SCIENTIFIC CULTURE

www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 1.1, (2026), pp. 194-213
Open Access. Online & Print

DOI: 10.5281/zenodo.11425123

NAVIGATING SUSTAINABLE GROWTH: THE ROLE OF INSTITUTIONAL QUALITY IN SHAPING TANGIBLE INVESTMENT OUTCOMES IN MENA FIRMS

Eman Fathi Attia[1], Wafa Khémiri[2], Ahmed Chafai[3], M. A. Hafez[4], Essam Salem[5]

[1]University of Business and Technology, Jeddah, Saudi Arabia. e.attia@ubt.edu.sa
[2]Jendouba University, Tunisia. wafakhe@yahoo.fr
[3]universitaire Manouba, Tunisie. ahmed.chafai@esct.rnu.tn
[4]Shinawatra University, Pathum Thani, Thailand, mohdahmed.hafez@newinti.edu.my
[5]Cairo University, Egypt; Esalem@hct.ac.ae, https://orcid.org/0000-0001-7318-542X

Received: 11/11/2025
Accepted: 18/12/2025

Corresponding Author: Eman Fathi Attia (e.attia@ubt.edu.sa)

ABSTRACT

This study offers new insights into the impact of tangible investment and institutional quality on sustainable firm growth among listed non-financial companies in the MENA region during the period 2007–2022. Using Dynamic Panel Threshold Regression (DPTR), the findings reveal a threshold effect of institutional quality on tangible investment-sustainable firm growth nexus. Specifically, the results indicate the existence of an optimal level of institutional quality beyond which tangible investment promotes sustainability, while below this threshold, such investment can be detrimental to firm growth. These findings underscore the importance for policymakers, scholars, and corporate leaders to strengthen institutional frameworks, improve access to financial services, and enhance regulatory environments to enable more effective investment and support long-term corporate sustainability.

KEYWORDS: Tangible Investment, Sustainable Firm Growth, Institutional Quality, MENA Region, DPTR.

1. INTRODUCTION

In a dynamic and evolving economic environment, sustainable corporate growth depends on strategic investment and effective resource management to ensure balanced and sustained development (Higgins, 1977). This approach entails not only the efficient allocation of capital but also a forward-looking vision that integrates long-term financial, environmental, and social considerations. Tangible investment remains a critical driver of corporate growth, as advanced infrastructure, state-of-the-art equipment, and cutting-edge technologies enhance productivity, lower operational costs, and support the transition toward sustainable business practices. In addition, such investments enhance firms' capacity for innovation and adaptability in response to market fluctuations and evolving regulatory frameworks, while also promoting organizational efficiency. A well-formulated tangible investment strategy thus contributes to firm value not only by strengthening financial stability but also by fostering sustainable and resilient growth. (Rabinovich, 2023; Khémiri et al., 2024).

Mismanagement of investment policy—whether through overinvestment or underinvestment—can hinder innovation, weaken competitiveness, and compromise a firm's financial health, ultimately threatening its long-term sustainability (Boubaker et al., 2022). The relationship between tangible investment and sustainable corporate growth can be theoretically framed through the literature on investment and firm performance. Notably, the extent and direction of investment decisions significantly influence this relationship. Overinvestment often results in the inefficient allocation of resources and diminishing marginal returns, whereas underinvestment constrains a firm's capacity for growth and innovation (Jensen & Meckling, 1976; Jensen, 1986). Therefore, a strategically balanced investment approach is essential to promoting sustainable growth while avoiding the inefficiencies associated with extreme investment behaviours.

Empirical evidence on the relationship between investment in tangible assets and firm growth remains limited. While several studies have explored the linear impact of investment on sustainable corporate growth, their findings have been mixed (e.g., Arora et al., 2018; Ionita & Dinu, 2020). More recently, a few investigations have begun to examine the potential non-linear relationship between these variables (Khémiri et al., 2024). However, to the best of our knowledge, the threshold effect within this context has yet to be thoroughly explored. Moreover, it is crucial in financial and economic research to elucidate the role of corporate investment in sustainable growth while accounting for other influencing factors that may moderate or mediate this relationship.

