacking practical tools for assessing the effectiveness of integrated strategies.

Operational excellence represents another crucial gap, with limited practical knowledge about implementing CSR initiatives that facilitate co-creation. Organizations need more guidance on training employees to manage integrated CSR-co-creation programs and maintaining consistency across

customer touch points. Best practices for adapting strategies to different market segments remain underdeveloped.

Performance measurement presents particular challenges, with organizations lacking comprehensive metrics for evaluating integrated CSR-co-creation initiatives. There is insufficient understanding of how to track customer engagement in CSR activities and assess the impact of co-creation on CSR outcomes. Standardized approaches for measuring combined impacts on customer satisfaction are notably absent.

This research addresses these gaps by developing and testing an integrated model linking CSR, value co-creation, and customer satisfaction. It provides empirical evidence from multiple sectors to enhance generalizability and establishes practical frameworks for implementing integrated CSR-co-creation initiatives. The study offers measurement tools and metrics for assessing program effectiveness, creates guidelines for strategic resource allocation, and develops best practices for managing integrated programs. These contributions advance both theoretical understanding and practical application, enabling organizations to develop more effective strategies for leveraging CSR and co-creation to enhance customer satisfaction.

4. Sample Size

The sample size for this research will consist of **389 surveys** collected from customers across various sectors, such as construction, banking, airlines, FMCGs, gambling, manufacturing, petrochemicals, education, and hospitality. Given that the research focuses on three variables, a minimum of **389 samples** is deemed appropriate. The analysis will employ the **Structural Equation Model (SEM)** as the statistical technique, as it effectively addresses the complexities of customer satisfaction as a mediator and latent variable. To handle the data analysis efficiently, the study will utilize **Smart PLS software**, which is particularly effective for small sample sizes.

Sampling Design Technique: A probability-sampling technique will be used by means of the sampling frame and applying stratified sampling techniques for sample selection.

Sample Size: The sample size will be defined as soon as the researcher get the sampling frame.

5. Characteristics of The Study Sample

Characteristics of the study sample For the dimensions of Impact of Corporate Social Responsibility (CSR) On Customer Value Co-Creation: The Mediating Role of Customer Satisfaction, Figure 1 shows that the distribution of study participants by gender is inclined towards females by 51.67%, which means that about half of the study participants are females, while males make up almost the other half. This ratio may be important in interpreting the overall results of the study, as female and male responses to some variables may vary.

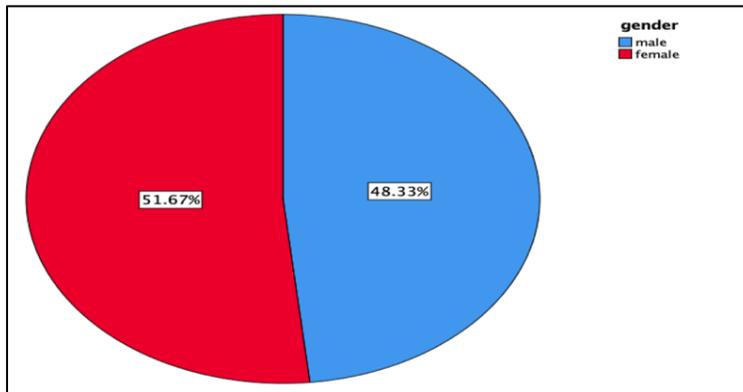


Figure (1) Characterization of the study sample according to gender

Source: SPSS v25 output.

Figure 2 shows that the distribution of study participants by age group is highly concentrated in the age group between 25-35 years, where this group constitutes about half of the sample. Followed by the age group between 35-45 years with 19.54%, then the age group under 25 years with 16.2%, and finally the age group over 45 years with 9.51% These results indicate that the sample includes a large percentage of young people and middle-aged people.

