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Impact of CSR disclosure on profitability and firm performance of Malaysian halal food companies

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Abstract
The purpose of this study is to examine the impact of corporate social responsibility (CSR) disclosure on the profitability and firm performance of Halal food companies in Malaysia. Applying a quintitative method, the study utilised a dynamic GMM-based statistical technique for analysing the data from 75 public-listed Halal food companies in Malaysia from 2012 to 2021.The findings highlight a substantial relationship between CSR disclosure and profitability (ROA) as well as firm performance (TBQ) of Halal food companies in Malaysia. The result showed economic, environmental, and social CSR disclosures have a significant effects on ROA and TBQ in dynamic models. The outcome of the study implies that actively engaging in economic, environmental, and social CSR practices provides with a competitive advantage, contributes to long-term viability, and attracts socially conscious investors. It also emphasises the strategic importance of comprehensive CSR strategies for encouraging positive stakeholder relationships, managing diverse aspects of sustainability, and enhancing overall business success, including employee engagement and motivation.

Keywords Economic · Environmental · Social · CSR disclosure · Profitability · Firm performance · Halal food industry · Dynamic GMM

1 Introduction

Businesses are increasingly expected to go above and beyond their conventional function of delivering goods and services to meet the needs of their communities [1, 2]. CSR can be viewed as an expansion of a company's efforts to ensure effective, sustainable, and ethical business processes [3, 4]. Consequently, academic studies on CSR disclosure (CSRD) and its connection with financial performance have gained significant attention [5, 6]. Thus, the researchers have defined corporate social responsibility (CSR) disclosure in numerous ways, encompassing environmental factors, relationships with society, socio-economic issues, and relationships with diverse stakeholders [7].

The Malaysian government has committed enormous resources to promoting Malaysia as a global leader in Halal commerce. Evidently, Halal exports increased by 19.0 percent from MYR30.5 billion in 2020 to MYR36.3 billion in 2021 [8], with food and beverage continuing to account for the majority of exports at MYR17.64 billion [9]. Malaysia is known for exporting Halal products, particularly food and beverages, to a group of countries, including those in the Asia–Pacific Economic Cooperation (APEC), Association of Southeast Asian Nations (ASEAN), and Trans-Pacific Partnership (TPP) [10]. By 2030, the country's Halal sector will become a USD 113.2 billion industry, with its food component accounting for 75 percent (USD 85.2 billion) of it [10].

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In the Halal food industry, CSR disclosure holds immense significance, aligning with the values of consumers who prioritize transparency and ethical practices. Consumers in this industry place a premium on knowing the origins and ethical considerations of their food, making CSR disclosure a powerful tool in building consumer trust [11, 12]. Beyond consumer trust, CSR disclosure aids in market differentiation, global reputation building, and risk mitigation. However, despite the Malaysian government's commitment to promoting Malaysia as a global leader in Halal commerce, there is limited research on CSRD practices in Malaysian Halal food companies. The absence of such studies may lead to issues such as a lack of transparency, erosion of trust, and reputational risks. While CSR disclosure plays a significant role in financial markets, the moderating effect of CSRD on the link between CSR and financial performance remains uncertain [13].

Therefore, the main objective of this research is to examine the impact of CSR disclosure on profitability measured by return on assets (ROA) and firm value measured by Tobin'Q (TBQ) of Malaysian Halal Food Companies, addressing the gap in the existing literature. The study aims to expand on existing research by focusing on the Halal industry specifically, providing insight into how CSR practises and initiatives impact financial performance in this unique context.

The study is anticipated to contribute to the literature on the association between CSR disclosure and stakeholder theory, particularly in the context of the Halal industry. Previous research has suggested that implementing CSR practises can improve relationships with stakeholders and enhance financial performance [14]. Examining this relationship in the Halal industry could provide unique insights into how stakeholder theory is applied in this specific context.

Finally, the study is expected to present empirical evidence regarding the correlation between CSR disclosure and financial performance (ROA and TBQ) in public listed Malaysian Halal food companies. The study adjusts for the endogeneity of CSR disclosure, as higher-quality companies tend to participate in more CSR activities regardless [13]. The study uses a dynamic generalised method of moments (GMM) model, providing a novel approach to examining the association between CSR disclosure and the financial performance of Halal food companies in Malaysia. The implications of the study are expected to extend to policymakers, managers, and academics in emerging nations.

The remaining parts of the paper are structured as follows: In the second section, a literature review covering both theoretical and empirical investigations is presented. In the third section, methodology; in the fourth section, results; in section five, discussion and implications; and in the last section, conclusion, recommendations, limitations, and future research are presented.

2 Literature review

The triple bottom line (TBL), developed by Elkington, serves as the foundational theory for the research, emphasising sustainability [15]. Sustainability, dating back to the concept of "spaceship earth" over 130 years ago [16], gained traction with the Brundtland Report in 1987, defining sustainable development as meeting present needs without compromising the future [17]. TBL evaluates a business along economic, social, and environmental dimensions [18], directing corporations toward a holistic performance assessment.

Corporate social responsibility (CSR) has become a strategic imperative globally, evident in increased CSR activities and disclosure practises over the past three decades [19]. A surge in CSR disclosure interest since the 1980s is reflected in the literature, responding to stakeholder demands for societal and environmental information [20]. Legitimacy Theory and Stakeholder Theory emerge as guiding frameworks, emphasising CSR as a strategic response to uphold social legitimacy and address stakeholder concerns [21]. CSR disclosure is viewed as a resource for ensuring sustainability and stakeholder relationships [22]. Transparency in CSR is considered an investment that enhances corporate value by balancing stakeholder interests [23–25]. However, the intricate and sometimes inconclusive nature of the relationship between CSR disclosure and financial performance necessitates further exploration [26, 27].

