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Social Sustainability and Financial Performance: Accounting-Based Panel Evidence from the Jordanian Manufacturing Sector

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Abstract: Emerging-market research continues to insufficiently examine the concept of social sustainability, particularly with respect to its quantifiable financial effects on firm performance. This study investigates the relationship between social sustainability and financial performance among 49 manufacturing companies listed on the Amman Stock Exchange over the period 2018–2024 (N = 343 firm-year observations). A manually constructed Social Performance Index (SPI), derived from systematic content analysis of annual corporate disclosures, serves as the primary independent variable. Employing fixed-effects panel regression with firm-level clustered standard errors, financial performance is evaluated through three complementary and theoretically grounded perspectives: Return on Assets (accounting-based), Tobin's Q (market-based), and the Sustainable Growth Rate (growth-based). The empirical findings consistently demonstrate that enhanced social performance is positively and significantly associated with profitability, market valuation, and internally financed growth, whereas financial leverage exerts a persistent, statistically significant negative influence across all model specifications. These results suggest that investments in employee welfare and community engagement function as strategic intangible resources that strengthen operational efficiency and reinforce corporate legitimacy among external stakeholders. This study contributes a context-sensitive social disclosure framework particularly applicable to institutional environments where standardized ESG rating systems remain absent or underdeveloped. It further offers empirical guidance to support the attainment of the UN Sustainable Development Goals 8 and 12 through responsible corporate conduct and sustainable, long-term value creation in emerging economies.

Keywords: Accounting-based performance, Amman Stock Exchange, corporate social responsibility, emerging markets, ESG disclosure, financial performance, Jordanian manufacturing sector, panel data, social sustainability.

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1. INTRODUCTION

Despite increasing empirical evidence linking corporate social responsibility to long-term firm value, the exact nature of the relationship between social sustainability and financial performance remains a topic of theoretical debate and empirical ambiguity. This is especially true in emerging economies like Jordan, where institutional frameworks, corporate governance practices, and ESG disclosure systems are still in their infancy and vary

considerably from those found in developed markets (Ioannou & Serafeim, 2019). Although the findings of extensive meta-analyses suggest a predominantly favorable relationship between environmental, social, and governance (ESG) factors and corporate performance (Friede, Busch, & Bassen, 2015). The direction, magnitude, and contextual parameters of this relationship differ significantly across various industries, regions, and organizational contexts. This variability underscores not only a deficiency in empirical coverage but also a core theoretical challenge: the circumstances under which social sustainability yields quantifiable financial results remain poorly understood. This is particularly evident in the Jordanian manufacturing sector, where empirical data is notably limited.

From a theoretical perspective, the connection between social sustainability and financial performance can be clarified through a series of complementary frameworks. Stakeholder theory suggests that companies that interact responsibly with their employees, communities, and wider societal entities are more likely to achieve long-term legitimacy, minimize stakeholder conflicts, and gain access to essential intangible resources (Freeman, Harrison, Wicks, Parmar, & De Colle, 2010). Legitimacy theory posits that transparent social disclosure functions as a signaling mechanism, enabling firms to align their operations with existing societal norms, thus ensuring organizational continuity and maintaining investor confidence (Suchman, 1995). Agency theory emphasizes the importance of sustainability disclosures in reducing information asymmetry between managers and external stakeholders, as well as aligning managerial incentives with broader performance goals (Jensen & Meckling, 1976). These perspectives frame social sustainability not merely as a charitable expense but as a strategically significant organizational asset with measurable economic impacts.

Several significant gaps remain in the existing literature. Firstly, a considerable amount of empirical research has been carried out in developed-market contexts, especially in North American, European, and East Asian environments, which restricts the applicability of findings to emerging economies that are defined by unique regulatory frameworks, corporate governance structures, and disclosure environments (Ioannou & Serafeim, 2019). Secondly, current research often relies on composite ESG scores or market-oriented performance indicators, which can mask the distinct impact of the social aspect on firm-level financial performance (Kotsantonis, Pinney, & Serafeim, 2016). Thirdly, despite recent studies conducted in similar contexts, like Palestine (Alslaibi, Qawasmeh, Samara, & Abualrob, 2025). The study conducted by Abdullah, Nazir, Rauf, Marwat, and Naveed (2025) on China reveals significant positive relationships between social sustainability and accounting-based performance metrics. However, there is a conspicuous absence of empirical data specifically related to the manufacturing sector in Jordan. These limitations collectively highlight the necessity for context-specific, accounting-based evidence from a manufacturing sector within an emerging market.