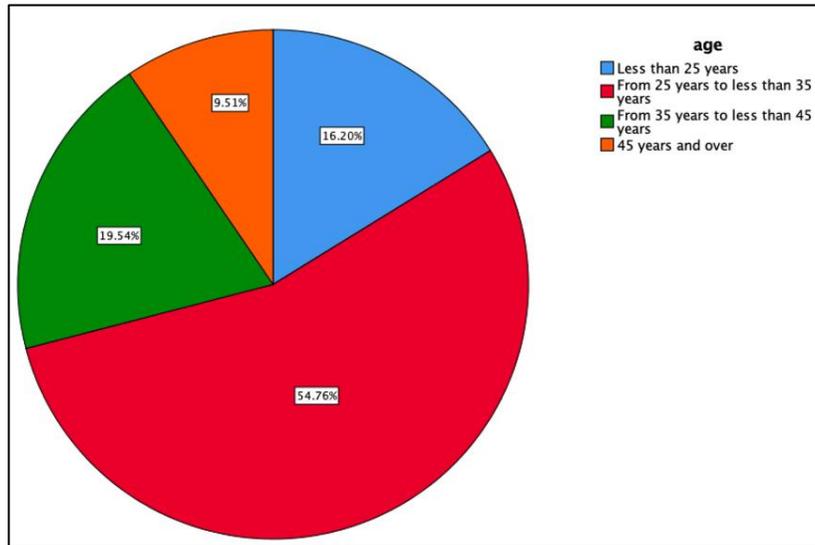


Figure (2) Characterization of the study sample according to age Source: SPSS v25 output.

6. Reliability and validity

Table 1 displays the results of the reliability and validity coefficient for the dimensions of The Impact of Corporate Social Responsibility (CSR) On Customer Value Co-Creation: The Mediating Role of Customer Satisfaction, as the table includes several variables like (Corporate social responsibility (CSR) - Co-creation - Customer Satisfaction (CS)), then the reliability and validity coefficient were calculated for each dimension and the number of statements associated with it.

Table (1) shows the results of the reliability analysis using Cronbach's Alpha, which measures the stability and consistency of the tools used in the study, such as questionnaires. The higher the Cronbach's coefficient, the higher the reliability of the research tool and its ability to accurately measure the variables.

Table (1) Reliability Statistics

Variables	name	N of Items	Cronbach's Alpha	Validity
Corporate social responsibility (CSR)	CSR	7	0.787	0.887
Co-creation	CO	7	0.883	0.940
Customer Satisfaction (CS)	CS	8	0.844	0.919
All		22	0.870	0.933

Source: from SPSS v25 output.

For the first variable, Corporate Social Responsibility (CSR), the Cronbach's coefficient was 0.787, which is an acceptable value indicating good reliability of the tool used. The validity of the tool was also high, reaching 0.887, indicating the accuracy of the items used to measure this variable.

As for the second variable, Co-creation, the Cronbach's coefficient achieved 0.883, which is an indicator of very high reliability of the tool. The validity was also excellent, reaching 0.940, which reflects extreme accuracy in measuring the items related to this variable.

For the third variable, Customer Satisfaction (CS), the Cronbach's coefficient was 0.844, which is evidence of very good reliability. The validity also achieved a high value of 0.919, indicating a high measurement accuracy of the tool used in this variable.

When looking at the overall results of all 22 items, we find that Cronbach's coefficient reached 0.870, which is a clear indicator of high reliability for all items in the questionnaire. The overall validity was 0.933, which is a very high value that confirms the accuracy and stability of the research tool in general. Based on these results, it can be said that the questionnaire used in the study has a good to excellent level of reliability and validity, which makes it a suitable and effective tool for measuring the studied variables.

7. Descriptive statistics for study variables

Corporate Social Responsibility (CSR): The results showed that the sample tended positively towards the CSR variable, with an average difference of 3.766, which is an indication of good agreement among participants on this variable. The coefficient of variation recorded 14.04% with a standard deviation of 0.529, reflecting a moderate level of stability in the answers. The t-value reached 140.462 at a statistical significance level of 0.000, indicating that the results are statistically significant. Looking at the order of the variables, the social responsibility variable came in second place in terms of stability of trends.

Table (2) Sample trends towards variables

Variables	t	df	Sig. (2-tailed)	Mean Difference	Std. Deviation	coefficient of variation	rank
Corporate social responsibility (CSR)	140.462	388	0.000	3.766	0.529	14.04%	2
Co-creation	159.103	388	0.000	3.873	0.480	12.40%	1
Customer Satisfaction (CS)	140.267	388	0.000	3.895	0.548	14.06%	3

Source: from SPSS v25 output.

