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Article

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IMPACT OF CORPORATE SOCIAL PERFORMANCE ON FINANCIAL PERFORMANCE: EVIDENCE FROM ISLAMIC BANKS, CONVENTIONAL BANKS AND SOCIAL BANKS

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ABSTRACT

Purpose — This study aims to assess the impact of banking models on the relationship between corporate social performance (CSP) and corporate financial performance (CFP) in determining a viable model for sustainable banking.

Design/Methodology/Approach — The study uses a cross-country sample of 117 financial institutions across 36 countries over an 8-year observation period between 2013 and 2020. To address heterogeneity and endogeneity issues, the authors use the System Generalised Methods of Moments (GMM) estimation models. The study also constructs a novel CSP Index as the independent variable for the research. This CSP Index comprises six indicators reflecting dimensions of financial inclusion and intermediation, serving as proxies for sustainable banking.

Findings — The findings reveal that the distinct banking models have a significant impact and can alter the direction of the CSP-CFP relationship. Specifically, the conventional banking (CB) model exhibits a statistically significant negative association between CSP and CFP. Conversely, the Islamic banking (IB) model emerges as a promising avenue for sustainable finance, indicating that increased corporate social responsibility (CSR) activities within Islamic banks (IBs) lead to greater profitability. This difference arises from the inherent strengths of the IB system in conducting financial intermediation and inclusion activities.

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This contrasts with the CB model's reliance on debt-based instruments, which exacerbates risk and detrimentally impacts financial performance. The findings also show that the social banking (SB) model has a significant effect on the CSP-CFP relationship.

Originality/Value — The findings give new insights into the longstanding debate on the CSP-CFP relationship by examining the impact of banking models. Introducing a novel CSP Index, characterised by its objectivity and verifiability, addresses the prevalent issue of bias inherent in the CSP indices of previous studies.

Keywords — Conventional banking (CB), Corporate social performance (CSP), Corporate financial performance (CFP), Islamic banking (IB), Social banking (SB), Value-based intermediation

Article Classification — Research paper

INTRODUCTION

Research on the relationship between corporate social performance (CSP) and corporate financial performance (CFP) has emerged as an increasingly important measurement of sustainability in the financial sector. According to Sroufe and Gopalakrishna-Remani (2019), the relationship between CSP and CFP is among the most probed areas in business sustainability practices. However, research in this area has reported mixed empirical findings and is thus inconclusive (Aguinis & Glavas, 2012; Fu & Jia, 2012; Fijałkowska *et al.*, 2018; Buallay *et al.*, 2020; La Torre *et al.*, 2021; Park, 2021; Ramzan *et al.*, 2021;). Thus, the question remains: do ethical banking models, notably Islamic banking (IB) and social banking (SB), contribute positively to the CSP-CFP nexus compared to their conventional counterparts?

The motivation for this paper is as follows: first, it addresses the debated issue relating to the CSP-CFP nexus by investigating the impact of three different banking models—notably Islamic banking (IB), social banking (SB) and conventional banking (CB)—on the relationship between CSP and CFP. Along the way, the study tackles a critical issue impeding the financial sector's contribution to sustainable development: a lack of clarity in assessing sustainability performance (Avrampou *et al.*, 2019). In this respect, it constructs a novel CSP Index to gauge the CSP of the sampled financial institutions. The CSP Index is constructed by using six financial indicators which are objective and verifiable data points relating to financial inclusion and financial intermediation dimensions.

Compared with previous studies, this study makes two important contributions. Firstly, it will analyse the moderating effect of IB, SB, and CB in the CSP-CFP relationship. This is to understand whether there is a significant impact of the values-based and ethical banking models, particularly that of SB and IB, on financial performance when undertaking corporate social responsibility (CSR) activities. Secondly, this study will construct its own novel CSP Index as the measurement metrics of sustainability performance to tackle the issues pertaining to CSP indices of past studies that have led to inconsistent findings.

The remainder of this paper is organised as follows: the second section reviews the relevant literature and develops the hypotheses; the third section discusses the research methodology and design; the fourth section presents and discusses the findings; the last section draws the study's conclusions and recommendations.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Corporate Social Performance (CSP) Measurement

In recent years, the debate on the relationship between CSR activities, measured through the Corporate Social Performance Index (CSP Index), and financial performance within the banking industry has gained significant traction (Platonova *et al.*, 2016; Galletta *et al.*, 2021; Çetin *et al.*, 2023; Al-Doseri & Aldhmour, 2024;). Investigations into this area are rooted in the recognition that banks play a pivotal role not only in the allocation of capital but also in driving social and environmental progress (Levine, 2005; Ang, 2008; Masood & Javaria, 2021).

CSP is a 'good behaviour barometer' and is generally recognised as a measure of how corporations treat their broad stakeholders in the fulfilment of social responsibilities (Carroll,

1999; Campbell, 2007; Margolis *et al.*, 2009). Within the financial services industry, the primary goals of CSP include financial inclusion and financial intermediation, which directly correlate to sustainable economic growth (Levine, 2005; Ang, 2008). With the growing importance of sustainable development, there is now a serious need for the financial services sector to shift towards sustainable banking by allocating financial resources to the most impactful sustainable development needs (Carè, 2018).