Two prominent theoretical frameworks guiding CSR practises are legitimacy theory and stakeholder theory [28]. Legitimacy Theory posits that firms actively participate in CSR endeavours as a strategic response aimed at upholding social legitimacy and cultivating a favourable reputation within the broader societal context [29]. This perspective suggests that companies are motivated to align their actions with societal expectations to fortify their standing. In parallel, stakeholder theory underscores the imperative of addressing the diverse interests of various stakeholders through CSR initiatives. This theoretical framework posits that organisations must actively consider and incorporate the concerns and expectations of multiple stakeholder groups into their CSR practices [30].

[21] conducted a seminal study exploring the motivations driving CSR disclosure and its impact on corporate reputation. Their work contributes to understanding the complex dynamics governing the relationship between CSR

practises and organisational standing. Furthermore, [31] focused on the empirical analysis of the relationship between CSR disclosure and financial performance, emphasising the pivotal role of social and environmental disclosures. In terms of financial performance, theoretical frameworks such as agency theory and the resource-based view (RBV) offer illuminating perspectives on the complex relationship between CSR disclosure and financial performance [32]. Agency Theory examines the dynamics between managers and shareholders, exploring how CSR influences agency costs and overall financial performance [33]. Simultaneously, the RBV posits CSR as a strategic resource that can bolster a firm's competitive advantage, emphasising the role of CSR in contributing to sustained economic viability [34].

Empirical insights from [35] through a meta-analysis reveal a positive correlation between CSR disclosure and financial performance, providing empirical support for the notion that CSR disclosure engagement aligns with improved financial outcomes. Additionally, [36] investigation into the impact of social performance on financial performance across industries offers valuable industry-specific insights. Key concepts, such as the temporal effects of CSR initiatives and the necessity for sector-specific analyses, further highlight the nature of the relationship between CSR disclosure and financial performance. This comprehensive synthesis integrates theoretical underpinnings, empirical evidence, and key conceptual dimensions to advance an understanding of the relationship between CSR disclosure and financial performance.

In the context of the Halal food industry, a complex landscape is defined by unique challenges and opportunities. Cultural and religious considerations form a pivotal backdrop as the industry operates within specific cultural and religious frameworks, where adherence to Halal principles is paramount. Moreover, the industry's foundation is complexly tied to consumer trust and compliance, with trust emerging as a critical currency. In this context, CSR disclosure assumes significance as it is perceived to play a crucial role in establishing and sustaining consumer trust [37]. Study, examining the role of CSR disclosure in building consumer trust, provides empirical insights into the dynamics of trust-building within the industry. Similarly [38], exploration into the impact of CSR on the financial performance of Halal food companies contributes substantively to the understanding of the economic dimensions within this distinctive sector.

The literature related to CSR disclosure and financial performance suggests a range of findings, including positive, negative, and neutral relationships between CSR disclosure and financial outcomes. On the positive side, studies such as [35] conducted a meta-analysis, revealing a positive correlation between CSR and financial performance. Their findings suggest that firms engaging in CSR activities tend to experience enhanced financial outcomes, reflecting a potential alignment between ethical practises and economic success. This perspective is reinforced by the work of [21], which explored the motivations behind CSR disclosure and found implications for positive corporate reputation. Conversely, literature also incorporates studies that have identified a negative or inconclusive relationship. Some scholars argue that the financial impact of CSR activities may not be uniformly positive. For instance [6], found mixed results, suggesting that while some aspects of CSR positively correlate with financial performance, others may not. Moreover, studies like [36] have explored the impact of social performance on financial performance across industries, recognising the sector-specific nature of this relationship.

Empirical studies globally on CSRD's impact on financial performance (FP) provide inconsistent findings. While [39] and [27] found positive associations, Griffin and Mahon [40] observed a sector-specific positive correlation within the chemical industry. The complex relationship between CSRD and financial performance calls for further investigation, acknowledging contextual factors. In a sector-specific study within the chemical industry, [40] discovered a positive correlation between the degree of CSRD and FP. Their research, integrating various publications, acknowledges the majority of studies showing a negative association, but certain studies remain ambiguous, uncovering both positive and negative correlations. The complexity of the relationship between CSRD and financial performance calls for further investigation and sector-specific analyses. The correlation between CSR disclosure (CSRD) and financial performance is acknowledged to be complex. Some instances show no documented relationships, and various studies suggest inconclusive impacts, emphasizing the existence of channels conducting the effect of CSRD to firm performance [26, 41]. A factorial analysis of variance highlights the importance of including control variables such as size, age, industry, risk, and spending on research and development for accurate predictions of future outcomes [27].

The size of a corporation has been extensively studied in relation to CSR disclosure. Research findings indicate a statistically significant and positive association between the size of a corporation and its level of social responsibility activities and disclosures [42]. Larger corporations are more likely to face scrutiny from the general public and socially conscious interest groups [43–45]. The heightened visibility of larger corporations, expanded across geographical and product markets, results in greater attention from diverse stakeholder groups [46]. However, [47] present a contrasting view, finding no evidence supporting a connection between corporation size and CSR engagement. Profitability is a critical metric for assessing an organization's financial performance. Return on assets (ROA), a widely used profitability ratio, evaluates a company's ability to transform assets into earnings [48, 49]. Tobin's Q, another economic measure, assesses a company's market value relative to its asset value [50, 51]. Both metrics contribute to evaluating a company's financial performance. In accordance with the above explanation and the review of literature, CSR disclosure and its effect on profitability and firm performance in this study can be described in the following research framework (Fig. 1) and hypotheses:

Hypothesis 1 (H1): There is a significant relationship between CSR disclosure and profitability (ROA) of Malaysian Halal food companies.