Institutional quality is equally critical for the effective translation of corporate investment into sustainable firm growth. Strong and efficient institutions characterized by transparent regulatory frameworks, stable tax policies, and robust legal protection of property rights create an environment conducive to investment. Firms are more likely to commit to fixed asset investments when they trust the rule of law and are confident that their rights will be upheld. Moreover, high-quality institutions foster transparency, fair competition, and market efficiency, which in turn drive innovation, enhance productivity, and support long-term value creation. Consequently, institutional quality serves as a fundamental driver in directing investment toward strategic sectors and promoting sustainable corporate growth. (Chang., 2023; Setianto et al., 2025).

Several studies have investigated the extent to which institutional quality contributes to firm growth across different regions (e.g., Boubakri et al., 2015; Baumöhl & Kočenda., 2022; Chang, 2023; Abaidoo and Kwame Agyapong, 2022; Abozeid et al., 2025). However, to date, no empirical research has specifically examined the threshold effect of institutional quality on the relationship between tangible investment and sustainable firm growth. This study aims to address this gap by analysing the threshold role of institutional quality in the nexus between tangible investment and sustainable corporate growth within the MENA region.

To achieve this aim, the study addresses the following research questions

1. To what extent can institutional quality optimize the relationship between investment policy and sustainable firm growth?
2. What additional strategies can managers and policymakers adopt to improve investment policies and promote the sustainability of firms in the MENA region?

Several factors underscore the importance of studying sustainable firm growth in the MENA region. First, the region is widely characterized by fragile institutional infrastructures. Financial systems remain underdeveloped in both scope and efficiency, while public governance and investor protection often suffer from significant weaknesses (Awartani et al., 2016). Second, institutional quality plays a pivotal role in either fostering or deterring

investment. Robust institutions enhance investor confidence, mitigate risks, and create an enabling environment for investment—an especially critical consideration in the MENA region, where foreign investments tend to be volatile. Third, sustainable firm growth is highly dependent on the stability and predictability of the institutional framework. Strong institutions not only facilitate sustainable business practices but also attract green investments and support long-term economic development.

Like many other regions, the MENA countries have undertaken significant reforms aimed at improving institutional quality. For example, Bahrain's Higher Education Council (HEC) and the Bahrain Education & Training Quality Authority (BQA), established in 2006 and 2008 respectively, have played vital roles in enhancing higher education standards through systematic reviews. Egypt has focused on modernizing public governance and fostering inclusive growth by improving governance indicators and implementing comprehensive reforms (Block, 2014 and OECD, 2025). Jordan's Reform Matrix (2018–2024) sets out a roadmap of policy and structural reforms designed to improve governance and economic management (Reform Matrix, 2021). Kuwait established the National Bureau for Academic Accreditation and Education Quality Assurance (NBAQ) to uphold quality standards in higher education (NBAQ, 2017). Morocco prioritizes governance and regulatory quality to stimulate economic growth (World Bank, 2025). Oman's Vision 2040 emphasizes structural reforms aimed at boosting productivity, diversifying the economy, and reducing state involvement in economic activities (IMF, 2024). Qatar has developed institutional frameworks to enhance effectiveness in higher education, aligning with national development goals as outlined by Qatar University (Amin & Cochrane, 2024). Saudi Arabia's National Quality Strategy, an integral component of Vision 2030, seeks to promote institutional excellence (Alasmari et al., 2021). Tunisia has implemented substantial reforms to combat corruption and enhance transparency (Michalakea, 2022). Similarly, the United Arab Emirates has introduced multiple initiatives to increase transparency and fight corruption (Boutros, 2019 and Hunter et al., 2020).

The MENA region offers a distinctive context for examining the relationship between tangible investment and sustainable firm growth, shaped by its unique socio-economic and political characteristics. Its economic landscape is marked by considerable diversity, encompassing resource-rich countries alongside emerging markets, which facilitates the observation of varied governance structures and developmental trajectories. Many nations within the region continue to grapple with challenges such as corruption and regulatory inefficiencies, factors that directly influence corporate performance. The study period, spanning 2007 to 2022, is particularly significant as it encompasses the aftermath of the 2008 global financial crisis and the profound political transformations following the Arab Spring, both of which have fundamentally reshaped the region's economic environment.

These reforms primarily aim to enhance governance, reduce corruption, and strengthen legal institutions to foster sustainable economic development and growth (Abdelbary, 2023; Sajid, et al., 2025). Combating corruption remains a central priority, with initiatives designed to increase transparency and reinforce oversight mechanisms. Enhancements to judicial systems ensure effective law enforcement and robust protection of property rights. Concurrently, governance reforms seek to improve institutional efficiency and optimize resource management. Efforts to streamline administrative procedures help reduce bureaucratic barriers, thereby facilitating investment and encouraging innovation. Collectively, these initiatives contribute to creating a stable economic environment, which is critical for sustaining long-term growth in the region.