Co-creation: The co-creation variable achieved the best results among the three variables, with an average difference of 3.873, which is the highest relatively, reflecting a strong and stable positive trend towards this variable. The coefficient of variation was also the lowest among all variables at 12.40%, with a standard deviation of 0.480. The t-value for this variable was 159.103 at a significance level of 0.000, indicating strong statistical significance. Based on these results, sharing came in first place, indicating that the sample showed the greatest degree of stability and agreement towards this variable.

Customer Satisfaction (CS): The customer satisfaction variable came in third place in terms of stability of attitudes, although it recorded the highest average difference between the three variables with a value of 3.895. The coefficient of variation was 14.06%, which is close to the coefficient of variation of social responsibility, indicating that there is slight variation in the sample responses. The standard deviation recorded a value of 0.548, while the t-value was 140.267 at a significance level of 0.000, indicating that the results are

significant. These results confirm that the participants have a positive attitude towards customer satisfaction, but it is less stable compared to sharing.

The results indicate that all the studied variables (corporate social responsibility, sharing, customer satisfaction) achieved positive and significant attitudes by the sample, with slight differences in stability.

- The Co-creation variable ranked first thanks to the lowest coefficient of variation and the highest level of stability.

- The Social Responsibility (CSR) variable came in second place, showing moderate variation.

- The Customer Satisfaction (CS) variable ranked third, despite recording the highest mean difference.

In general, the results reflect a positive interaction and relative stability in the sample's attitudes towards the three studied variables.

8. Results of study hypotheses

• Results of the H1 hypothesis:

To test the study hypothesis H1: There is a significant impact for Corporate Social Responsibility (CSR) on Customer Satisfaction (CS), a quality test of the study model is conducted to ensure the quality of the model outputs, as many tests were conducted, then the results of the measurement models are displayed.

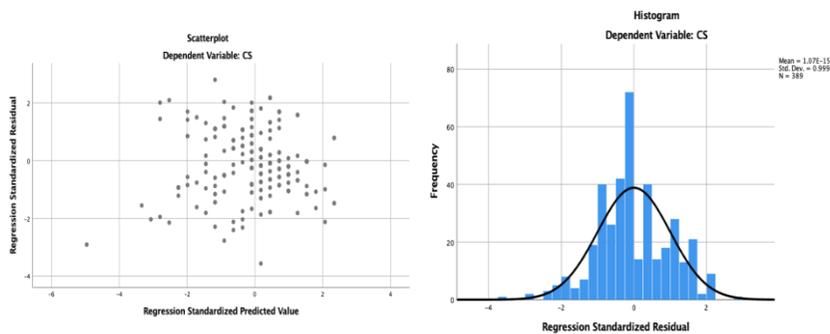


Figure (3) normal distribution for H1 hypothesis residuals Source: from SPSS v25 output.

The results of the figure include two plots to evaluate the residuals of the regression model related to the dependent variable Customer Satisfaction (CS). The results of the first plot, Scatterplot, show that the points are randomly distributed around the horizontal axis without a clear pattern, indicating that there are no major problems in the regression model. The second plot, Histogram,

shows the distribution of the standard residuals, with a normal curve line to illustrate the extent to which the distribution of the residuals matches the normal distribution. The plot shows that the mean of the residuals is close to zero, and the standard deviation of the residuals is approximately 1, which supports the validity of the assumptions associated with the regression model.

Table (3) Results of the simple regression for H1

	B	t	Sig.	Tolerance	VIF
(Constant)	1.585	9.825	0	-	-
CSR	0.613	14.461	0	1	1
R	R Square	Durbin-Watson	F	Sig.	
.792a	0.627	1.938	29.108	.000b	
a Dependent Variable: CS					

Source: from SPSS v25 output.

The results of the previous table show that the values of the variance inflation factor =1, which is less than 5, indicating that there is no problem of collinearity, which means that the independent variables are not significantly correlated, while the Durbin-Watson test indicates the verification of the independence of the model residuals, and its value reached (1.938) and the values between (1.2 to 2.5) are considered appropriate and indicate that there is no significant autocorrelation between the residuals.