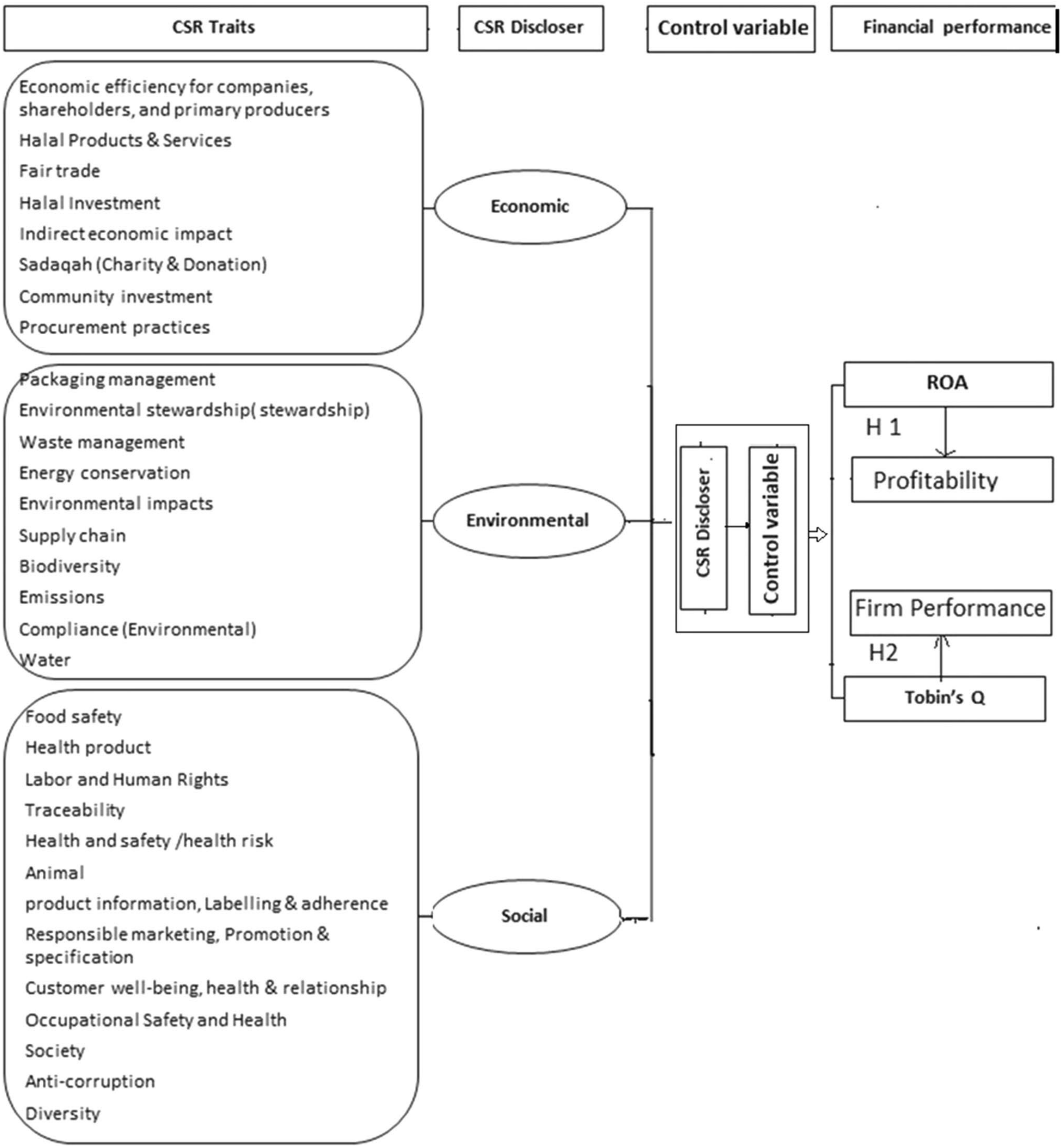

Fig. 1 Research Framework

Hypothesis 2 (H2): There is a significant relationship exist between CSR disclosure and firm performance (TBQ) of Malaysian Halal food companies.

The economic dimensions of CSR comprise a variety of traits, each examined in the literature for its implications on sustainable and ethical business practices. Fair trade, investigated by [52], emphasises equitable trading, contributing to the social responsibility of supply chain management [53]. Examined the economic efficiency of companies and shareholders, exploring how adherence to CSR practises can enhance overall economic effectiveness. Community investment, as explored by [54], reflects the idea that CSR extends to fostering community development and investment [55]. Investigated the economic impact of responsible procurement practices, emphasising the significance of ethical sourcing. The economic implications of offering Halal products and services are addressed by [54], recognising the financial dimensions of catering to the Halal market [56]. Examined the economic factors of Halal investment and the indirect economic impacts of CSR, providing insights into the financial dimensions of investments aligned with ethical and Islamic principles. Additionally [57], contribute to understanding Sadaqah as a CSR trait with economic impacts within Islamic finance.