The threshold effect is particularly relevant in the MENA region due to its pronounced institutional heterogeneity and ongoing reform dynamics. MENA countries exhibit varying levels of governance quality, which significantly influence the effectiveness of tangible investments. Below a critical institutional threshold, weak governance, corruption, and regulatory inefficiencies can neutralize or even reverse the benefits of such investments. Conversely, once institutional quality surpasses this threshold, improved property rights, contract enforcement, and regulatory stability enhance investor confidence and allow tangible investments to drive sustainable firm growth.

The results reveal that institutional quality critically moderates this relationship: below a certain threshold, tangible investment may impede sustainable growth due to inefficiencies and increased risks associated with weak institutional environments. Conversely, above this threshold, tangible investment positively contributes to sustainable firm growth by leveraging stable governance, effective regulatory frameworks, and robust protection of property rights. These findings

underscore the importance of strengthening institutional quality as a prerequisite for optimizing investment strategies and achieving long-term sustainable development. Consequently, policymakers and corporate leaders should prioritize institutional reforms alongside investment policies to foster a conducive environment for sustainable economic growth in the MENA region.

The remainder of this paper is organized as follows: Section 2 reviews the relevant literature and develops the research hypotheses. Section 3 outlines the research methodology employed. Section 4 presents and discusses the empirical findings. Finally, Section 5 concludes the study with a summary of key insights and implications.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Theoretical background

Investment in tangible assets is a critical determinant of firms' long-term survival. Analysing its impact requires engagement with classical financial theories that emphasize the trade-offs between internal and external financing, alongside the risks associated with both overinvestment and underinvestment. (Khémiri et al., 2024).

More precisely, based on financing access mechanisms and constraints related to internal resources, the Pecking Order Theory posits that firms prioritize their sources of financing in the following order: internal funds (retained earnings) first, followed by debt, and finally equity issuance. Accordingly, highly profitable firms can finance their tangible investments using internal funds, thereby minimizing the costs associated with information asymmetry and capital dilution. Conversely, less profitable firms may be compelled to restrict their tangible investments, potentially resulting in underinvestment, which adversely affects growth and competitiveness. (Myers & Majluf, 1984).

Agency theory, in contrast, centers on conflicts of interest between shareholders and managers, which can significantly influence tangible investment decisions. Managers, endowed with discretionary control over financial resources, may engage in overinvestment by channelling funds into financially unsustainable projects to increase their influence, or conversely, underinvest due to risk aversion, thereby foregoing potentially profitable opportunities. Such inefficiencies can undermine firm profitability and the generation of shareholder wealth (Jensen & Meckling, 1976; Jensen, 1986). Implementing an effective financing policy that strategically combines internal funds and debt can mitigate these agency costs by reducing managerial discretion and incentivizing optimal resource allocation (Stutz, 1990). Furthermore, robust governance mechanisms—such as enhanced oversight by the board of directors and active shareholder engagement—can constrain opportunistic managerial behavior, thereby fostering improved firm performance and more strategic allocation of tangible investments (Fama & Jensen, 1983).

Trade-off theory emphasizes the need to balance the benefits of investment against its associated costs, considering financial constraints and the risks arising from capital misallocation (Myers, 1984; Stulz, 1990). Consistent with this perspective, trade-off theory posits a non-linear relationship between tangible investment and firm performance, whereby moderate investment enhances productivity and profitability, while overinvestment results in diminishing returns and elevated financial risk (Kraus & Litzenberger, 1973). Supporting this view, Richardson's (2006) highlights the dual challenges of over- and underinvestment: underinvestment, characterized by insufficient resource allocation, hampers growth and competitiveness, whereas overinvestment in marginal projects undermines profitability and increases financial vulnerability.

Recently, corporate finance has increasingly shifted its focus towards sustainable growth by adopting long-term business models rather than emphasizing short-term return maximization. From the perspective of sustainable corporate development, sustainability has become a strategic imperative, prioritizing firms' environmental, social, and economic impacts (Wei & Xu, 2025). Tangible investment plays a central role in fostering sustainable growth by enhancing productivity and strengthening strategic business capabilities (Khémiri et al., 2024). This paradigm shift is redirecting traditional financial priorities towards a comprehensive vision that integrates environmental, social, and governance (ESG) considerations into long-term corporate strategies (Bagh et al., 2024; Xie, 2024; Lin & Li, 2025; Sajid et al., 2025).