While CSP research dates to the early 1970s (Griffin & Mahon, 1997; Simpson & Kohers, 2002), studies on CSP within the financial services industry are limited. Prior studies examining CSP in the financial industry have concentrated primarily on the relationship of CSP to banks' financial performance, financial stability, customers' deposits, and impact on shareholder value (Derwall & Verwijmeren, 2007; Di Giulio *et al.*, 2007; Dhaliwal *et al.*, 2011; El Ghoul *et al.*, 2011; Platonova *et al.*, 2016; Sanchez, *et al.*, 2017; Galletta *et al.*, 2021). Notably, investigations of the empirical relationship between CSP and financial performance have not yielded cohesive results to draw consistent conclusions (La Torre *et al.*, 2021; Park, 2021). According to Waddock and Graves (1997), the fundamental reason for the uncertainty about the CSP-CFP relationship is the problem of measuring CSP. Past studies have used different databases, sample sizes, model specifications, and social performance criteria as the CSP indicator (Griffin & Mahon, 1997; Erol *et al.*, 2021). These CSP measurements employ multiple indicators that are not tailored to assess the multidimensional social performance of the financial services industry (La Torre *et al.*, 2021). Moreover, they lack transparency (Chatterji *et al.*, 2009) and are dependent on the quality of respondents' feedback, and are thus open to bias (Waddock & Graves, 1997).

Given the argument regarding the lack of transparency or the biases of CSP indices used in past studies, this research will construct a novel CSP Index customised to directly be associated with key dimensions of financial inclusion and financial intermediation. The CSP Index of this study will use six indicators as proxies of the CSP Index, which uses the indicators of financial inclusion and financial intermediation as shown in **Table 1** below.

Table 1: CSP Index Indicators

Dimensions/Indicators	**Description**
Financial Inclusion Dimensions	
1. Deposit Sustainability	Year-on-Year Growth of Savings Accounts and Demand Deposit Accounts
2. Loan to GDP Ratio	Total Gross Loans to Customers divided by GDP
3. Deposit to GDP Ratio	Total Deposits divided by GDP
Financial Intermediation Dimensions	
4. Net Loan Ratio	Net Loans and Advances to Customers divided by Total Assets
5. Loan Growth	Year-on-Year Growth of Total Loans
6. Deposit Growth	Year-on-Year Growth of Total Deposits

Source: Authors' own

The above six proxies for the CSP Index are based on extensive evidence from past research. According to Levine *et al.* (2000), greater financial inclusion and financial intermediation by the financial sector is good for socioeconomic growth. Khera *et al.* (2022) assert that the growth of

deposits is an important indicator of financial intermediation towards achieving social performance. This is because deposit growth implies that households can access savings instruments for managing consumption and setting aside funds in case of unforeseen shocks.

Galletta *et al.* (2021) contend that the features of low-cost deposits are consistent with social performance objectives. It also reflects customers' loyalty and the financial institution's sustainability to continue mobilising deposits for lending purposes. Meanwhile, access to loans by customers promotes entrepreneurship (Khera *et al.*, 2022). It reflects financial deepening, economic development and inclusive growth, reducing inequality and boosting prosperity (Vo *et al.*, 2021). The productive allocation of financial resources is a vital cog of financial intermediation that helps in boosting economic growth and social development (King & Levine, 1993; Demirgüç-Kunt & Huizinga, 2010).

According to Imam and Kpodar (2015), a developed financial sector helps mobilise savings and facilitates capital allocation to where productive growth is needed most. Lack of access to savings and deposit products will deprive parts of the population of involvement in the economy's formal sector and lead to inefficient and sub-optimal financial intermediation (Imam & Kpodar, 2015). As such, the CSP Index in this research will rank financial institutions with higher scores for financial intermediation and financial inclusion as more socially responsible than those which focus on profit maximisation alone.

Studies that use financial inclusion and financial intermediation dimensions in the construct of the CSP Index to determine the relationship to financial stability are scarce. Friedman (1970) was a prominent proponent of the claim that allocating corporate resources towards environmental and social policies can have negative effects on shareholders' wealth and value. According to Shi and Veenstra (2021), the logic behind Friedman's (1970) argument is that CSP initiatives can be a form of agency cost where the management of the company may be acting in their own self-interest when promoting CSR initiatives, veiled to improve the stakeholder relationship. These agency costs may exceed the benefits and eventually lead to negative financial performance and adversely affect the competitiveness of the organisation.

Meanwhile, studies by Gould and Melecky (2017) and Gadanecz and Tissot (2018) indicate that financial inclusion may have adverse effects on financial performance if financial intermediation is extended to low-credit quality recipients or businesses without financial track records with poor credit risk management practices. These issues may pose high financial and liquidity risks to the financial institution, leading to potential systemic risks to the financial system (García & José, 2016).