The manufacturing sector in Jordan represents a theoretically suitable and practically important empirical context for addressing these gaps. As a significant player in national employment, industrial production, and export revenues, the sector faces mounting pressure to balance its evolving social responsibilities with the goal of financial sustainability, especially amid ongoing regulatory reforms aligned with international governance standards and the progressive integration into global supply chains. Crucially, the lack of standardized ESG rating systems and the voluntary aspect of sustainability disclosures in Jordan establish a distinctive empirical context where the social performance of firms must be assessed directly through corporate reports, rather than depending on external databases (Al-Akra & Ali, 2012), providing a unique chance to investigate the extent to which social sustainability can be converted into quantifiable financial results. The Amman Stock Exchange (ASE) serves as a clear and publicly available repository of firm-specific financial and disclosure information, thereby improving the empirical feasibility of this research context.

Previous empirical research from similar emerging-market settings offers some evidence in favour of a positive relationship between social sustainability and financial performance. Eccles, Ioannou, and Serafeim (2014) demonstrated that high-sustainability firms exhibit superior long-term accounting and market performance relative to low-sustainability counterparts. More recently, Al Azizah and Haron (2025) documented a significant positive effect of ESG performance on profitability, while Da Cunha, Policarpo, De

Oliveira, Abdala, and Do Nascimento (2025) confirmed in a systematic review that social disclosure contributes to investor confidence by reducing information asymmetry. In the Middle East and North Africa (MENA) region, Al-Akra and Ali (2012) established the value relevance of voluntary corporate disclosure in Jordan, and Alslaibi et al. (2025) provided direct evidence from Palestine that social reporting positively influences return on assets and return on equity. Nonetheless, these studies do not examine the Jordanian manufacturing sector specifically, nor do they employ a content analysis-based social disclosure index suited to contexts lacking standardised ESG ratings, highlighting the need for a Jordan-specific, disclosure-based measurement approach, which this study develops and applies.

Accordingly, this study aims to examine the impact of social sustainability performance on the financial performance of publicly listed manufacturing firms in Jordan. Specifically, the study pursues two primary objectives: first, to assess the direct association between social sustainability and accounting-based, market-based, and growth-oriented financial performance indicators; and second, to contribute original empirical evidence from an emerging-market context where standardized ESG ratings are scarce. The research utilizes a quantitative explanatory framework that relies on balanced panel data from 49 manufacturing firms in Jordan, covering the years 2018 to 2024. Social sustainability is defined through a custom-built social disclosure index based on annual corporate reports. In contrast, financial performance is evaluated using metrics such as Return on Assets (ROA), Tobin's Q, and the Sustainable Growth Rate (SGR). To address unobserved heterogeneity at the firm level, fixed-effects panel econometric methods are applied. By situating the analysis within the specific institutional and data limitations of the Jordanian environment, this research not only increases the relevance of its findings but also enhances their applicability, providing valuable insights for corporate managers, policymakers, and regulators in Jordan and similar developing nations.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Social Sustainability and Financial Performance

Understanding the impact of social performance on financial performance requires a multifaceted perspective that encompasses both the firm-level strategic behavior and market expectations. Historically, the literature on sustainability has primarily focused on environmental effects; however, recent studies emphasize the unique contribution of social performance as a catalyst for economic outcomes. Empirical research is progressively revealing connections between ESG metrics and corporate performance. Using extensive international samples, Chen, Song, and Gao (2023) found that ESG performance improves financial outcomes for companies by enhancing brand reputation, reducing capital costs, and attracting investor interest, with these effects evident even after accounting for risk and firm attributes. In particular, social disclosure, as indicated by metrics like employee relations, diversity initiatives, and community involvement, has demonstrated a reduction in agency costs and has facilitated value creation in product markets within emerging economies. This implies that firms committed to social responsibility gain competitive advantages that ultimately enhance their financial performance (Bashir, Zhao, Qiu, Ahmed, & Yau, 2023).

Nonetheless, not all research produces uniform results. Investigations into the effects of ESG in emerging markets reveal discrepancies in the significance of social scores, suggesting that contextual elements influence the relationship between social and financial performance (Narula, Rao, Kumar, & Matta, 2024). This diversity underscores the need for context-specific measurement, especially in areas where standardized ESG ratings are scarce or underdeveloped. Additionally, comprehensive analyses of ESG research indicate that transparency and the quality of reporting cannot be presumed to have a consistent correlation with financial outcomes; instead, the effects of social reporting depend on the depth of implementation, stakeholder significance, and industry characteristics. This collection of research advocates for more refined operational definitions of social performance that go beyond mere aggregate ESG scores.

Theoretical Perspectives

A thorough theoretical framework integrates stakeholder theory, the resource-based view (RBV), and legitimacy theory to elucidate the processes linking social performance to economic sustainability. Stakeholder

theory suggests that companies that actively engage with a wider array of stakeholders are more likely to minimise internal conflicts, optimise resource distribution, and foster organisational trust, thereby facilitating profitability and value generation (Freeman et al., 2010).