The environmental dimensions of CSR are explored in various studies [58]. Investigate the concept of environmental stewardship, emphasising the role of organisations in managing and preserving the environment as part of their CSR commitments [53]. Examine the environmental aspects of supply chain practices, shedding light on how responsible supply chain management contributes to sustainable business practices. The same authors also address broader environmental impacts and water management within the CSR framework [59]. Contributes insights into CSR through the lens of energy conservation and biodiversity, emphasising the importance of businesses in promoting energy-saving initiatives and preserving biodiversity [60]. Focus on waste management and emissions, highlighting the significance of responsible waste disposal and emission reduction in minimising environmental harm [61]. Explore packaging management and environmental compliance as integral components of CSR, emphasising sustainable packaging practises and adherence to environmental regulations.

The social dimensions of CSR and its traits are examined in the literature by the following researchers: [62] emphasises the CSR aspect of food safety, underscoring the role of businesses in ensuring the safety and quality of food products [56]. Contributes insights into labour and human rights, emphasising the significance of organisations upholding fair and just labour practices [52]. Explore multiple facets, including product information transparency, fair products, and animal welfare, highlighting the importance of accurate information, ethical product production, and humane treatment of animals in business practices [53]. Examine Halal food traceability and the Halal supply chain, exploring how traceability and adherence to Halal principles contribute to transparency and ethical considerations [55]. Extends the discussion to health and safety, emphasising the role of businesses in ensuring the well-being of both employees and consumers. Lastly, [55] explores the provision of pilgrimage facilities as a social CSR trait, emphasising the role of organisations in facilitating religious practises and contributing to the social well-being of communities.

3 Methodology

3.1 Sample and data

In the dynamic landscape of Malaysia's corporate sector, 8000 companies hold Halal certification, illustrating the country's commitment to the Halal industry. Of these, 1800 serve as exporters, and 1300 are recognised as small and medium enterprises (SMEs) [63]. Within Bursa Malaysia, the nation's primary stock exchange, there are 995 listed companies. Among them, 107 are identified as food companies, a subset of which are involved in the Halal food sector [64]. The focus of this study is narrowed to Halal food companies due to their significant role in both the domestic and global markets. The methodology for selecting an appropriate sample from the broader category of food companies in Bursa Malaysia was carefully designed. The study concentrated on identifying Halal food companies from the 107 listed food companies, prioritising those with accessible and comprehensive financial and CSR disclosures. This selection was based on rigorous criteria, including the consistency and completeness of financial reporting and CSR activities over an extended period. As a result, 75 Halal food companies were chosen for a detailed analysis over a decade, spanning from 2012 to 2021.

The rationale behind the specific choice of these 75 companies as the sample size stems from several factors. Firstly, they constitute a substantial portion of the Halal segment within the broader food industry in Bursa Malaysia, ensuring that the sample is representative of the sector. Secondly, these companies consistently provided detailed financial and CSR reports during the selected timeframe, which was crucial for a thorough longitudinal study. The CSR data were extracted from the annual reports published on the Bursa Malaysia website, while financial indicators like return on assets (ROA) and Tobin's Q (TBQ) were sourced from the Thomson Reuters DataStream database. This database was chosen for its unparalleled financial market data, extensive economic coverage, and historical consistency. Employing a methodological framework similar to that of [65], the study aims to carefully investigate the correlation between CSRD and financial performance in the Halal food sector. The careful and strategic selection of the sample underpins the study's rigor, ensuring that the findings are robust, reliable, and reflective of the industry's trends.

3.2 Variables

3.2.1 Dependent variables

Empirical research exploring the link between financial performance and CSR has employed various financial performance indicators [40]. Initially identified approximately eighty metrics of financial performance, later condensed to 51. Key measures include accounting-based indicators like return on assets (ROA), return on equity (ROE), and net profit, alongside market-based indicators such as earnings per share, Tobin's Q, market returns, and market to book values. Accounting-based metrics are often considered indicative of short-term or historical financial performance, while market-based indicators reflect long-term performance. Critics argue that market-based indicators can be influenced by factors unrelated to corporate activities, emphasising the objectivity of accounting-based data [40]. Stressed the importance of applying traditional accounting-based metrics, as they may reveal more than just economic performance. Despite debates, economic measurements have gained widespread acceptance as reliable indicators of business performance. Prior studies suggest that CSR tends to show larger relationships with accounting-based returns than with investor-related returns. The return on assets (ROA) ratio, a key metric in this context, evaluates a company's profitability relative to its assets, with a higher ROA indicating greater variation in management's capacity to generate profits. On the other hand, Tobin's Q serves as a proxy for a company's significance, widely applied in economic and financial fields to measure firm performance [66]. Highlight its indisputable adequacy in various applications, both theoretical and empirical. Researchers use Tobin's Q to assess past performance and gauge growth potential based on future performance. This study, aligning with numerous researchers, employs return on assets (ROA) and Tobin's Q (TBQ) as dependent variables to measure profitability and firm performance [67–69].

3.2.2 Independent variables

CSR theories, rooted in the Brundtland Commission's 1987 proposal, emphasise the Triple Bottom Line (TBL) concept, formally named by John Elkington in 1994 [70]. TBL advocates that business accountability rests on economic (ECO), environmental (ENV), and social (SOC) responsibility. CSR traits cover economic (efficiency, halal products, fair trade, investment, charity), social (health, labour rights, traceability, safety, diversity), and environmental (packaging, waste, energy, emissions, biodiversity) aspects. The TBL-based CSR framework aims for sustainable living. Companies adopting TBL-based CSR structures tend to achieve consistent profits while advancing social and environmental goals. This study measures CSR disclosure using the ECO, ENV, and SOC dimensions, aligning with the TBL principles (Fig. 1) as independent variables.