Due to the mixed findings of past studies, there remains uncertainty regarding the impact of CSP on CFP using a CSP Index designed by using financial inclusion and financial intermediation dimensions. This paper intends to fill in this gap and will examine the relationship of CSP and CFP via the following hypothesis:

Hypothesis 1: A significant relationship exists between CSP and CFP within the banking industry.

Impact of Banking Models on Financial Performance

The global banking system faced a sharp erosion of public trust following several bank-related frauds and scandals, especially in the aftermath of the global financial crisis of 2008 (GFC)

(Remer, 2011). The GFC revealed the toxic practices of banking institutions, which include predatory lending, targeting customers with weak credit scores, shifting the risks of dicey customers by bundling their contracts into opaque financial instruments, and misrepresenting them to investors (Claessens & Kose, 2013).

Consequently, the global banking industry is now on a path to regaining the trust and confidence of customers by reinventing their business models under the umbrella of sustainability (La Torre *et al.*, 2021). Several new regulatory frameworks surrounding capital and liquidity have been established in the aftermath of the GFC, such as Basel 3, the United Nations Environment Programme Finance Initiative (UNEP FI), and the Principles for Responsible Investment (PRI) (Weber, 2018). The World Bank and its private sector development arm, the International Finance Corporation (IFC), have established social and environmental guidelines such as the Equator Principles (Weber, 2018).

In reinventing itself, the banking industry must demonstrate that it takes ethics and responsibility seriously by restoring its role as financial intermediaries that serve the economy (Weber & Feltmate, 2016). Pichler and Lehner (2017) contend that sustainable finance is important for the financial sector's stability and in addressing government goals on social and environmental development. Carè (2018) argues that there is a need for the global banking industry to fundamentally transform itself by considering value-based banking models such as SB and IB.

In relation to that, the IB industry has emerged as a formidable sub-segment within the global financial system ever since its conceptual developments in the late 1940s (Khan & Bhatti, 2008) and its revival into a modern financial system in the mid-1970s (Vogel & Hayes, 1998). According to the Islamic Financial Services Industry Stability Report 2022 (IFSB, 2023), the global Islamic financial services industry grew by 11.3 per cent year-on-year in 2021 and is estimated at USD3.06 trillion, including banking, capital market, *takāful* and asset management industry sub-segments. The IB segment alone was estimated to be worth USD2.1 trillion in 2021.

The fundamental values of Sharīʿah call for the prevention of harm and the attainment of benefits, which include safeguarding the environment and the well-being of society and communities (BNM, 2022). These fundamental values are the basis of the IB system, which includes the prohibitions relating to usurious practices (*ribā*), excessive speculation (*gharar*), gambling, and other sinful and non-productive activities. IB aims to fulfil socioeconomic objectives and create a just society (Siddiqui, 2004). It forges a closer link between real economic activities that create value and financial activities that facilitate it (Siddiqui, 2004).

Ben Mimoun (2021) asserts that the theoretical foundations of the IB system imply that it is more stable, and thus more profitable, than its CB counterpart. Studies by Iqbal & Mirakhor (2007), Čihák and Hesse (2010), Beck *et al.* (2013), Farooq and Zaheer (2015), Abasimel (2023), and Belkhaoui (2023), also prove that Islamic banks (IBs) are more stable and profitable than conventional banks (CBs) because of higher capitalisation ratios and less risky financing structure employed by IBs. However, other studies by Chong and Liu (2009), Ergeç and Arslan (2013), and Heniwati *et al.* (2021) find that IBs are relatively similar to—although less stable than—CBs.

Meanwhile, the SB model is another value-based banking model. The SB system is an alternative financial banking model that espouses social development and sustainable practices

(Carè, 2018; Benedikter, 2011). SB is essentially aligned toward achieving positive social and ecological objectives (Weber & Remer, 2011). According to Weber and Remer (2011), SB aims to have a positive impact on people, the environment, and culture through its products and services.

Social banks (SBs) experienced phenomenal growth during the GFC and are considered a more resilient way of banking (Benedikter, 2011; Weber, 2011). One recent initiative to formalise the role of SBs was the establishment of the Global Alliance for Banking on Values (GABV), founded in 2009. Weber (2011) examined 13 member banks of the GABV, analysing their business and financial indicators. The results suggest that these SBs follow the mission of social finance and prefer social impacts over financial returns without neglecting financial sustainability.

Therefore, based on the above review, this study will examine the impact of CSP on CFP and the moderating effect of three banking models—notably the IB, SB and CB models—with the following hypotheses:

Hypothesis 2: The relationship between CSP and CFP is significantly affected by the respective banking models.

Hypothesis 2a: The relationship between CSP and CFP is significantly positive under the IB model.

Hypothesis 2b: The relationship between CSP and CFP is significantly positive under the SB model.

Hypothesis 2c: The relationship between CSP and CFP is significantly negative under the CB model.