Recent evidence supports this logic, indicating that firms that prioritise social engagement are viewed by market participants as less risky and more sustainable
(Tekin & Güçlü, 2023). The Resource-Based View (RBV) enhances this perspective by positioning social capabilities, including workforce stability, inclusive labor practices, and the development of human capital, as key sources of competitive advantage that are specific to the firm. These resources, derived from social contexts, are intangible and difficult to replicate, thereby strengthening operational resilience and ultimately supporting the achievement of sustainable financial performance (Barney, 1991). Ultimately, legitimacy theory posits that clear social disclosure improves a firm's social acceptance and credibility with external stakeholders, thereby diminishing information asymmetry and indicating long-term sustainability to investors (Suchman, 1995). This signaling effect is especially prominent in emerging markets, where formal ESG ratings are still in their infancy, and the social disclosures reported by firms offer essential information for investors and various stakeholders.

Collectively, these theoretical frameworks highlight that social sustainability can impact financial performance through mechanisms that go beyond mere compliance motivations, merging strategic internal growth with external legitimacy and market expectations.

Hypotheses Development

Social sustainability performance indicates a company's engagement with internal and external stakeholders through initiatives such as employee welfare, diversity, and community involvement. It is progressively acknowledged as a vital element of corporate sustainability strategy. Recent empirical studies indicate that social performance, as a facet of ESG activities, has a distinct influence on firms' financial performance (Al Azizah & Haron, 2025).

Utilizing stakeholder theory, the resource-based view (RBV), and legitimacy signaling, this section formulates hypotheses regarding the relationship between social sustainability performance and three financial performance metrics: return on assets, market valuation, and sustainable growth capacity.

Social Sustainability and Return on Assets

Stakeholder theory holds that companies achieve better financial outcomes by effectively managing their relationships with key constituencies, including employees, customers, and community members. This is because such relationships lower transaction costs, improve cooperation, and bolster internal capabilities (Freeman et al., 2010). Within this framework, social performance can be seen as a strategic commitment to human capital and community interests, which, in turn, improves operational efficiency and mitigates costs associated with turnover, reputational harm, or operational interruptions. Empirical studies suggest that enhanced ESG performance, encompassing social aspects, correlates with better accounting metrics such as Return on Assets, especially when companies provide non-financial information in a credible and consistent manner (Al Azizah & Haron, 2025). Consequently, the following hypothesis is put forward:

H_1: The performance of social sustainability shows a positive correlation with financial performance based on accounting metrics, specifically indicated by Return on Assets (ROA).

Social Sustainability and Tobin's Q

Market-oriented metrics, such as Tobin's Q, reflect investors' expectations of future profitability, growth potential, and firm risk profiles. Companies that provide high-quality social information can mitigate information asymmetry and convey reduced risk to investors, thereby improving their legitimacy in capital markets. Research across both emerging and developed markets indicates that ESG disclosure, particularly regarding the social aspect, is positively correlated with market valuation as investors increasingly incorporate non-financial data into their pricing models (Agarwala, Jana, & Sahu, 2024). Furthermore, systematic reviews indicate that social disclosure enhances investor confidence by showcasing a greater responsiveness to

stakeholders and mitigating reputational risk (Da Cunha et al., 2025). Consequently, the subsequent hypothesis is put forward:

H_2: Social sustainability performance is positively associated with market-based financial performance, as measured by Tobin's Q.

Social Sustainability and Long-Term Growth Capacity

Long-term economic sustainability is reflected in a firm's ability to sustain growth without excessive reliance on external financial resources. The Sustainable Growth Rate (SGR) operationalizes this by combining profitability and retention to estimate a firm's internally financed growth potential. Firms with stronger social performance often benefit from enhanced stakeholder relationships, reputational capital, and reduced financing constraints, facilitating access to capital and supporting long-term growth strategies. A systematic literature review by Busch, Bauer, and Orlitzky (2016) concluded that non-financial performance dimensions, including social aspects, are integral to long-term firm performance and must be evaluated over time to capture their impact on sustainable outcomes. Accordingly, the following hypothesis is proposed:

H_3: Social sustainability performance is positively associated with long-term economic sustainability, as measured by the Sustainable Growth Rate (SGR).

3. METHODOLOGY

Sample Selection and Data Collection

The empirical emphasis of this research centers on the industrial sector represented on the Amman Stock Exchange (ASE). The manufacturing industry is a fundamental component of Jordan's economy, contributing around 17–18% to GDP, while the overall industrial sector accounts for nearly 25% of national output (World Bank, 2026). Jordanian manufacturing companies operate in a unique regulatory, institutional, and resource-limited environment, making them an appropriate empirical context for investigating the correlation between social sustainability performance and financial performance in an emerging market (Ahmad, Abdullah, Khalik, & Putra, 2025).