From a financial sustainability perspective, a notable theoretical gap remains regarding how firms can effectively reconcile growth, investment, and internal financial management while integrating sustainability considerations (Elkington, 1997). Growth theory articulates the necessity for firms to allocate profits and capital optimally to finance increases in fixed assets without excessive reliance on debt. It underscores the importance of reinvesting profits at strategically appropriate times to facilitate long-term growth while maintaining financial stability. This approach contrasts with traditional

models centered on short-term profitability, emphasizing instead the formulation of financial strategies oriented toward sustainable growth. (Higgins, 1977).

2.2. Empirical Literature

The relationship between tangible investment and sustainable corporate growth remains insufficiently explored in recent literature. Most prior studies have predominantly examined the impact of tangible investment (or related variables) on short-term firm growth, producing mixed and inconclusive findings (e.g., Coad & Grassano, 2016; Nizam et al., 2021; Khémiri et al. 2021; Kwon et al., 2021; Rabinovich, 2023; Abozied, Elamer, Attia, 2025).

Regarding sustainability, a limited number of recent studies have examined the relationship between tangible investment and sustainable corporate growth (e.g., Arora et al., 2018; Ionita & Dinu, 2020). However, these investigations predominantly focus on the linear relationship between tangible investment and sustainable firm growth, thereby constraining the depth and scope of the analysis.

Addressing the issue of nonlinearity, several recent studies have demonstrated a nonlinear relationship between ESG performance (or financial inclusion) and sustainable corporate growth (e.g., Bagh et al., 2024; Khémiri et al., 2023). However, research examining the nonlinear dynamics of the investment–sustainable growth nexus remains limited. In this context, Khémiri et al., (2024) identify a nonlinear effect of tangible investment on sustainable corporate growth, concluding that tangible investment influences firm growth in a nonlinear manner within the MENA region. Nonetheless, the threshold effect of investment of tangible assets on growth at the firm level remains insufficiently explored. Therefore, this study takes the lead in addressing this research gap.

2.3. Hypothesis Development

Previous studies suggest that the relationship between tangible investment and firm performance is embedded within the broader institutional environment, where robust structures and regulatory frameworks are essential for aligning managerial incentives with the firm's long-term objectives (e.g., Çam & Özer, 2021; Chang, 2023). This is particularly relevant in emerging economies, where firms are more likely to encounter financial constraints. In such contexts, institutional quality plays a critical role, offering significant value by mitigating these constraints and enabling more effective investment decisions (Stiglitz & Weiss, 1981; Çam and Özer, 2021).

Institutional quality plays a critical role in shaping economic performance by influencing investment, productive activity, and innovation. It comprises multiple dimensions such as legal, economic, and political-institutional, each exerting distinct effect. Institutions, understood as systems of formal and informal rules, help reduce uncertainty and structure social, political, and economic interactions (Chang, 2023; Setianto et al., 2025). As North (1990) famously described, institutions are the "rules of the game" that define the incentives, constraints, and costs of action. Their primary function is to create a stable and secure environment that facilitates coordinated human activity and minimizes risk.

Moreover, institutional quality is essential in the realm of corporate finance, as it helps mitigate market failures such as information asymmetry and high transaction costs (Boubakri et al., 2015; Çam & Özer 2021). Strong institutions facilitate more efficient allocation of resources, thereby fostering investment and supporting broader economic growth. While the macroeconomic implications of institutional quality have been extensively studied, its direct impact on firm-level performance remains relatively underexplored (Mauro, 1995; Rajan & Zingales, 2003; Attia et al., 2023).

In the context of investment, institutional quality plays a pivotal role in fostering a stable and predictable environment that supports efficient resource allocation. High-quality institutions encourage investment (one of the primary drivers of economic growth) by enhancing investor confidence, protecting property rights, and reducing uncertainty (e.g., Shleifer & Vishny, 1993; Mauro, 1995; Abuzayed & Fayoumi, 2016; Law & Kutan, 2018). Conversely, low institutional quality hinders investment activity and limits growth opportunities (Fhima, 2018). In the MENA region, most empirical studies have primarily focused on the relationship between institutional quality and macroeconomic growth (e.g., Abuzayed & Fayoumi, 2016; Emara & Chiu, 2016; Emara et al., 2021). However, relatively few studies have examined how investment affects firm-level growth, with limited attention given to the institutional context within which this relationship operates (e.g., Khémiri et al., 2024).