METHODOLOGY

Unit of Analysis and Sample Size

This quantitative study uses secondary data on a sample of 117 financial institutions consisting of 40 IBs, 40 CBs, and 37 SBs. The sampled financial institutions originate from 36 countries globally, from Asia Pacific, Europe, the Middle East, North America, and South America. The panel data covers an 8-year period from 2013 to 2020. The bank-level data of this study is obtained from the BankFocus database. The remaining country-level data is obtained from the World Bank Open Database.

The selection of the sampled financial institutions is justified because the total size of the sample represents a significant proportion of asset size of the total population of banks. The SBs in this study represent more than 62.5 per cent of the total assets under management of members of GABV. Meanwhile, the IBs in this study make up 70 per cent of the total assets of the IB industry. The CBs are selected based on comparable asset size to IBs and from similar geographies to match the locations of the IBs and SBs, consistent with the study by Fu and Jia (2012).

Independent Variable, Dependent Variable and Control Variables

The CSP Index is the independent variable composed of financial intermediation and financial inclusion dimensions. The six proxies used for the CSP Index are: (i) Net Loan Ratio (LR); (ii) Deposit Sustainability (DS); (iii) Loan Growth (LG); (iv) Deposit Growth (DG); (v) Deposit to

Gross Domestic Product (GDP) Ratio (DR); and (vi) Loan to GDP Ratio (LGD). The CSP Index (CSP_{6it}) is expressed by the following equation:

$$CSP_{6it} = \sum_{j_{it}}^{8} (LR_{it} + DS_{it} + LG_{it} + DG_{it} + DR_{it} + LGD_{it}) \quad (1)$$

Following extant literature (Waddock & Graves, 1997; Ramzan *et al.*, 2021; La Torre *et al.*, 2021), the dependent variable used as the indicator of CFP will be return on average assets (ROAA).

Following previous studies on CSP, this research will control for bank-level differences in assets, capital adequacy ratio (CAR), and overhead expenses (Cavaco & Crifo, 2014; Buchanan *et al.*, 2018). Size is expressed by the natural logarithm of total assets (TA) in U.S. dollars billion, and CAR is derived by dividing total equity by total assets (TE/TA) (Finger *et al.*, 2018). The overhead expenses are measured by the cost-to-income ratio (COI), which indicates how well banks manage their total costs, including overhead expenses, relative to their income. Thereby, a higher COI value would denote more significant inefficiency (Rajhi & Hassairi, 2013).

Meanwhile, to verify the dependence of bank performance on the economic conditions of the country, the study utilises the natural logarithm of GDP, and the inflation rate (IF), as per Hossain and Oon's (2022) study. The study also controls the sustainability practices of the countries by using the carbon dioxide (CO_2) emissions measured by metric tonnes per capita. CO_2 is a principal greenhouse gas that affects the earth's radiative balance and is the reference gas against which other greenhouse gases are measured for sustainability and climate-related studies (The World Bank, 2022).

To examine the relationship between the dependent and independent variables, the study uses the Generalised Methods of Moments (GMM) as the regression estimator, following the study by Imam and Kpodar (2015), Ibrahim and Rizvi (2018), and others.

Panel Data Model and Regression Models

This research utilises panel data structures, known for their efficiency in econometric estimations and testing complex behavioural hypotheses (Das, 2019; Jha & Rangarajan, 2020). Panel data can employ static or dynamic regression models; however, static panel data may suffer from biases and inconsistencies due to endogeneity issues such as reverse causality (Hauk Jr., 2017; Ullah *et al.*, 2018).

To address endogeneity, the GMM, particularly the System GMM estimator, is recommended (Ullah *et al.*, 2018; Das, 2019). This is because the use of lagged dependent variables as regressors in dynamic panel data estimation models removes the endogeneity by internalising data and hence enhances the efficiency of GMM models (Arellano & Bond, 1991; Blundell & Bond, 1998; Roodman, 2009; Wooldridge, 2012).

Arellano and Bover (1995) further recommended the use of a second-order transformation or the two-step GMM estimator, which prevents unnecessary data loss (Roodman, 2009). Therefore, in the case of a balanced panel dataset, a two-step GMM model provides more efficient and consistent estimates for the involved coefficients (Arellano & Bover, 1995).

Employing the one-step and two-step System GMM estimators, this research aims to provide efficient and consistent estimates for the coefficients in the balanced panel dataset (Arellano & Bover, 1995).

To explore the impact of CSP on CFP, the following baseline model is estimated following studies by Bilgin *et al.* (2021); Ramzan *et al.* (2021), La Torre *et al*. (2021):

$$ROAA_{jit} = \alpha_0 + ROAA_{jit-1} + \beta_1 CSP_{6jit} + \beta_2 TA_{jit} + \beta_3 CAR_{jit} + \beta_4 COI_{jit} + \beta_5 CO2_{jit} + \beta_6 IF_{jit} + \beta_7 GDP_{jit} + \mu_{jit} \quad (2)$$

The study explores the moderating impact of three banking models on the relationship between CSP and CFP through the incorporation of interaction terms. This methodological approach is substantiated by the findings of Brambor *et al.* (2006), who advocate for the inclusion of interaction terms in the presence of conditional hypotheses.