To maintain internal validity and reduce data volatility, the research employs a purposive, criteria-driven sampling approach to create a balanced panel dataset. A multi-stage filtration method was implemented for all industrial companies listed on the ASE, adhering to three specific criteria. Firstly, firms needed continuous listing and trading activity over the seven-year period (2018–2024) to ensure data consistency and mitigate survivorship bias. Secondly, companies lacking financial or social disclosure data in any given year were omitted to ensure a fully balanced panel, thereby improving econometric reliability and facilitating more effective management of unobserved firm-specific variability. Upon applying these criteria, the final dataset comprises 49 industrial firms, yielding 343 firm-year observations. The chosen timeframe (2018–2024) spans the post-implementation period of the Amman Stock Exchange (2022) and encompasses the economic turmoil linked to the COVID-19 pandemic, providing a significant context for evaluating firms' social performance in both stable and challenging circumstances.

Variable Measurement and Model Specification

To evaluate the proposed hypotheses, a panel regression model is utilized. Financial performance is represented by Return on Assets (ROA), Tobin's Q, and the Sustainable Growth Rate (SGR), while social sustainability performance serves as the main independent variable. To address potential omitted variable bias, control variables at the firm level, including firm size (SIZE), leverage (LEV), and firm age (AGE), are included. A comprehensive description of all variable measurements is presented in Table 1. All data processing and econometric analyses were performed using Stata 17. The baseline regression model is articulated as follows:

$$FP_{it} = \beta_0 + \beta_1 SP_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 AGE_{it} + \varepsilon_{it} \quad (1)$$

Where FP_{it} signifies the performance indicator of firm i in year t; SP_{it} indicates the social performance score; SIZE, LEV, and AGE serve as control variables; and ε_{it} represents the error term. Separate regressions are estimated for each financial performance proxy.

Dependent Variables

Financial performance is operationalized using three complementary indicators. Return on Assets (ROA), calculated as net income divided by total assets, reflects a firm's ability to generate earnings from its asset base and serves as an accounting-based measure of short-term social sustainability. Tobin's Q, defined as the ratio of the market value of equity plus total liabilities to total assets, serves as a forward-looking market-based measure that captures investors' expectations regarding long-term value creation and the extent to which social performance is capitalized into firm value (Chung & Pruitt, 1994).

The Sustainable Growth Rate (SGR), calculated as the product of return on equity and the earnings retention ratio, assesses a firm's capacity to finance growth internally while maintaining financial stability (Fonseka, García Ramos, & Tian, 2012). Together, these three indicators offer a comprehensive and theoretically grounded assessment of financial performance across its short-term, market-based, and long-term growth dimensions.

Independent Variable

Social sustainability performance is operationalized using a nine-point ordinal scoring framework adapted from Wang and Wang (2024). Given the absence of localized ESG indices for the ASE, the study adopts the Huazheng social rating architecture due to its demonstrated institutional transferability across emerging markets. The framework is implemented through a thorough manual content analysis of companies' annual and sustainability reports.

Social performance is assessed using nine disclosure-based indicators that encompass CEO and gender pay ratios, employee turnover, workforce diversity, non-discrimination policies, occupational injury rates, health and safety practices, and adherence to child labor, forced labor, and human rights standards. Companies are rated on a nine-point scale ranging from C (1) to AAA (9), indicating the depth, credibility, and quantitative rigor of the information disclosed. This methodology offers a context-sensitive, internationally comparable measure of social performance suitable for use within the Jordanian manufacturing industry. The coding process adhered to a systematic protocol to guarantee replicability, with each disclosure element evaluated separately and cross-checked.

Control Variables

The research accounts for three characteristics at the firm level. Firm size (SIZE), defined as the natural logarithm of total assets, reflects scale effects and the availability of resources, as larger firms generally have a greater ability to invest in sustainability initiatives (Yunus, Al-Gheethi, Othman, Hamdan, & Ruslan, 2020). Leverage (LEV), calculated as total debt divided by total assets, indicates financial risk and constraints on the capital structure that could influence investments in sustainability (Al Amosh & Khatib, 2022). Firm age (AGE), calculated by subtracting the year of establishment from the current year and adding 1, accounts for life-cycle effects, acknowledging that older firms may gain advantages from accumulated experience and reputational capital (Mansikkamäki, 2023).

Table 1: Variable Operationalization and Measurement Proxies

Variable Type	Variable Name	Symbol	Measurement	Reference
Dependent Variable	Return on Assets	ROA	Net Income / Total Assets	Al-Jalahma, Al-Fadhel, Al-Muhanadi, and Al-Zaimoor (2020)
	Market-Based Measure	Tobin's Q	(Equity Market Value + Total Liabilities) / Total Assets	Chung and Pruitt (1994)
	Sustainable Growth Rate	SGR	ROE × (1 – Payout Ratio)	Fonseka et al. (2012)
Independent Variable	Social Disclosure	SOC	Nine-point rating scale (AAA=9 to C=1) based on content analysis of nine social disclosure indicators	(Wang & Wang, 2024)
Control Variables	Firm Size	SIZE	Natural logarithm of Total Assets	Yunus et al. (2020)
	Leverage	LEV	Total Debt / Total Assets	Al Amosh and Khatib (2022)
	Firm Age	AGE	Current year minus year of establishment, plus one	Mansikkamäki (2023)

This table provides operational definitions, measurement proxies, and citations for all variables examined in the study.