3.2.3 Control variables

Studies suggest that the link between a company's financial performance and CSR disclosure is influenced by factors like size, age, and industry affiliation [14, 71]. Prior research associates CSRD with the size, industry, and age of an organization, emphasising the proportionality of CSRD to a corporation's size [72–74]. Large companies, with their resources for social data, may gain a market edge [77]. This study uses total assets as a proxy for scale and incorporates the firm's age as a control variable, considering historical influences on management decisions [75, 76]. Size and age are treated as control variables, recognising their potential impact on CSR disclosure, profitability, and firm performance associations in the Halal industry in Malaysia.

3.3 Model

To effectively analyse the potential impact of CSR disclosure on profitability and firm performance (ROA, TBQ), a two-step method was employed. In the initial stage, content analyses were conducted to gather CSR disclosure information based on economic, environmental, and social dimensions from companies' annual reports [78]. In the second step, the dynamic Generalized Method of Moments (GMM) method was used to figure out how the different parts of CSR disclosure scores affected the company's performance and ability to make money [79]. The choice of the dynamic GMM-based approach was motivated by its ability to address endogeneity issues, a common challenge in econometric analyses [80]. This method is particularly effective in handling panel data, utilising both cross-sectional and time-series dimensions [81]. The dynamic GMM-based approach is useful for econometric analyses, even though it depends on the model specification, the size of the sample, and assumptions about measurement error. This is especially true when dealing with endogeneity and changing datasets [82].To evaluate the relationship, the fixed effects model was employed in conjunction with the GMM approach, taking advantage of its automatic generation of instruments. We used lag values to control endogenous variables, and the GMM estimation took into account heterogeneity and endogeneity [81]. It also dealt with the problems of autocorrelation and heteroskedasticity that come with panel data [83–86]. The study employed the GMM estimation method to navigate endogenous difficulties and address autocorrelation and heteroskedasticity challenges in panel data:

$$ROAit = \alpha + \beta 1ROAit - 1 + \beta 2ECOit + \beta 3ENVit + \beta 4SOCit + \beta 5LSIZEit + \beta 6AGEit + \mu it$$

$$TBQit = \alpha + \beta 1TBQit - 1 + \beta 2ECOit + \beta 3ENVit + \beta 4SOCit + \beta 5LSIZEit + \beta 6AGEit + \mu it$$

where:

i represents the firm, t stands for the time, ROA signifies return on assets, TBQ represents Tobin's Q, ECO signifies economic, ENV represents environmental, SOC represents social; LSIZE represents Log Size, μ represents firm specific fixed effects that remained unobserved. There are three potential sources of endogeneity that can arise during the estimation of Eq. 1: the phenomenon of simultaneity, in which the independent variables function as a function or as the expected values of the dependent variable; the phenomenon of unobservable heterogeneity, in which the unobservable factors are affected by both the dependent and the explanatory variables; and current CSR values, which are based on previous FP, which is an often ignored cause of endogeneity. In order to mitigate the effects of endogeneity, the dynamic panel Generalized Method of Moments (GMM) estimator, was applied [33, 84]. Corroborates this idea by arguing that GMM produces the most significant coefficient adjustment [87]. Added that, under appropriate conditions, the action-oriented in the OLS estimation of a dynamic model, an upward bias can be corrected by using GMM. If T is relatively short, then the mean difference estimation of a dynamic model is also adjusted to account for a downward bias.

4 Results

The descriptive statistics for the variables are presented in Table 1. Return on assets (ROA) averaged 4.841% across all of the companies in the study. The sample possesses 1.289% of Tobin's Q as a proportion of the total. The typical amount of ECO in a given sample is 67.477%. The average values for ENV, SOC, and SIZE are, respectively, 51.585%, 43.384%, and 2,108,762.

Table 2 below contains the correlations between the variables on a pairwise basis, is located here. Given that none of the correlations are more than 0.5, eliminating the possibility of multicollinearity is not a problem. Checking the variance inflation factor (VIF) figures reveals that all of them are less than 10, further substantiating this assertion. The observed values for the VIF ranged from 1.03 to 1.42, with 1.03 serving as the mean value.

Table 3 shows the static and dynamic models of OLS, fixed effect, and GMM. Return on assets estimates using composite dimensions based on CSR were used for assessing the effect of supervising ECO, ENV, and SOC on financial performance heterogeneity and relationships. The second-order serial correlation AR (2) test was utilised in the course of the authentication process for the misspecification test. Using authentication, it was feasible to validate whether or

Table 1 Descriptive Statistics N = 75 Listed Halal food companies. T = 2012–2021

Variable	Obs	Mean	Std. Dev	Min	Max
COMPANY	750	38	21.663	1	75
YEAR	750	2016.5	2.874	2012	2021
ROA	750	4.841	13.228	− 104.43	212.22
TBQ	750	1.289	1.415	0.19	12.98
ECO	750	67.477	20.569	13	155
ENV	750	51.585	16.454	9	107
SOC	750	43.384	10.984	11	72
SIZE	750	2,108,762.2	4,688,698.6	8233	29,763,879
AGE	750	19.7	9.103	1	38

Table 2 Multicollinearity test

Variables	VIF	ECO	ENV	SOC	LSIZE	AGE
ECO	1.42	1.000				
ENV	1.36	0.219	1.000			
SOC	1.11	0.163	0.507	1.000		
LSIZE	1.08	0.165	− 0.147	− 0.097	1.000	
AGE	1.03	0.094	− 0.060	− 0.052	0.152	1.000

Table 3 Effects of CSR disclosure and Financial Performance (ROA) (N = 75 Listed Halal food companies; T = 10; sample period = 2012–2021)