A conditional hypothesis arises when the association between two or more variables is contingent upon the values of one or more additional variables (Brambor *et al.*, 2006). Therefore, in testing Hypothesis 2, where the sample comprises IB, SB, and CB as moderating variables along with the interaction variables of IBCSP, SBCSP and CBCSP, the respective model equations are as follows:

$$ROAA_{jit} = \alpha_0 + ROAA_{jit-1} + \beta_1 CSP_{6jit} + \beta_2 TA_{jit} + \beta_3 CAR_{jit} + \beta_4 COI_{jit} + \beta_5 CO2_{jit} + \beta_6 IF_{jit} + \beta_7 GDP_{jit} + \mu_{jit} \quad (2)$$

$$ROAA_{jit} = \alpha_0 + ROAA_{jit-1} + \beta_1 CSP_{jit} + \beta_2 TA_{jit} + \beta_3 CAR_{jit} + \beta_4 COI_{jit} + \beta_5 GDP_{it} + \beta_6 CO2_{it} + \beta_7 IF_{it} + \beta_8 IB_{jit} + \beta_9 IBCSP_{jit} + \mu_{jit} \quad (3)$$

$$ROAA_{jit} = \alpha_0 + ROAA_{jit-1} + \beta_1 CSP_{jit} + \beta_2 TA_{jit} + \beta_3 CAR_{jit} + \beta_4 COI_{jit} + \beta_5 GDP_{it} + \beta_6 CO2_{it} + \beta_7 IF_{it} + \beta_8 SB_{jit} + \beta_9 SBCSP_{jit} + \mu_{jit} \quad (4)$$

$$ROAA_{jit} = \alpha_0 + ROAA_{jit-1} + \beta_1 CSP_{jit} + \beta_2 TA_{jit} + \beta_3 CAR_{jit} + \beta_4 COI_{jit} + \beta_5 GDP_{it} + \beta_6 CO2_{it} + \beta_7 IF_{it} + \beta_8 CB_{jit} + \beta_9 CBCSP_{jit} + \mu_{jit} \quad (5)$$

Where *j*,*i*,*t* stand for bank, country and time respectively.

RESULTS AND DISCUSSION

Descriptive Analysis

Table 2 presents the descriptive statistics of the full sample of banks and the respective banking models of IB, SB and CB. All bank-level variables are winsorised at the 1st and 99th percentiles to remove the impact of outliers. There are a total of 936 observations of the full sample—consisting of 320 observations of IBs and CBs, respectively, and 296 observations of SBs—over a period of eight years.

Table 2: Descriptive Statistics

	Overall			Islamic Banking			Social Banking			Conventional Banking		
Variable	**N**	**Mean**	**Std. Dev.**	**N**	**Mean**	**Std. Dev.**	**N**	**Mean**	**Std. Dev.**	**N**	**Mean**	**Std. Dev.**
ROAA	936	1.063	0.938	320	1.144	0.91	296	0.792	0.783	320	1.236	1.081
ROAE	936	9.622	8.098	320	10.39	8.382	296	7.807	7.437	320	10.52	8.211
CSP	936	1.167	0.577	320	1.251	0.674	296	1.114	0.506	320	1.142	0.626
TA	936	22.49	2.09	320	22.87	1.632	296	20.96	2.001	320	23.47	1.96
CAR	936	10.62	4.156	320	11.05	4.125	296	10.02	3.086	320	10.67	4.946
COI	936	59.33	20.36	320	53.41	19.85	296	72.89	14.56	320	52.69	19.36
IF	936	3.107	7.202	320	5.023	11.76	296	2.075	1.981	320	2.145	2.14
CO_2	936	10.74	8.639	320	14.06	9.963	296	8.151	5.896	320	9.823	8.318
GDP	936	26.70	2.161	320	25.79	1.32	296	27.55	2.343	320	26.84	2.314

ROAA = Return on average assets; ROAE = Return on average equity; CSP = Corporate social performance; TA = Total assets; CAR = Capital adequacy ratio; COI = Cost-to-income ratio; IF = Inflation rate; CO_2 = Carbon dioxide; GDP = Gross domestic product
Source: Authors' own

The findings show that the mean of ROAA and ROAE are 1.06 per cent and 9.62 per cent, respectively, with CBs recording a higher mean ROAA and ROAE at 1.23 per cent and 10.52 per cent, respectively. The CSP Index has an overall mean of 116.7 per cent, with IBs scoring a higher mean at 125.1 per cent against 114.2 per cent for CBs and 111.4 per cent for SBs. As the CSP Index comprises the six positive indicators related to financial inclusion and financial intermediation, a higher score means better social performance.

The TA of the overall sample set is USD22.49 billion with CBs showing a larger mean TA at USD23.47 billion. Moreover, the mean CAR of the sample banks is 10.62 per cent, with IBs reporting the highest CAR at 11.05 per cent. The COI ratio, which is an efficiency ratio used to measure a banking institution's ability to control operating costs to its operating income (Dao & Nguyen, 2020), has a mean of 59.07 per cent. CBs record the lowest COI at 52.19 per cent.