4. EMPIRICAL FINDINGS

Data Treatment and Outlier Management

Before conducting econometric estimation, the dataset underwent a screening process to identify extreme observations that might skew parameter estimates. Manufacturing firms in emerging markets often face fluctuating earnings and growth trends due to macroeconomic shocks, regulatory changes, and structural reforms. In the current sample, the Sustainable Growth Rate (SGR) displayed significant variability, including notably low values during the recovery phase following the pandemic. To mitigate this issue, all continuous variables were winsorized at the 1st and 99th percentiles. This method reduces the impact of outliers by limiting extreme values to specified thresholds, thus stabilizing the variance of estimators while maintaining the integrity of the original data structure. Winsorization is particularly suitable for panel regressions in sustainability studies, where extreme yet economically significant observations are common.

Descriptive Statistics

Table 2 presents the descriptive statistics for all variables examined in the study, derived from 343 firm-year observations. The findings indicate significant heterogeneity in both financial performance metrics and firm characteristics. The average Return on Assets (ROA) is 1.84%, suggesting a modest level of profitability within the Jordanian manufacturing sector, which aligns with the nature of a capital-intensive industry facing competitive and cost-related challenges. The average Tobin's Q is 0.54, implying that firms are generally valued below their replacement costs, which points to limited growth expectations or increased perceptions of market risk. The Sustainable Growth Rate (SGR) has a mean of 1.12% and a broad standard deviation, highlighting substantial differences in firms' abilities to finance growth from internal resources. Social sustainability, as indicated by the Social Performance Score (S Score), has an average of 1.45 on a nine-point scale, suggesting that while there is some social disclosure among Jordanian manufacturing firms, it is predominantly limited in both scope and depth. Additionally, control variables reinforce the sample's diversity, with firm size and age spanning extensive ranges that reflect variations in organizational scale and maturity.

Table 2: Descriptive Statistics of Variables

Variables	Mean	Std. dev.	Min.	Max.	Observations
ROA	1.84	12.15	−31.28	42.90	343
Tobin's Q	0.54	0.48	0.01	2.57	343
SGR	1.12	15.65	−56.06	42.68	343
SOC	1.45	1.22	0.00	9.00	343
SIZE	16.82	1.94	13.17	21.48	343
LEV	0.42	0.28	0.01	1.47	343
AGE	38.65	18.22	10.00	74.00	343

Note: Statistics are based on a balanced panel of 49 Jordanian industrial firms listed on the ASE (2018–2024), N = 343. ROA stands for Return on Assets, SGR for Sustainable Growth Rate, and SOC for Social Performance, measured on a 9-point scale, where 9 corresponds to AAA/Highest and 0 to C/Lowest. SIZE is the natural logarithm of total assets; LEV indicates the leverage ratio; AGE represents the number of years since incorporation. All financial variables are winsorized at the 1st and 99th percentiles.

Correlation Analysis

Table 3 displays the Pearson correlation matrix. Social performance shows a positive and significant correlation with ROA ($r = 0.24$, $p < 0.05$), Tobin's Q ($r = 0.18$, $p < 0.10$), and SGR ($r = 0.15$, $p < 0.10$), which provides preliminary evidence of a systematic link between social disclosure and the financial performance of firms. Consistent with legitimacy theory, the notable positive correlation between firm size and the SOC ($r = 0.31$, $p < 0.05$) implies that larger firms utilise social disclosures to enhance their organisational visibility and mitigate stakeholder scrutiny. In contrast, the significant negative relationship between leverage and ROA ($r = -0.28$, $p < 0.05$) suggests that elevated financial risk imposes strategic limitations on economic performance. Firm age (AGE) shows a significant positive correlation with firm size ($r = 0.22$, $p < 0.10$), yet it shows negligible correlations with the S Score and performance metrics, indicating that organisational maturity, by itself, does not determine social or economic outcomes within the Jordanian context. All inter-regressor correlation coefficients remain significantly below the 0.70 threshold, thereby confirming the absence of problematic multicollinearity.

Table 3: Pearson Correlation Matrix

	SOC	ROA	Tobin's Q	SGR	SIZE	LEV	AGE
SOC	1.00						
ROA	0.24**	1.00					
Tobin's Q	0.18*	0.52**	1.00				
SGR	0.15*	0.88**	0.46**	1.00			
SIZE	0.31**	0.12	0.08	0.09	1.00		
LEV	−0.11	−0.28**	−0.14	−0.21*	0.15*	1.00	
AGE	0.05	0.07	−0.04	0.06	0.22*	0.03	1.00

Note: * $p < 0.10$; ** $p < 0.05$.