The value of the correlation coefficient reached (0.792), indicating a moderate correlation between the independent variables and the dependent variable, while (R²) represents the percentage of variance in the dependent variable explained by the independent variables, and is (0.627), which is greater than 30%, indicating the strength of the independent variables' explanation of the dependent variable, which means that about 62.7% of the variance in the variable Customer Satisfaction (CS) is explained by the Corporate Social Responsibility (CSR).

Also, the value of the F test reached (29) with a statistical significance value of (0.00) at a significance level less than 0.01, which indicates that the estimated study model is acceptable and valid for prediction, and therefore we accept H1, which states that ***“There is a significant impact for Corporate Social Responsibility (CSR) on Customer Satisfaction (CS)”***

The regression parameters indicate a positive impact of *Corporate Social Responsibility (CSR) on Customer Satisfaction (CS)*, where the impact value reached 0.613 with a statistical significance value of 0.00 at a significance level of less than 0.01

• Results of the H2 hypothesis:

To test the study hypothesis H2 There is a significant impact for Corporate Social Responsibility (CSR) on Value Co-Creation (CO), a quality test of the study model is conducted to ensure the quality of the model outputs, as many tests were conducted, then the results of the measurement models are displayed.

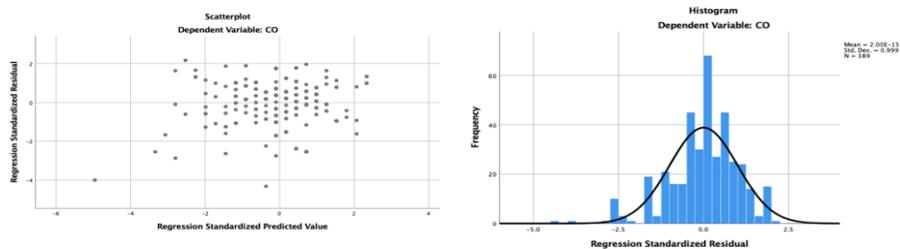


Figure (4) normal distribution for H2 hypothesis residuals

Source: from SPSS v25 output.

The results of the figure include two plots to evaluate the residuals of the regression model related to the dependent variable Value Co-Creation (CO). The results of the first plot, Scatterplot, show that the points are randomly distributed around the horizontal axis without a clear pattern, indicating that there are no major problems in the regression model. The second plot, Histogram, shows the distribution of the standard residuals, with a normal curve line to illustrate the extent to which the distribution of the residuals matches the normal distribution. The plot shows that the mean of the residuals is close to zero, and the standard deviation of the residuals is approximately 1, which supports the validity of the assumptions associated with the regression model.

Table (4) Results of the simple regression for H2

	B	t	Sig	Tolerance	VIF
(Constant)	2.117	14.059	0.000	-	-
CSR	0.466	11.771	0.000	1	1
R	R Square	Durbin-Watson	F	Sig.	
.713a	0.508	2.433	13.549	.000b	

a Dependent Variable: CO

Source: from SPSS v25 output.

The results of the previous table show that the values of the variance inflation factor =1, which is less than 5, indicating that there is no problem of collinearity, which means that the independent variables are not significantly correlated, while the Durbin-Watson test indicates the verification of the independence of the model residuals, and its value reached (2.433) and the values between (1.2 to 2.5) are considered appropriate and indicate that there is no significant autocorrelation between the residuals.

The value of the correlation coefficient reached (0.713), indicating a moderate correlation between the independent variables and the dependent variable, while (R²) represents the percentage of variance in the dependent variable explained by the independent variables, and is (0.508), which is greater than 30%, indicating the strength of the independent variables' explanation of the dependent variable, which means that about 50.8% of the variance in the variable Value Co-Creation (CO), is explained by the Corporate Social Responsibility (CSR).