The linear effect of institutional quality on firm growth has been well established in several studies (e.g., Boubakri et al., 2015; Baumöhl & Kočenda., 2022; Chang., 2023). However, literature increasingly emphasizes the potential threshold or moderating role of institutional quality in the relationship

between investment and firm growth or performance. A limited number of recent studies have explored this perspective. For instance, Khémiri et al. (2024). examined the moderating role of financial inclusion in the nonlinear relationship between investment and sustainable firm growth in the MENA region. Similarly, Setianto et al. (2025) provided evidence that institutional quality exerts a threshold effect on the relationship between financial inclusion and financial stability. Despite these contributions, the specific threshold effect of institutional quality on the investment–firm growth nexus remains underexplored, particularly at the firm level in emerging economies.

Considering the preceding discussion, the following hypothesis is proposed

Hypothesis 1 (H1). There exists a threshold effect of institutional quality on the relationship between tangible investment and sustainable corporate growth.

H1 (a). When institutional quality is low, tangible investment has a negative effect on sustainable corporate growth.

H1 (b). When institutional quality is high, tangible investment positively contributes to sustainable corporate growth.

3. RESEARCH DESIGN

3.1. Sampling and Data Sources

This study analyses a panel of 482 non-financial firms listed across ten MENA countries (Bahrain, Egypt, Jordan, Kuwait, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, and the United Arab Emirates) over the period 2007 to 2022. Firm-level data were obtained from the Refinitiv Eikon database, while macroeconomic and institutional indicators were sourced from the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI). The initial sample comprised 1,184 listed firms, as identified in the Refinitiv Eikon database. However, firms operating in the financial sector were excluded due to their distinct regulatory and governance structures. Additionally, firms lacking at least three consecutive years of data during the study period were removed to ensure data consistency and reliability. After applying these selection criteria, the final sample included 482 firms, yielding a total of 7,712 firm-year observations. Table 1 below provides an overview of the distribution of the sample firms. To minimize the influence of extreme values and ensure robustness in the analysis, all firm-level variables were winsorized at the 1st and 99th percentiles.

Table 1: Distribution and Breakdown of Firms.

Panel A: Distribution			
Countries	**Number of firms**	**Number of observations**	**Percentage**
Bahrain	17	272	4%
Egypt	91	1456	19%
Jordan	83	1328	17%
Kuwait	67	1072	14%
Morocco	39	624	8%
Oman	38	608	8%
Qatar	19	304	4%
Saudi Arabia	72	1152	15%
Tunisia	25	400	5%
UAE	31	496	6%
Total	482	7712	100%
Panel B: Breakdown			
Initial number of listed firms in MENA region			1184
Exclude: financial sector firms			362
Exclude: Firms without three consecutive years of data			340
Final usable sample			482

3.2. Model Specification

The relevance of threshold effects in the MENA region stems from the significant heterogeneity in institutional quality among countries. This variation critically shapes the effectiveness of tangible investments in driving sustainable business growth. When institutional quality falls below a certain level (e.g., weak governance, corruption, and regulatory inefficiencies), it undermines the returns on physical capital by increasing transaction costs and investment risks. Conversely, beyond a critical threshold, stronger institutions ensure the protection of property rights, contract enforcement, and regulatory stability, which enhances the productivity of tangible assets and fosters long-term growth. This non-linear relationship justifies the use of a dynamic panel threshold regression (DPTR) model to capture these regime-dependent effects.

To explore the threshold effect of institutional quality on investment-sustainable firm growth, we utilize the dynamic panel threshold regression (DPTR) model, developed by Seo & Shin (2016). This model considers potential endogeneity.

Where SGR_{cit} is the endogenous variable, $FINV_{cit}$ is the time-varying regressor.

The γ indicates the threshold parameter. $1\cdot(\cdot)$ is an indicator function. $INSQ_{ct}$ is the threshold variable.