Correlation Analysis

Table 3 shows the Pearson correlation matrix of the variables and their probabilities. The ROAA is significantly and positively correlated with CSP, CAR, IF, CO_2 and GDP, and negatively correlated to COI. Meanwhile, the CSP is significantly and positively correlated to TA, IF, and CO_2. CSP is also negatively correlated to COI, which means that high levels of COI are associated with higher levels of financial risk (Oikonomou *et al.*, 2012). The pairwise correlation matrix shown in **Table 3** also indicates the possibility of multicollinearity among the independent variables. As all the independent variables show correlation coefficients with a value less than 0.7, their inclusion will not present any problem of multicollinearity (Kennedy, 2008; Dwumfour, 2017).

Table 3: Pearson Correlation Analysis

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ROAA	1.000							
CSP	0.208*	1.000						
	(0.000)							
TA	0.053	0.109*	1.000					
	(0.105)	(0.001)						
CAR	0.498*	-0.004	-0.130*	1.000				
	(0.000)	(0.911)	(0.000)					
COI	-0.569*	-0.138*	-0.382*	-0.282*	1.000			
	(0.000)	(0.000)	(0.000)	(0.000)				
IF	0.203*	0.112*	0.008	-0.108*	-0.001	1.000		
	(0.000)	(0.001)	(0.800)	(0.001)	(0.980)			
CO_2	0.141*	0.088*	0.319*	0.409*	-0.290*	-0.258*	1.000	
	(0.000)	(0.007)	(0.000)	(0.000)	(0.000)	(0.000)		
GDP	-0.161*	0.002	0.352*	-0.183*	0.190*	-0.171*	0.199*	1.000
	(0.000)	(0.956)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	
*** *p<0.01*, ** *p<0.05*, * *p<0.1*								

Source: Authors' own

Regression Analysis: CSP-CFP Relationship

Table 4 presents the outcomes of the GMM regression analyses for Hypothesis 1. The findings, under both column 1 and 2, indicate a highly significant and positive relationship between CSP and CFP.

These results imply that social performance by the banking industry is associated with a positive relationship to financial performance. The positive and significant coefficient of CSP in column 2 reveals that an increase in social activities by the overall sample of banks has a positive impact on financial performance, as one standard deviation increase in CSP (0.577) heightens financial performance by 0.08 per cent or 8 basis points (0.154%*0.577).

The findings consistently reveal that CSP exhibits a highly significant and positive impact on CFP. This proves that the social performance endeavours of banking institutions exert a favourable impact on their financial performance, aligning with the conclusions drawn by Aboud and Diab (2018), Buallay *et al.* (2020), Ramzan *et al.* (2021). These results thus suggest that heightened engagement in social performance activities within the banking sector positively correlates with financial performance.

Additionally, the diagnostic statistics confirm the robustness of the findings, indicating the absence of serial correlation within the estimation models and thus mitigating concerns regarding endogeneity and reverse causality. Moreover, the Hansen tests affirm the validity of the instruments employed in the model estimations.

Table 4: CSP-CFP Regression Analysis Using System GMM

	1-Step System GMM	2-Step System GMM
Variables	**ROAA**	**ROAA**
ROAA (*lagged*)	0.246**	0.268***
	(0.111)	(0.1000)
CSP	0.148**	0.154***
	(0.0597)	(0.0531)
TA	-0.296***	-0.305***
	(0.113)	(0.110)
CAR	0.0752**	0.0651**
	(0.0310)	(0.0306)
COI	-0.0305***	-0.0284***
	(0.00419)	(0.00448)
IF	0.0224*	0.0203
	(0.0134)	(0.0132)
CO_2	0.00376	0.00536
	(0.0198)	(0.0190)
GDP	0.201*	0.163
	(0.103)	(0.102)
Constant	2.809	3.912
	(3.853)	(3.788)
Observations	819	819
Number of Banks	117	117
Arellano-Bond Test AR(1) (p-value)	0.000	0.002
Arellano-Bond Test AR(2) (p-value)	0.802	0.926
Sargan Test (Chi^2, p-value)	0.000	0.000
Hansen Test (Chi^2, p-value)	0.119	0.119

Source: Authors' own

Regression Analysis: Moderating Effects on the CSP-CFP Relationship

To undertake the regression of the banking models, a dummy variable was created for each banking model that takes either 1 or 0 to represent the attribute of the variable (Das, 2019). The artificially generated binary variable is multiplied by the respective CSP values to create the respective interaction terms of IBCSP, SBCSP, and CBCSP that represent the CSP values of each respective banking model. The results of the GMM methods on the CSP-CFP relationship by banking models are shown in **Table 5**.