Also, the value of the F test reached (13) with a statistical significance value of (0.00) at a significance level less than 0.01, which indicates that the estimated study model is acceptable and valid for prediction, and therefore we accept H2, which states that ***“There is a significant impact for Corporate Social Responsibility (CSR) on Value Co-Creation (CO)”***

The regression parameters indicate a positive impact of ***Corporate Social Responsibility (CSR) on Value Co-Creation (CO)***, where the impact value reached 0.466 with a statistical significance value of 0.00 at a significance level of less than 0.01

• Results of the H3 hypothesis:

To test the study hypothesis H3: There is a significant impact for Value Co-Creation (CO) on Customer Satisfaction (CS), a quality test of the study model is conducted to ensure the quality of the model outputs, as many tests were conducted, then the results of the measurement models are displayed.

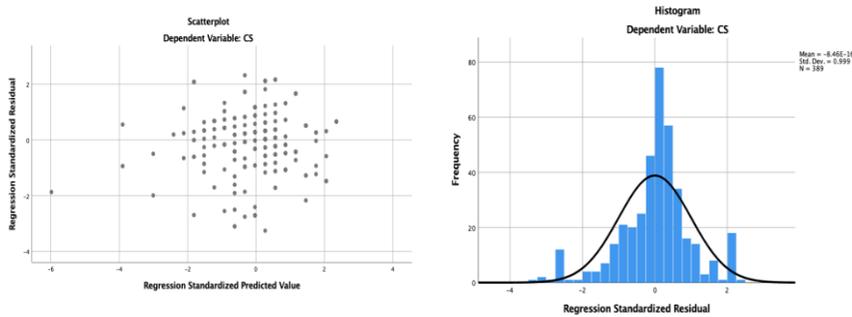


Figure (5) normal distribution for H3 hypothesis residuals

Source: from SPSS v25 output.

The results of the figure include two plots to evaluate the residuals of the regression model related to the dependent variable Customer Satisfaction (CS). The results of the first plot, Scatterplot, show that the points are randomly distributed around the horizontal axis without a clear pattern, indicating that there are no major problems in the regression model. The second plot, Histogram, shows the distribution of the standard residuals, with a normal curve line to illustrate the extent to which the distribution of the residuals matches the normal distribution. The plot shows that the mean of the residuals is close to zero, and the standard deviation of the residuals is approximately 1, which supports the validity of the assumptions associated with the regression model.

Table (5) Results of the simple regression for H3

	B	t	Sig.	Tolerance	VIF
(Constant)	1.048	6.056	0.000	-	-
CO	0.735	16.579	0.000	1	1
R	R Square	Durbin-Watson	F	Sig.	
.744a	0.553	1.93	24.852	.000b	
a Dependent Variable: CS					

Source: from SPSS v25 output.

The results of the previous table show that the values of the variance inflation factor =1, which is less than 5, indicating that there is no problem of collinearity, which means that the independent variables are not significantly correlated, while the Durbin-Watson test indicates the verification of the independence of the model residuals, and its value reached (1.93) and the values between (1.2 to 2.5) are considered appropriate and indicate that there is no significant autocorrelation between the residuals.

The value of the correlation coefficient reached (0.744), indicating a moderate correlation between the independent variables and the dependent variable, while (R²) represents the percentage of variance in the dependent variable explained by the independent variables, and is (0.553), which is greater than 30%, indicating the strength of the independent variables' explanation of the dependent variable, which means that about 55.3% of the variance in the variable Customer Satisfaction (CS), is explained by the Value Co-Creation (CO).

Also, the value of the F test reached (24.85) with a statistical significance value of (0.00) at a significance level less than 0.01, which indicates that the estimated study model is acceptable and valid for prediction, and therefore we accept H3, which states that *“There is a significant impact for Value Co-Creation (CO) on Customer Satisfaction (CS)”*

The regression parameters indicate a positive impact of *Value Co-Creation (CO) on Customer Satisfaction (CS)*, where the impact value reached 0.735 with a statistical significance value of 0.00 at a significance level of less than 0.01.

• Results of the H4 hypothesis:

To test the study hypothesis H4 H4: Customer Value Co-Creation Mediating the relationship between Corporate Social Responsibility (CSR) on Customer Satisfaction (CS), a quality test of the study model is conducted to ensure the quality of the model outputs, as many tests were conducted, then the results of the measurement models are displayed.