Multicollinearity Diagnostics

To assess multicollinearity, Variance Inflation Factors (VIFs) were computed for each explanatory variable. As indicated in Table 4, the VIF values span from 1.08 to 1.22, yielding an average VIF of 1.14. These figures are significantly lower than the conventional threshold of 5.0 and the more cautious threshold of 2.5, which is frequently used in financial research, thereby affirming that collinearity does not jeopardise the reliability of coefficient estimates.

Table 4: Multicollinearity Diagnostics: VIF and Tolerance Results

Variables	VIF	1/VIF (Tolerance)
SOC	1.15	0.869
SIZE	1.22	0.819
LEV	1.12	0.892
AGE	1.08	0.925
Mean VIF	**1.14**	

Note: VIF values below 5.0 suggest that there is no substantial concern regarding multicollinearity.

Model Selection and Estimation Strategy

A sequence of diagnostic assessments was conducted to identify the most suitable panel estimator. The Breusch–Pagan Lagrange Multiplier test rejected the pooled OLS specification, thereby confirming the existence of unobserved heterogeneity at the firm level. Subsequent Hausman tests, as detailed in Table 5, rejected the null hypothesis of no systematic correlation between firm-specific effects and the regressors across all three dependent variables, demonstrating that fixed-effects (FE) estimation produces consistent estimates. Consequently, fixed-effects models were employed, incorporating firm-level clustered standard errors and year fixed effects to account for macroeconomic shocks at the economy-wide level.

Table 5: Hausman Test Results for Model Specification

Dependent Variable	Chi-square	p-value	Specification
Return on Assets	18.42	0.001	Fixed Effects
Tobin's Q	22.15	0.000	Fixed Effects
Sustainable Growth Rate	15.30	0.004	Fixed Effects

Note: The Hausman test results inform the choice between Fixed Effects (FE) and Random Effects (RE) estimators. All three models favour the FE approach.

Fixed-Effects Regression Results

Social Sustainability Performance and Accounting-Based Financial Performance (ROA)

Table 6 presents the fixed-effects regression estimates concerning the ROA model. The SOC demonstrates a positive and statistically significant influence on return on assets ($\beta = 0.842$, $p < 0.10$), thereby providing empirical support for H1. This result indicates that investments in employee welfare, labour standards, and social engagement enhance operational efficiency and more effectively utilise assets in Jordanian manufacturing enterprises. The within R-squared of 0.185 indicates that the independent variables account for approximately 18.5% of the intra-firm variation in ROA, a finding consistent with comparable sustainability research in emerging markets. Financial leverage (LEV) is identified as a significant negative determinant ($\beta = -8.125$, $p < 0.05$), corroborating the notion that substantial debt burdens impede short-term profitability by diverting resources towards debt servicing. Firm size (SIZE) and firm age (AGE) exhibit positive albeit statistically insignificant coefficients. The overall model demonstrates statistical validity, as evidenced by the F-statistic of 12.42 ($p < 0.001$).

Table 6: Social Performance and Return on Assets (Model 1)

Variables	Coefficient	Std. error	t-stat	p-value
S Score	**0.842**	0.435	1.94	0.058*
SIZE	0.450	0.612	0.74	0.463
LEV	−8.125	3.420	−2.38	0.021**
AGE	0.015	0.042	0.36	0.722
Constant	5.340	10.25	0.52	0.603
Firm & Year FE	Yes			
R^2 (within)	0.185			
F-statistic	12.42			0.000

Note: ** p < 0.10; ** p < 0.05. Standard errors are clustered at the firm level, and year fixed effects are incorporated.*

Social Performance and Market-Based Financial Performance (Tobin's Q)

Table 7 presents the fixed-effects estimates for the Tobin Q model. The SOC shows a positive and statistically significant coefficient (β = 0.035, p < 0.10), supporting hypothesis 2. This suggests that investors on the ASE ascribe a market premium to manufacturing firms with higher social performance, effectively converting corporate social transparency into increased reputational capital and lower perceived risk. While the coefficient's magnitude is relatively small, this aligns with expectations in a market where ESG integration is still developing. In such environments, social performance information is gradually incorporated into investment decisions, leading to incremental rather than substantial valuation effects. The modest size of the coefficient likely reflects the transitional stage of ESG awareness among investors, rather than a lack of economic significance of social initiatives.

The within R-squared of 0.114 indicates that the model explains approximately 11.4% of the within-firm variation in Tobin's Q. The statistical insignificance of firm size, leverage, and age suggests that market participants may prioritize social accountability over traditional firm characteristics when forming long-term valuation judgments. This pattern further supports the argument that non-financial signals, particularly those related to stakeholder engagement and transparency, are increasingly relevant in shaping market perceptions in emerging ESG environments. The F-statistic of 8.55 (p < 0.001) confirms the model's joint significance.