Under the one-step System GMM, the IB model demonstrates a significant and positive effect on the CSP-CFP relationship. However, the two-step System GMM regression indicates a positive coefficient but an insignificant relationship. Due to these divergent outcomes, the study proceeded with additional testing using a post-estimation command to assess the statistical significance of the interaction term IBCSP. This involved employing the STATA command 'lincom x + moderating variable' to examine linear combinations between the coefficients of CSP and the interaction term IBCSP. The results are shown in **Table 5** under the category of Linear Combination.

The results from **Table 5** for the linear combination for IBCSP indicate that the p-value for the post-estimation regression is 0.026, which is highly significant. This signifies that the estimation variable IBCSP has a significant impact on the relationship between CSP and CFP

when employing the two-step System GMM regression method. With this compelling evidence, the study is able to draw conclusive findings regarding the influence of the IB model on the CSP-CFP relationship and confirm Hypothesis 2a, which posits a positive and significant association between the IB model and the CSP-CFP relationship. Based on the coefficient of CSP, one standard deviation increase in CSP (0.674) by IBs will positively impact financial performance by 0.14 per cent or 14 basis points (0.674%*0.209), under the one-step System GMM results, or by 0.135 per cent under the two-step System GMM results (0.674%*0.201).

The results of the CB model, as examined by the two-step System GMM estimation, reveal a statistically significant negative impact on the CSP-CFP relationship, thereby confirming Hypothesis 2c. This suggests that as CBs engage in more social performance activities associated with financial inclusion and financial intermediation, their financial performance will be adversely affected. Based on the coefficient of CSP, one standard deviation increase in CSP (0.626) by the CBs will adversely affect financial performance by 0.117 per cent or 11.7 basis points (0.626%*-0.187).

The examination of the SB model through System GMM estimations reveals intriguing findings regarding its influence on the CSP-CFP relationship. Notably, while the one-step System GMM demonstrates a positive coefficient, suggesting a favourable impact, the two-step System GMM presents a contrasting negative coefficient. However, both results were too insignificant to draw valid conclusions. Upon subsequent analysis, which is the linear combination test, the results support the significance of the positive effect observed in the one-step System GMM estimation, despite the insignificance found in the two-step counterpart.

Based on the coefficient of CSP, one standard deviation increase in CSP (0.506) by the SBs will positively impact financial performance by 0.08 per cent or 8 basis points (0.506%*0.169), under the one-step System GMM results. Consequently, despite other tests yielding insignificant results, Hypothesis 2b is affirmed, indicating that the SB model indeed exerts a significant influence on the CSP-CFP relationship. Given that the results were significant and positive under the one-step System GMM estimation for the SB sample, the research accepts Hypothesis 2b even though the other remaining test results yielded insignificant results. This concludes that the SB model has a significant effect on the CSP-CFP relationship.

Table 5: CSP-CFP Regression Analysis Using Banking Models as Moderators

	Islamic Banking		**Social Banking**		**Conventional Banking**	
Variables	**1-Step GMM**	**2-Step GMM**	**1-Step GMM**	**2-Step GMM**	**1-Step GMM**	**2-Step GMM**
ROAA (*lagged*)	0.192	0.214*	0.223**	0.227**	0.273***	0.272***
	(0.128)	(0.126)	(0.105)	(0.0983)	(0.104)	(0.0935)
CSP	0.0178	0.0177	0.155**	0.162**	0.177**	0.181***
	(0.0534)	(0.0530)	(0.0649)	(0.0675)	(0.0798)	(0.0682)
IBCSP/SBCSP/CBCSP	0.191*	0.183	0.0146	-0.0214	-0.186	-0.187*
	(0.114)	(0.113)	(0.100)	(0.112)	(0.119)	(0.110)
IB/SB/CB	0.0704	0.119	-0.461	-0.448	0.166	0.154
	(0.345)	(0.298)	(0.365)	(0.388)	(0.349)	(0.284)
Size	-0.300***	-0.300***	-0.296**	-0.315**	-0.166*	-0.155**
	(0.113)	(0.102)	(0.125)	(0.138)	(0.0864)	(0.0684)

Table 5: CSP-CFP Regression Analysis Using Banking Models as Moderators (Cont.)