Based on the model fit results presented in the table, the following interpretation is provided for each statistical indicator to evaluate the quality of the model:

SRMR (Standardized Root Mean Square Residual): The calculated SRMR value is 0.004, which is well below the commonly accepted threshold of 0.08. This indicates that the differences between the observed and predicted correlation matrices are very small, reflecting an excellent fit of the model to the data.

Table (6) Model fit result

	Estimated model
SRMR	0.004
d_ ULS	0.310
d_ G	0.008
Chi-square	19.890
NFI	0.954

Source: from Pls-Smart v4 output.

Also, The d_ ULS value is 0.310, which is low and demonstrates a significant alignment between the observed data and the predictions of the model. This suggests that the model effectively captures the data structure and performs well.

And, d_ G (Geodesic Discrepancy): The calculated value for this indicator is 0.008, which is extremely low. This reinforces the idea that the model has an excellent fit with the data, as it minimizes the discrepancies between actual and predicted results.

Chi-Square: The model's Chi-Square test value is 19.890, which is low and indicates a high level of agreement between the observed and expected covariance matrices. Given that Chi-Square is sensitive to sample size, this value can be considered a positive indicator of model fit.

NFI (Normed Fit Index): The NFI value is 0.954, which exceeds the commonly accepted threshold of 0.90. This suggests that the model is an excellent fit compared to a null model, confirming its effectiveness in capturing structural relationships.

The calculated values for all indicators suggest that the model demonstrates a very high level of fit with the observed data. The low values for SRMR, d_ ULS, and d_ G, and the high NFI value, indicate that the model accurately reflects the structural and measurement relationships among the variables. The next table show Variance inflation factor result.

Table (7) Variance inflation factor result

	VIF
Corporate social responsibility (CSR) -> Co-creation	1.609
Corporate social responsibility (CSR) -> Customer Satisfaction (CS)	1.000
Customer Satisfaction (CS) -> Co-creation	1.609

Source: from Pls-Smart v4 output.

The VIF values for all independent variables are shown to be well within acceptable limits, indicating that there are no major multicollinearity issues in the model. This ensures the reliability of the estimates and supports the validity of the hypothesized relationships in the study. The results show that each independent variable uniquely explains its effect on the dependent variable without any significant interference with other variables. The next figure show path analysis result for H4.

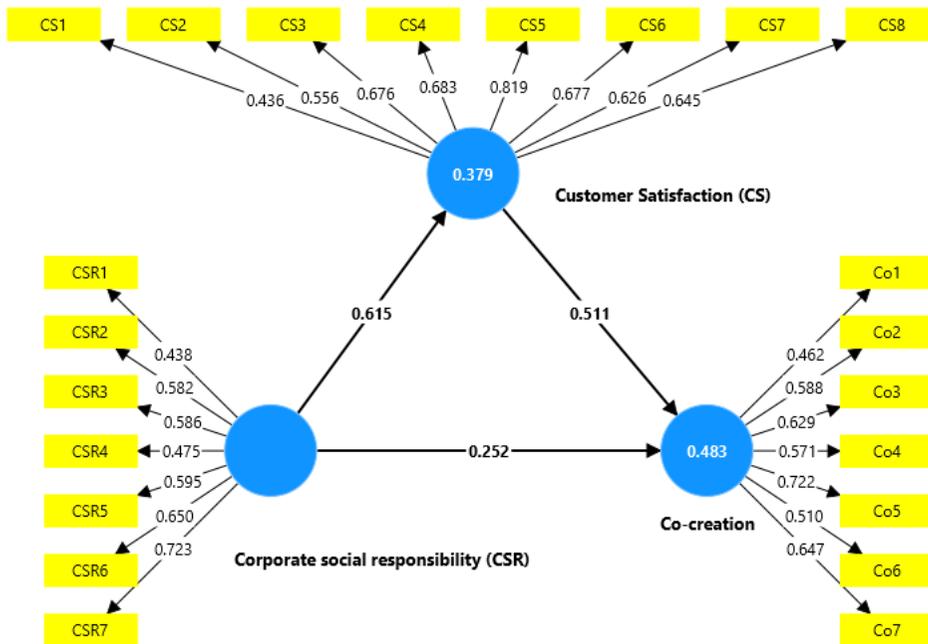


Figure (6) path analysis result for H4 Source: from Pls-Smart v4 output.