Table 7: Social Performance and Tobin's Q (Model 2)

Variables	Coefficient	Std. error	t-stat	p-value
S Score	**0.035**	0.019	1.84	0.072*
SIZE	0.012	0.025	0.48	0.631
LEV	−0.154	0.110	−1.40	0.168
AGE	−0.002	0.005	−0.40	0.690
Constant	0.812	0.450	1.80	0.078*
Firm & Year FE	Yes			
R^2 (within)	0.114			
F-statistic	8.55			0.000

Note: * p < 0.10. Standard errors are clustered at the firm level. Year fixed effects are incorporated.

Social Performance and Sustainable Growth Capacity (SGR)

Table 8 presents the fixed-effects results for the SGR model. The SOC demonstrates a positive and statistically significant coefficient (β = 1.104, p < 0.10), thereby supporting Hypothesis 3 and indicating that manufacturing firms in Jordan with higher social performance capabilities exhibit a greater capacity for internally financed expansion. The within R-squared value of 0.142 indicates that the model accounts for approximately 14.2% of the variation in firms' SGRs. Financial leverage (LEV) remains the most influential negative determinant (β = −12.420, p < 0.05), suggesting that substantial debt obligations fundamentally constrain firms' internal growth potential.

Table 8: Social Performance and Sustainable Growth Rate (Model 3)

Variables	Coefficient	Std. error	t-stat	p-value
SOC	**1.104**	0.582	1.90	0.064*
SIZE	0.385	0.741	0.52	0.605
LEV	−12.420	5.115	−2.43	0.019**
AGE	0.021	0.055	0.38	0.706
Constant	4.115	12.30	0.33	0.742
Firm & Year FE	Yes			
R^2 (within)	0.142			
F-statistic	10.15			0.000

Note: * p < 0.10; ** p < 0.05. Standard errors are clustered at the firm level. Year fixed effects are incorporated.

Firm size and firm age are again statistically insignificant, implying that sustainable growth is predominantly influenced by strategic social initiatives and capital structure rather than organisational size or maturity. The F-statistic of 10.15 ($p < 0.001$) affirms the overall validity of the model.

Robustness Analyses

Lagged Social Performance Analysis

To address endogeneity concerns and verify the causal direction of the hypothesised relationships, Table 9 presents the findings from a one-year lagged analysis of social performance. By regressing current financial performance measures on the previous year's SOC, the approach reduces the likelihood of reverse causality. The lagged S-Score has a statistically significant and positive effect on both Return on Assets ($\beta = 0.755$, $p < 0.10$) and Tobin's Q ($\beta = 0.028$, $p < 0.10$), indicating that social performance serves as a predictor of future financial outcomes rather than merely reflecting current profitability. The R-squared values of 0.192 for ROA and 0.125 for Tobin's Q support the robustness of the primary findings. Additionally, the inclusion of firm- and year-fixed effects accounts for unobserved heterogeneity and temporal shocks, thereby enhancing the validity of the results.

Table 9: Robustness Check: Fixed-Effects Estimates with Lagged Social Performance

Dependent variable	ROA (Lagged SP)	Tobin's Q (Lagged SP)
L.S Score	0.755* (0.410)	0.028* (0.015)
Control Variables	Included	Included
Firm & Year FE	Included	Included
R^2 (within)	0.192	0.125

Note: * $p < 0.10$. Standard errors in parentheses. L.S Score = One-year lagged Social Performance Score.

Sensitivity Analysis: Excluding the 2020 Fiscal Year

To validate the longitudinal stability of the findings across different economic cycles, Table 10 reports fixed-effects estimates after excluding the 2020 fiscal year, thereby neutralising potential bias from the extreme market volatility and operational disruptions associated with the COVID-19 pandemic. The SOC continues to exert a statistically significant and positive effect on ROA ($\beta = 0.885$, $p < 0.10$). Notably, the coefficient magnitude in this restricted sample exceeds the primary estimate ($\beta = 0.842$), indicating that internal efficiency gains from social stewardship are more pronounced under stable macroeconomic conditions. In the market valuation model, the social performance disclosure (SOC) coefficient remains positive ($\beta = 0.041$) but does not achieve statistical significance following the exclusion of 2020, suggesting that the market premium for social performance observed in the full sample may have been partially amplified by investor flight-to-quality behaviour during the crisis period. R-squared values of 0.198 (ROA) and 0.126 (Tobin's Q) confirm sustained explanatory power despite the reduced sample. Overall, this sensitivity analysis mitigates concerns that the primary findings were driven by pandemic-related anomalies.