$FLEV_{cit}, FSIZE_{cit}, FTANG_{cit}, FRISK_{cit}, FNDTS_{cit}, FLIQ_{cit}, FDIV_{cit}, GDP_{ct}, INF_{ct}$ are the control variables. The $\varepsilon_{it}\,(\mu_i + \nu_{it})$ are the error components, where μ_i is the individual fixed effects

and V_{it} is the idiosyncratic random disturbance. The β and λ are the coefficients of all independent variables for the lower and upper regimes, respectively.

$$\begin{aligned} SGR_{cit} = {} & (\beta_1 SGR_{cit-1} + \beta_2 FINV_{cit} + \beta_3 FLEV_{cit} + \beta_4 FSIZE_{cit} + \beta_5 FTANG_{cit} + \beta_6 FRISK_{cit} \\ & + \beta_7 FNDTS_{cit} + \beta_8 FLIQ_{cit} + \beta_9 FDIV_{cit} + \beta_{10} GDP_{ct} + \beta_{11} INF_{ct}) 1 \cdot (INSQ_{ct} \le \gamma) \\ & + (\lambda_1 SGR_{cit-1} + \lambda_2 FINV_{cit} + \lambda_3 FLEV_{cit} + \lambda_4 FSIZE_{cit} + \lambda_5 FTANG_{cit} + \lambda_6 FRISK_{cit} \\ & + \lambda_7 FNDTS_{cit} + \lambda_8 FLIQ_{cit} + \lambda_9 FDIV_{cit} + \lambda_{10} IGDP_{ct} + \lambda_{11} INF_{ct}) 1 \cdot (INSQ_{ct} > \gamma) + \varepsilon_{it} \end{aligned} \quad (1)$$

3.3. Measurement of Variables

3.3.1. Dependent Variable

To measure sustainable firm growth, we follow several studies (e.g., Khémiri et al., 2023; Abozied, Elamer, Attia, 2024; Khémiri et al., 2024; Xie, 2024; Bagh et al., 2024; Lin & Li., 2025) using sustainable growth rate (SGR) based on the Higgins model (Higgins 1977). This rate is measured as follows

SGR=Net Profit Ratio × Asset Turnover Ratio × Retention Rate × Equity Multiplier.

Where, net profit rate: net income to net turnover; turnover rate: net turnover to total assets; retention rate: retained earnings to net profit; and equity multiplier: total assets to total equity.

3.3.2. Independent Variable

In this study, we follow Khémiri et al. (2024) and Xi. (2024) to measure tangible investment. To do so, we use the ratio of capital expenditures less depreciation, divided by the fixed assets (FINV).

3.3.3. Threshold Variables

To measure institutional quality (INSQ), we construct a score using the six country governance indicators namely Voice and Accountability (VA), Political Stability (PS), Government Quality (GE), Regulatory Quality (RQ), Rule of Law (ROL), and Control of Corruption (CC), developed by Kaufmann et al. (2011). The estimates for these indicators range from -2.50 to +2.50. To construct this score, we employ the arithmetic average of these indicators. A higher score means better governance.

3.3.4. Control Variables

According to previous studies (e.g., Khémiri et al., 2023; Bagh et al., (2024); Khémiri et al., (20é4); Xi., (2024); Bagh et al., 2024; Lin & Li., 2025), there are various factors that contribute to sustainable firm growth. These control variables include leverage, firm size, asset tangibility, bankruptcy probability, non-debt tax shields, liquidity, dividend, net equity issued, economic growth, and Inflation. Table 2 summarizes the definition of each variable.

Table 2: Variable Description.

Variables	Acronyms	Description	Sources
Dependent variable			
Sustainable firm growth	SGR	Net profit ratio × Asset turnover ratio × Equity multiplier × Retention rate	Refinitiv Eikon
Independent variable			
Tangible investment	FINV	(Capital Expenditures − Depreciation) / Fixed Assets	Refinitiv Eikon
Transition variable			
Institutional quality	INSQ	Average of 6 indicators of country governance, developed by Kaufmann et al., 2011; Voice and Accountability (VA), Political Stability (PS), Government Quality (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC).	WGI, World Bank
Control variables			
Leverage	FLEV	Total Debt / Total Assets	Refinitiv Eikon
Firm size	FSIZE	The natural logarithm of total assets	
Asset tangibility	FTANG	Fixed Assets / Total Assets	
Bankruptcy probability	FRISK	Z-score model of Altman	
Non-debt tax shields	FNDTS	Depreciation/Total Assets	
Liquidity	FLIQ	Current Assets/Current liabilities	
Dividend	FDIV	Dividend per share	
Net equity issued	FNEI	Net Euity Issued/Firm Market Value	
Economic growth	GDP	GDP growth rate (annual %)	WDI, Word Bank
Inflation	INF	Consumer prices index (annual %)	