The previous figure shows that the values of the explanation coefficient indicate that Corporate social responsibility (CSR) explains 37.9% of the variation in Customer Satisfaction (CS), while both Corporate social responsibility (CSR) and the Customer Satisfaction (CS) variable explain 48.3% of the variation in the dependent variable Co-creation. These values are greater than 30%, which indicates the acceptance of these results, while the remaining percentages are due to other factors that were not included in the model.

Table (8) path coefficient for H4

path	coeffic ient	T statisti cs	P value s
Corporate social responsibility (CSR) -> Co-creation	0.252	3.743	0.000
Corporate social responsibility (CSR) -> Customer Satisfaction (CS)	0.615	15.860	0.000
Customer Satisfaction (CS) -> Co-creation	0.511	9.751	0.000

Source: from Pls-Smart v4 output.

The impact of corporate social responsibility (CSR) on co-creation: The results showed a direct and statistically significant positive impact of corporate social responsibility on co-creation, with a path coefficient of 0.252, with a T-statistic value of 3.743 and a probability value (P-value) = 0.000. This result confirms that companies that apply social responsibility practices enhance levels of co-creation by stimulating interaction with customers.

The impact of corporate social responsibility (CSR) on customer satisfaction: The results showed a strong and positive direct impact of social responsibility on customer satisfaction, with a path coefficient of 0.615, with a T-statistic value of 15.860 and a probability value (P-value) = 0.000. This result confirms the importance of social responsibility as an essential tool for improving customer satisfaction and increasing their loyalty.

The impact of co-creation on customer satisfaction: The results indicated that co-creation has a positive and direct impact on customer satisfaction, with a path coefficient of 0.511, with a T-statistic value of 9.751 and a P-value = 0.000. This indicates that involving customers in the creativity process contributes significantly to improving their experience and increasing their satisfaction levels.

Table (9) Indirect Effect for H4

path	coefficient	T statistics	P values
Corporate social responsibility (CSR) -> Co-creation	0.314	7.180	0.000

Source: from PIs-Smart v4 output.

The indirect impact of social responsibility on co-creation: The results showed that corporate social responsibility indirectly contributes to enhancing co-creation, with an indirect path coefficient of 0.314, with a T-statistic value of 7.180 and a P-value = 0.000. This result highlights the importance of the mediating role of co-creation in the relationship between corporate social responsibility and achieving positive outcomes.

These results show that corporate social responsibility has a strong and direct impact on customer satisfaction and co-creation, and it also indirectly affects co-creation through mediating paths. Co-creation is also a key element in enhancing customer satisfaction, indicating the importance of engaging customers in creativity processes to achieve better results. The findings highlight the need for companies to adopt a strategic approach that integrates social responsibility and co-creation to ensure enhanced customer satisfaction and sustainable success.

9. Conclusions

The analysis of the relationships between Corporate Social Responsibility (CSR), Customer Value Co-Creation, and Customer Satisfaction reveals several significant findings that contribute to our understanding of these interconnected business dynamics. The research demonstrates a strong positive relationship between CSR and customer satisfaction, with statistical analysis showing a direct impact coefficient of 0.613 ($p < 0.01$) and explaining 62.7% of the variance in customer satisfaction levels. This substantial relationship is further supported by a strong correlation coefficient of 0.792 and a Durbin-Watson value of 1.938, indicating good model fit and reliability.

The connection between CSR and value co-creation also emerged as significant, with CSR demonstrating a direct impact coefficient of 0.466 ($p < 0.01$) and accounting for 50.8% of the variance in co-creation outcomes. The model's validity is confirmed by a strong F-test value (13.549, $p < 0.01$) and a correlation coefficient of 0.713, suggesting that organizations' social responsibility initiatives create a fertile ground for collaborative value creation with customers.