	Static			Dynamic	
	Pooled OLS	Fixed effect	Pooled OLS	Fixed effect	GMM
Variables	ROA	ROA	ROA	ROA	ROA
ROA_{t-1}			0.316***	0.0516	0.0265***
			(0.0347)	(0.0380)	(0.00229)
ECO	0.00259	0.00872	0.000818	0.00602	− 0.0279***
	(0.0244)	(0.0332)	(0.0232)	(0.0337)	(0.00799)
ENV	− 0.123***	− 0.0409	− 0.0866***	− 0.0399	− 0.286***
	(0.0344)	(0.0566)	(0.0330)	(0.0566)	(0.00733)
SOC	− 0.000762	0.0308	0.00147	0.0305	− 0.0521***
	(0.0505)	(0.0667)	(0.0480)	(0.0667)	(0.0103)
LSIZE	0.857**	0.0924	0.634**	0.0245	2.057***
	(0.337)	(1.541)	(0.321)	(1.542)	(0.119)
Age	− 0.0257	− 0.645***	− 0.0183	− 0.608***	− 0.570***
	(0.0532)	(0.175)	(0.0506)	(0.177)	(0.0552)
Constant	0.0633	16.50	− 0.468	16.57	
	(5.092)	(19.49)	(4.845)	(19.51)	
Observations	750	750	749	749	675
R-squared	0.036	0.026	0.133	0.029	
Number of Company		75		75	75
AR 1					− 2.3684 (0.0179)
AR 2					0.82155 (0.4113)
Number of Instrument					50

Parentheses are used to indicate where the standard errors fall, AR1, AR2 which p-values, ***, ** and * indicate significant at 1%, 5% and 10% levels, respectively. The Blundell and Bond [85] dynamic panel GMM estimations and the Roodman [87] Stata xtabond2 tool are used to estimate the GMM model not the GMM model definition was suitable. When utilising the pooled OLS method, the fixed effect method, or the GMM method, the fact that the significant and positive coefficient of the lagged dependent variable validates the persistence of the financial performance is important. This is because it demonstrates that financial performance is significantly dependent on its own previous realisations. This result is comparable to the work done by [88, 89]. Who were successful in building an impartial and efficient GMM. Both of these groups of researchers have published their findings. As a result of this, researchers were strongly pushed to utilise and favour the GMM two-step estimator [90].

To estimate the model of CSR disclosure and its impact on profitability and business performance, a dynamic panel data GMM estimation was employed. This methodology eliminated time-invariant firm-specific effects by calculating the first difference between underlying variables, effectively managing the relationship between regressors and residuals. Through instrumenting different equations with lagged levels and variations in levels, the potential for endogeneity was eliminated. The study's findings revealed that economic (ECO), environmental (ENV), and social (SOC) dimensions significantly impact return on assets (ROA). Total assets (LSIZE) and the age of the company (AGE) also demonstrated substantial positive influences on ROA. Further analysis indicated that ECO had an insignificant effect on ROA in static models but it is significant in the dynamic GMM model. ENV had a significant impact in both static and dynamic models, while SOC showed insignificance in static models but became significant in the dynamic GMM model. LSIZE exhibited significance in both static and dynamic models, and AGE had a significant impact on ROA in both models.

The study supported the hypothesis that increased CSR disclosure directly impacts a company's short-term financial performance, aligning with previous research findings. This outcome was consistent with positive theoretical hypotheses, suggesting that heightened economic, environmental, and social responsibility contributes to increased stakeholder satisfaction and improved financial performance [91]. The accepted hypothesis (Hypothesis 1) indicates a significant relationship between economic, environmental, and social CSR disclosure factors and the profitability (ROA) of listed Malaysian Halal food companies, consistent with findings from related studies by [92, 93].

Table 4 presents the result of the TBQ estimates, utilising composite dimensions based on CSR, that were employed to assess the influence of economic (ECO), environmental (ENV), and social (SOC) factors, along with financial performance

Table 4 Effects of CSR disclosure and Financial Performance (TBQ) (N = 75 Listed Halal food companies; T = 10; sample period = 2012–2021)

	Static			Dynamic	
	Pooled OLS	Fixed effect	Pooled OLS	Fixed effect	GMM
Variables	TBQ	TBQ	TBQ	TBQ	TBQ
TBQ_{T-1}			0.859***	0.255***	0.809***
			(0.0187)	(0.0223)	(0.00362)
ECO	0.00150	− 0.00157	− 0.00131	− 0.00181	− 0.00306***
	(0.00260)	(0.00143)	(0.00133)	(0.00133)	(0.000479)
ENV	− 0.0118***	− 0.00305	− 0.00131	− 0.00218	0.00133*
	(0.00367)	(0.00244)	(0.00189)	(0.00224)	(0.000785)
SOC	− 0.0603	0.00563*	0.00139	0.00604**	0.00278***
	(0.00538)	(0.00288)	(0.00275)	(0.00263)	(0.000728)
L SIZE	0.0801**	− 0.235***	0.0131	− 0.215***	0.00155
	(0.0359)	(0.0665)	(0.0184)	(0.0609)	(0.00522)
AGE	0.0158***	0.00443	0.00445	0.00369	0.0133***
	(0.00566)	(0.00753)	(0.00291)	(0.00689)	(0.00107)
Constant	0.411	4.365***	0.0109	3.731***	
	(0.543)	(0.841)	(0.278)	(0.772)	
Observations	750	750	749	749	675
R-squared	0.044	0.028	0.751	0.186	
Number of Company		75		75	75
AR 1					− 3.2688 (0.0011)
AR 2					− 1.0256 (0.3051)
Number of Instrument					50