	Islamic Banking		Social Banking		Conventional Banking	
Variables	**1-Step GMM**	**2-Step GMM**	**1-Step GMM**	**2-Step GMM**	**1-Step GMM**	**2-Step GMM**
CAR	0.0660**	0.0607*	0.0796***	0.0725**	0.0616**	0.0602**
	(0.0275)	(0.0311)	(0.0296)	(0.0300)	(0.0266)	(0.0279)
COI	-0.0297***	-0.0292***	-0.0301***	-0.0301***	-0.0306***	-0.0301***
	(0.00412)	(0.00388)	(0.00412)	(0.00452)	(0.00441)	(0.00442)
IF	0.0315*	0.0299*	0.0274*	0.0255*	0.0220	0.0206
	(0.0171)	(0.0171)	(0.0147)	(0.0151)	(0.0151)	(0.0145)
CO_2	-0.00866	-0.0112	-0.0252	-0.0237	-0.00658	-0.00527
	(0.0173)	(0.0187)	(0.0191)	(0.0174)	(0.0153)	(0.0171)
GDP	0.163*	0.163	0.181*	0.210**	0.186**	0.185*
	(0.0959)	(0.102)	(0.0952)	(0.0977)	(0.0931)	(0.103)
Linear Combination (CSP+IBCSP/SBCSP/CBCSP)	0.209**	0.201**	0.169*	0.140	-0.009	-0.005
	(0.092)	(0.089)	(0.091)	(0.098)	(0.065)	(0.066)
Constant	4.179	4.184	3.715	3.422	0.491	0.255
	(2.874)	(3.002)	(3.678)	(3.552)	(3.357)	(3.339)
Observations	819	819	819	819	819	819
Number of Banks	117	117	117	117	117	117
Arellano-Bond Test AR(1) (p-value)	0.000	0.004	0.000	0.002	0.000	0.002
Arellano-Bond Test AR(2) (p-value)	0.763	0.894	0.830	0.895	0.925	0.935
Sargan Test (Chi^2, p-value)	0.000	0.000	0.000	0.000	0.000	0.000
Hansen Test (Chi^2, p-value)	0.227	0.227	0.262	0.262	0.246	0.246

Source: Authors' own

CONCLUSION AND RECOMMENDATIONS

The findings of this research provide valuable insights into the moderating effect of banking models, filling a gap in the existing literature that has often overlooked the impact of banking models on the relationship between CSP and CFP. The study demonstrates that the specific banking model adopted plays a pivotal role in shaping the impact of CSR activities, particularly those related to sustainable finance dimensions, such as financial inclusion and financial intermediation, on financial performance. This understanding is especially pertinent in regions where banks of varying models operate, as it enables policymakers to devise targeted strategies that accommodate the unique characteristics and dynamics of each banking model.

The results reveal that while the overall CSP-CFP relationship in the banking industry is positive, the distinct banking models can alter the direction of this relationship. The impact of value-based IB and SB models positively impact the relationship between CSP and CFP, contrasting with the negative impact of the CB model. This reveals significant policy implications for sustainable finance and financial risk mitigation. Acknowledging the positive impact of the value-based banking models on CSP and CFP suggests the need for policymakers, including central banks and monetary authorities, to incentivise the adoption of ethical and value-based banking principles, especially Islamic finance and social finance principles within the banking sector.

Meanwhile, recognising the adverse effect of the CB model on the CSP-CFP relationship underscores the importance of regulatory interventions to address systemic risks posed by CB practices. Policymakers should implement measures to mitigate excessive risk-taking and prioritise long-term sustainability over short-term profit maximisation within the banking industry. This underscores the importance of regulatory reform, innovation, and education to advance sustainable finance agendas and mitigate systemic financial risks.

One plausible explanation for the positive impact of the IB model on the CSP-CFP nexus lies in its value-based ethical principles. According to Hasan and Dridi (2010), the IB business model's emphasis on risk-sharing principles helped it navigate the challenges posed by the GFC. Unlike the CB model, which relies heavily on debt-based financial instruments for risk transfer, the IB industry employs asset-based financial instruments and prioritises risk-sharing mechanisms.

Additionally, the IB and SB industry's relatively simpler financial instruments, which are focused primarily on financing and trade finance products, contribute to a more direct relationship between financial inclusion, financial intermediation, and profitability indicators. This observation aligns with previous studies by Parashar (2010) and Weber (2011), who found that IBs and SBs outperformed CBs during and after the GFC, particularly in terms of ROA and liquidity ratios.

This study has several limitations. First, the scarcity of literature and data points on sustainable banking models poses challenges in precisely measuring the CSP of financial institutions, particularly in addressing climate change and environmental issues. The absence of standardised metrics for measuring and reporting the activities of financial institutions in tackling these issues impedes accurate assessment. This highlights the need for future research to develop globally accepted standards for sustainability reporting, which would enhance the ability to evaluate the impact of financial institutions' CSR activities.

Secondly, this study's focus on SBs selected from the Global Alliance for Banking on Values (GABV) may introduce biases that influence the findings related to SBs' impact on the CSP-CFP relationship. The characteristics of these SBs may differ from those not affiliated with the GABV, potentially affecting the generalisability of the results.

Addressing these limitations requires further research efforts to expand the literature and data available on sustainable banking models and develop standardised metrics for assessing the social performance of financial institutions. Additionally, future studies should consider a broader range of SBs beyond those associated with specific alliances or networks to provide a more comprehensive understanding of their impact on the CSP-CFP relationship.

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DECLARATION

Credit Authorship Contribution Statement

- Syed Alwi Mohamed Sultan: This research paper is extracted from the PhD thesis of Syed Alwi Mohamed Sultan under the supervision of Assoc. Prof. Dr Wan Marhaini Wan Ahmad and Professor Dr Obiyathulla Ismath Bacha.
- Wan Marhaini Wan Ahmad: Supervision and review of the research.
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The authors declare that they have no known competing financial interest or personal relationships that could have influenced the research work.

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None

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Appendix

None