Further analysis revealed that value co-creation significantly influences customer satisfaction, with an impact coefficient of 0.735 ($p < 0.01$) explaining 55.3% of the variance. This relationship's strength is supported by a correlation coefficient of 0.744 and an F-test value of 24.852 ($p < 0.01$), underlining the importance of customer involvement in value creation processes for enhancing satisfaction levels.

The mediation analysis provided additional insights, with the overall model demonstrating excellent fit indicators. The SRMR value of 0.004 (well below the 0.08 threshold) and NFI of 0.954 (exceeding the 0.90 benchmark) indicate strong model validity. These results are further supported by a low Chi-square value of 19.890 and favorable d_ULS and d_G values (0.310 and 0.008 respectively), confirming the robustness of the relationships identified.

10. Discussion

The findings of this research have significant implications for both theoretical understanding and practical application in business contexts. From a theoretical perspective, the results demonstrate that CSR has evolved from being merely a voluntary initiative to becoming a strategic necessity in modern business operations. The strong direct effects on customer satisfaction (0.613) and significant indirect effects through value co-creation (0.314) suggest that CSR plays a crucial role in building and maintaining customer relationships beyond traditional service delivery mechanisms.

Value co-creation emerges as both an outcome and facilitator in the relationship between CSR and customer satisfaction. Its position as the most stable variable among those studied ($CV = 12.40\%$) and its dual role in responding to CSR initiatives ($\beta = 0.466$) while driving customer satisfaction ($\beta = 0.735$) highlights its importance in modern business operations. This finding suggests that organizations should view co-creation not just as a process but as a strategic tool that can enhance both CSR effectiveness and customer satisfaction.

The research also reveals multiple pathways to enhancing customer satisfaction, including direct CSR influence and mediated effects through co-creation. The combined effects explaining 48.3% of variation in customer satisfaction suggest that organizations should adopt an integrated approach to managing these relationships rather than treating them as separate initiatives.

From a practical perspective, these findings suggest several important implications for management strategy and resource allocation. Organizations need to develop integrated approaches that combine CSR initiatives with co-creation opportunities, supported by consistent social responsibility practices and meaningful customer engagement in service development. The strong statistical relationships provide justification for investment in both CSR and co-creation platforms, while also offering guidelines for designing effective customer engagement programs.

11. Recommendations for Future Research

Future research in this field should focus on several key areas to further enhance our understanding of these relationships. Methodological expansions are needed to capture the full complexity of these interactions. Longitudinal studies would be particularly valuable in tracking how these relationships evolve over time, while mixed-method approaches combining quantitative and qualitative data could provide deeper insights into the underlying mechanisms.

Industry-specific analysis represents another crucial area for future research. While this study covered various sectors, detailed examination of sector-specific variations could reveal important differences in how these relationships manifest across different business contexts. Comparing B2B versus B2C environments, service versus product-based businesses, and digital versus traditional business models could provide valuable insights for practitioners in different industries.

Cultural context deserves particular attention in future research efforts. Studies comparing developed and developing markets, examining cultural influences on CSR perception, and investigating regional variations in co-creation practices could help organizations better adapt their strategies to different cultural contexts. This becomes increasingly important as businesses continue to operate in an increasingly globalized environment.

The digital transformation of business presents another important avenue for future research. Studies should investigate how digital technologies affect the relationships between CSR, value co-creation, and customer satisfaction. This could include examination of social media influence, online co-creation platforms, and digital CSR initiatives.

Sustainability-focused research represents another crucial direction for future studies. This could include investigation of environmental impact metrics, study of sustainable business practices, and examination of green initiative effectiveness in the context of CSR and value co-creation. The growing importance of sustainability in business operations makes this a particularly relevant area for future investigation.

Finally, future research should also consider practical implementation aspects. This includes development of implementation frameworks, creation of best practice guidelines, establishment of measurement protocols, and design of training programs. Such practical guidance would help organizations better translate research findings into effective business practices.

These recommendations aim to build upon the current findings while addressing limitations and exploring new directions in understanding the complex relationships between CSR, value co-creation, and customer satisfaction. By pursuing these research directions, scholars and practitioners can continue to enhance our understanding of these important business dynamics and their practical applications in contemporary business environments.

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