Parentheses are used to indicate where the standard errors fall, AR1, AR2 which p-values, ***, ** and * indicate significant at 1%, 5% and 10% levels, respectively. The [38] dynamic panel GMM estimations and the [86] Stata xtabond2 tool are used to estimate the GMM model heterogeneity and relationships. The AR (2) test for second-order serial correlation was utilized in the authentication process as a misspecification test to confirm the suitability of the GMM model specification. The findings indicate that ECO had an insignificant effect on TBQ in static models but showed a significant relationship in the dynamic GMM model. ENV exhibited a significant impact on TBQ in both static and dynamic models, while SOC showed a significant effect in both models. LSIZE had a significant impact on TBQ in the static model but showed insignificance in the GMM model. However, AGE demonstrated a significant impact on TBQ in both static and dynamic models. Based on these results, it is concluded that hypothesis 2 is accepted concerning the economic, environmental, and social factors of CSR disclosure and the firm performance (TBQ) of listed Malaysian Halal food companies. This analysis aligns with the findings of [38], suggesting a significant effect of CSR disclosures on TBQ with all CSR factors.

The results presented in Table 5 suggest that economic (ECO), environmental (ENV), social (SOC), total assets (LSIZE), and the age of the company (AGE) all exhibit a significant relationship with both return on assets (ROA) and Tobin's Q (TBQ). However, it's noteworthy that the relationship between total assets (LSIZE) and Tobin's Q (TBQ) appears to be insignificant in the GMM model. This implies that, in the context of the GMM model, the size of the company (LSIZE) may not have a statistically significant impact on Tobin's Q (TBQ).

4.1 Discussion and implications

The findings of the current study resonate with and build upon existing literature concerning the complex relationship between CSR disclosure and financial performance, particularly within publicly listed Halal food companies. The utilisation of GMM analysis aligns with the growing sophistication of methodologies in this domain. The study reveals that economic (ECO), environmental (ENV), and social (SOC) CSR disclosures significantly impact return on assets (ROA), affirming the positive association between CSR engagement and improved profitability. This corroborates the findings of earlier research, such as the work of [36], who emphasised the positive link between social performance and financial outcomes across industries. The inclusion of control variables, including firm size and age, aligns with established literature emphasising the importance of considering firm-specific characteristics. The significant impact of size and age on ROA aligns with studies by [35], underscoring the relevance of firm size and age in shaping financial performance patterns.

The study's examination of Tobin's Q (TBQ) contributes a temporal dimension to the literature. The insignificance of economic (ECO) CSR disclosure in static models, contrasted with its significance in the dynamic GMM model, aligns with the call for dynamic modeling approaches emphasized by [6] and supports the notion that the temporal nature of CSR impacts should be considered. The sustained significance of environmental (ENV) CSR disclosure in both static and GMM models aligns with the findings of [71], which highlighted the positive relationship between environmental responsibility and market valuation. The consistent significance of social (SOC) CSR disclosure in both models aligns with the study of [14], underscoring the positive influence of social responsibility on firm value.

Table 5 Presentation of the key findings

	Static		Dynamic		
Variables	Pooled OLS	Fixed effect	Pooled OLS	Fixed effect	GMM
ROA					
ROA_{t-1}	–	–	0.316***	0.0516	0.0265***
ECO	0.00259	0.00872	0.000818	0.00602	– 0.0279***
ENV	– 0.123***	– 0.0409	– 0.0866***	– 0.0399	– 0.286***
SOC	-0.000762	0.0308	0.00147	0.0305	– 0.0521***
LSIZE	0.857**	0.0924	0.634**	0.0245	2.057***
AGE	– 0.0257	– 0.645***	– 0.0183	– 0.608***	– 0.570***
TBQ					
TBQ_{T-1}	–	–	0.859***	0.255***	0.809***
ECO	0.00150	– 0.00157	– 0.00131	– 0.00181	– 0.00306***
ENV	– 0.0118***	– 0.00305	– 0.00131	– 0.00218	0.00133*
SOC	– 0.0603	0.00563*	0.00139	0.00604**	0.00278***
LSIZE	0.0801**	– 0.235***	0.0131	– 0.215***	0.00155
AGE	0.0158***	0.00443	0.00445	0.00369	0.0133***

The study's implications for theory are profound, particularly in enhancing our understanding of CSR dynamics. The dynamic modeling approach, especially the revelation of the temporal significance of economic (ECO) CSR disclosure, represents a notable contribution to theoretical advancements. It urges scholars to transcend static models, emphasising the necessity of considering the evolving nature of CSR impacts over time. This dynamic perspective enriches theoretical frameworks, offering an understanding of the relationship between CSR and financial performance. Furthermore, the study contributes to the validation of established relationships in CSR research. The sustained significance of environmental (ENV) and social (SOC) CSR disclosures in both static and dynamic models aligns with existing literature, affirming the enduring positive associations between environmental and social responsibility and financial performance. This validation not only strengthens the empirical support for these relationships but also adds to the robustness of the theoretical foundations in the field. The consideration of firm-specific characteristics, exemplified by the inclusion and significance of control variables such as firm size and age, is another essential implication for theory. This finding reinforces the theoretical perspective emphasising the role of organisational attributes in shaping financial outcomes. It underscores the importance of acknowledging and accounting for the unique characteristics of firms when investigating the link between CSR and financial performance, providing context-specific understanding within theoretical frameworks.