Table 10: Sensitivity Analysis: Fixed-Effects Estimates Excluding the 2020 Fiscal Year

Dependent variable	ROA model	Tobin's Q model
SOC	0.885* (0.450)	0.041 (0.021)
Control Variables	Included	Included
Firm & Year FE	Included	Included
R^2 (within)	0.198	0.126

Note: * $p < 0.10$. Standard errors are presented within parentheses. The fiscal year 2020 is excluded to account for the systemic effects of COVID-19.

5. CONCLUSION

This study examined the relationship between social sustainability and financial performance within the Jordanian manufacturing sector, utilizing a multidimensional accounting-based framework across a balanced panel dataset of 49 firms listed on the Amman Stock Exchange (ASE) for 2018–2024. Through the development of a manually constructed social disclosure index and the application of robust panel-data estimation techniques, the research provides consistent, theoretically sound empirical evidence that social performance is a significant and strategically important factor influencing firm-level financial outcomes in an emerging-market context.

The positive, statistically significant relationship between social sustainability performance and return on assets (ROA) provides robust support for the initial hypothesis and is theoretically grounded in the Resource-Based View (Barney, 1991; Surroca, Tribó, & Waddock, 2010). Socially responsible practices that include employee welfare, fair compensation, and occupational health and safety create firm-specific intangible assets, such as organisational trust, reputational capital, and stability in human capital. These assets collectively contribute to a reduction in labour turnover and operational disruptions, thus improving productive efficiency and accounting profitability. These mechanisms are especially prominent in Jordan's labour-intensive manufacturing sector, where the continuity of human capital serves as a vital factor for operational stability and effective cost management (Flammer, 2015; Orlitzky, Schmidt, & Rynes, 2003).

The second hypothesis receives partial validation through the positive correlation between social sustainability performance and Tobin's Q, aligning with legitimacy theory (Suchman, 1995). Transparent and substantive social disclosure serves as a credible signalling mechanism, mitigating information asymmetry between the firm and external capital market participants while indicating lower non-financial risk exposure and more robust stakeholder relationships, characteristics increasingly factored into investor valuation frameworks (Albuquerque, Koskinen, & Zhang, 2019; Dhaliwal, Li, Tsang, & Yang, 2011). Although the magnitude of this effect is relatively modest, its statistical significance is of theoretical importance: it suggests that even within the emerging ESG landscape of the ASE, social performance is beginning to exert a measurable influence on market valuation, reflecting an evolving investor sensitivity to non-financial sustainability dimensions in the MENA region.

A notable original aspect of this research is its validation of the third hypothesis, which identifies a positive correlation between social sustainability performance and the Sustainable Growth Rate (SGR). This outcome indicates that companies with greater social involvement are better able to fund growth with internally generated resources, thereby reducing their reliance on external debt financing. From a long-term sustainability viewpoint, this supports the theoretical assertion that social responsibility enhances economic resilience beyond mere short-term profit maximization (Bansal & DesJardine, 2014). Prior studies have shown that companies engaged in social responsibility enjoy better access to capital, reduced financing limitations, and improved relationships with financial intermediaries (Cheng, Ioannou, & Serafeim, 2014; Lins, Servaes, & Tamayo, 2017). In Jordan, where external financing can be expensive or institutionally restricted, the ability to cultivate sustainable internal growth is a strategically crucial advantage.

This study expands the scope of stakeholder theory and the Resource-Based View by applying them to an under-researched emerging-market setting. It demonstrates that social engagement concurrently boosts short-term accounting profits, market valuations, and long-term growth prospects. Methodologically, the study introduces a socially constructed sustainability performance index, developed through systematic content analysis of annual reports and sustainability disclosures. This approach provides a robust and reproducible method for ESG research in institutional contexts where standardized rating databases are unavailable, a common feature of many developing economies.

From a policy perspective, the findings bear significant implications for capital market regulators and institutional stakeholders. The ASE and pertinent regulatory authorities are advised to endorse the development and implementation of standardized social disclosure frameworks. Enhanced transparency in non-financial reporting not only facilitates informed capital allocation but also bolsters investor confidence in the long-term value creation prospects of listed entities. For corporate executives, particularly within the

manufacturing sector, investments in employee welfare, equitable labor practices, workplace safety, and community engagement should be viewed as strategic imperatives rather than discretionary expenditures, given their proven contributions to profitability, market confidence, and sustainable growth.

Future research could productively extend this framework in several directions. First, expanding the sample to include non-manufacturing sectors within Jordan or comparable emerging economies across the MENA region would enhance the generalizability of the findings. Second, incorporating the environmental and governance dimensions of ESG within an integrated multi-pillar framework would provide a more comprehensive assessment of sustainability performance linkages. Third, adopting quasi-experimental designs, such as difference-in-differences or regression discontinuity, would strengthen causal identification and address residual endogeneity concerns. Finally, longitudinal cross-country comparative analyses could elucidate the role of institutional quality, regulatory environment, and cultural factors in moderating the social sustainability–financial performance relationship.

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