The implications for practise derived from the study offer actionable insights for firms in the Halal food industry. Firstly, practitioners can strategically integrate economic, environmental, and social CSR practises to enhance both profitability and firm value. The study underscores the practical significance of aligning CSR activities with financial performance goals, encouraging a more sustainable and socially responsible business approach. Secondly, the importance of the dynamic modelling approach advocated by the study holds practical relevance for both researchers and practitioners. Understanding the temporal nature of CSR impacts can guide firms in implementing and assessing the effectiveness of CSR initiatives over time. This suggests that practitioners should adopt a long-term perspective in the development and evaluation of CSR strategies, recognising that the benefits of certain CSR activities may unfold gradually. Thirdly, the sustained significance of environmental and social CSR disclosures in market valuation reinforces the business case for environmental and social responsibility. Firms are encouraged to prioritise initiatives that contribute to environmental sustainability and social well-being, recognising the potential positive influence on their market value. Lastly, the study emphasises the strategic consideration of firm size and age by practitioners. The impact of control variables (LSIZE and AGE) on profitability underscores the need to carefully consider the unique financial performance patterns of large and established firms, informing strategic decision-making processes.

The observed relationships between CSR disclosure and profitability, as well as firm performance, in the Halal food industry in Malaysia can be attributed to a complex relationship of factors unique to this context. The emphasis on religious principles, cultural considerations, and the stringent regulatory environment in Malaysia's Halal industry creates a distinct framework where CSR practises are integral. CSR disclosure aligning with economic, environmental, and social dimensions can enhance consumer trust and loyalty, given the industry's emphasis on authenticity and ethical business conduct. This alignment with religious values and cultural expectations may contribute to market differentiation, advancing a competitive advantage, and positively influencing profitability. Additionally, the robust regulatory framework may incentivize and validate CSR practices, positioning companies as compliant with industry standards. The global significance of Malaysia in the Halal market further amplifies the impact of CSR practices, opening avenues for global partnerships and market expansion.

4.2 Conclusion, recommendations, limitations and future research

The study aimed to explore the impact of CSR disclosure on the profitability and firm performance of Malaysian Halal food companies from 2012 to 2021. Using Generalized Method of Moments (GMM), the analysis focused on economic (ECO), environmental (ENV), and social (SOC) CSR disclosures in relation to return on assets (ROA) and Tobin's Q (TBQ). The results indicate that ECO, ENV, and SOC disclosures significantly affect ROA, showing a positive correlation between CSR engagement and profitability. Control variables, firm size and age, also influence ROA significantly. In the context of Tobin's Q, ECO is insignificant in static models but gains significance in dynamic GMM models. ENV remains consistently significant in both static and dynamic models, reflecting its impact on TBQ. SOC is found to be significant in influencing Tobin's Q in both static and dynamic models.

This study significantly contributes to the literature on CSR disclosure by offering contextual insights into the Halal food industry in Malaysia. Through a critical examination of economic, environmental, and social CSR disclosures, the research employs a dynamic modelling approach using the GMM. The study's dimension-specific analysis and consideration of Tobin's Q for market valuation provide nuanced insights into the distinct impacts of various CSR dimensions on the profitability and firm performance of Malaysian Halal food companies. Additionally, the incorporation of control variables, such as firm size and age, adds robustness to the findings. Beyond academic contributions, the study offers practical implications for industry practitioners, guiding strategic decision-making by emphasising the specific CSR dimensions that most significantly influence financial performance.

While this study significantly advances the relationship between CSR disclosure and financial performance in the context of Malaysian Halal food companies, several limitations warrant consideration. The industry-specific focus on the Halal food sector in Malaysia raises questions about the generalizability of findings to other industries or global contexts. The data period, spanning from 2012 to 2021, might not fully capture recent developments in CSR practises or changes in market conditions. Additionally, the study's correlational nature makes it challenging to establish causality, and potential endogeneity issues may persist despite the use of GMM. While control variables such as firm size and age are included, other firm-specific factors influencing financial performance may not be comprehensively addressed. Acknowledging these limitations, future research could adopt more diversified methodologies, extend the data period, and incorporate a broader range of firm-specific variables.

Halal food companies can enhance their business sustainability and market reputation by strategically integrating CSR practices. A key recommendation involves transparently communicating responsible business conduct, fair trade initiatives, sustainable sourcing, and community engagement, aligning CSR activities with core business goals to attract a conscientious consumer base. Additionally, emphasising long-term sustainability initiatives that resonate with Halal consumers, such as environmentally friendly practises and ethical conduct, is crucial for building trust and credibility in the market. Lastly, active engagement with stakeholders, including suppliers, employees, local communities, and consumers, through feedback solicitation and involvement in decision-making processes, not only strengthens the social licence to operate but also contributes to improved operational efficiency and risk management.

Policymakers play a key role in advancing responsible business practises within the Halal food industry, and several recommendations can guide their policy initiatives. Incentivizing CSR practices by introducing frameworks that offer tax benefits, certification recognition, or preferential treatment in government procurement for companies with robust CSR initiatives can motivate businesses to prioritize responsible practices. To enhance regulatory clarity, policymakers should provide clear and comprehensive guidelines for CSR practises within the Halal food industry, ensuring a standardised approach and facilitating consistent reporting across the sector. Furthermore, policymakers can invest in educational programmes to raise awareness about the significance of CSR practises among Halal food industry stakeholders, including consumers, employees, and suppliers. Increased awareness can cultivate an informed and engaged community that values and supports companies committed to responsible business conduct.

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Author contributions A. First author wrote the main manuscript text and analyzed the data. B. Second author supervised the manuscript's conceptualization and provided oversight. C. Third author assisted with data collection, research framework development, and proofreading the manuscript.

Data availability The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Competing interests The authors have no relevant financial or non-financial interests to disclose.

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