Variables	Acronyms	Description	Sources
Dependent variable			
Sustainable firm growth	SGR	Net profit ratio × Asset turnover ratio × Equity multiplier × Retention rate	Refinitiv Eikon
Independent variable			
Tangible investment	FINV	Capital Expenditures-Depreciation/ Fixed Assets	Refinitiv Eikon
Transition variable			
Institutional quality	INSQ	Average of 6 indicators of country governance, developed by Kaufmann et al., 2011; Voice and Accountability (VA), Political Stability (PS), Government Quality (GE), Regulatory Quality (RQ), Rule of Law (RL), and Control of Corruption (CC).	WGI, World Bank
Control variables			
Leverage	FLEV	Total Debt/Total Assets	Refinitiv Eikon
Firm size	FSIZE	The natural logarithm of total assets	
Asset tangibility	FTANG	Fixed Assets/Total Assets	
Bankruptcy probability	FRISK	Z-score model of Altman	
Non-debt tax shields	FNDTS	Depreciation/Total Assets	
Liquidity	FLIQ	Current Assets/Current Liabilities	
Dividend	FDIV	Dividend per share	
Net equity issued	FNEI	Net Euity Issued/Firm Market Value	
Economic growth	GDP	GDP growth rate (annual %)	WDI, Word Bank
Inflation	INF	Consumer prices index (annual %)	
Note: WDI presents the World Development Indicators and WGI is the Worldwide Governance Indicators.			

4. ANALYSIS, FINDINGS, AND DISCUSSION

4.1. Statistical Analysis

Table 3 presents the descriptive statistics for all variables. The average sustainable growth rate (SGR) is 0.488, reflecting considerable variation in firm growth across the MENA region during the period 2007–2022. This average exceeds reported values of 0.0428 (Lin & Li, 2025) and 0.032 (Xie, 2024) for Chinese firms, as well as 0.301 for North African companies (Khémiri et al., 2023).

Table 3: Descriptive Statistics.

Variable	Obs.	Mean	Std. Dev.	Min	Max
SGR	7712	0.488	16.965	-609.558	882.751
FINV	7712	0.102	0.870	-2.915	6.685
INSQ	7712	-0.017	0.391	-0.947	0.724
FLEV	7712	0.021	0.210	0.023	0.859
FSIZE	7712	12.508	2.445	7.713	18.498
FTANG	7712	0.319	0.259	0.037	0.898
FRISK	7712	1.289	1.798	-2.713	12.872
FNDTS	7712	0.031	0.032	0.042	0.181
FILQ	7712	0.382	0.271	0.005	0.938
FDIV	7712	0.025	0.044	0.052	0.283
FNEI	7712	0.002	0.096	-0.475	0.389
GDP	7712	0.029	0.034	-0.090	0.196
INF	7712	0.041	0.047	-0.049	0.295

Notes: this table summarizes the descriptive statistics of all variables. SGR is Sustainable firm growth; SGRt-1 is lagged one year of SGR; FINV is Tangible investment; INSQ is institutional quality; FLEV is Leverage; FSIZE is Firm size; FTANG is Asset tangibility; FRISK is Bankruptcy probability; FNDTS is non-debt tax shields; FLIQ is Liquidity; FDIV is Dividend; FNEI is Net equity issued; GDP is Economic growth; INF is Inflation.

However, it is slightly lower than the MENA average of 0.505 reported when excluding Bahraini firms (Khémiri et al., 2024). The mean tangible investment (FINV) is 0.102, while the average institutional quality (INSQ) is -0.017, indicating generally poor institutional quality across the region. Descriptive statistics for the control variables are consistent with findings in existing literature.

Figure 1 depicts the trends in the Sustainable Growth Rate (SGR) and corporate investment in the MENA region from 2007 to 2022, highlighting distinct economic phases. Between 2007 and 2009, the SGR experienced a sharp decline, reaching its nadir in 2009 (-3.014) amid the global financial crisis, which severely impeded both growth and investment. A recovery phase followed from 2010 onward, with the SGR turning positive and steadily increasing until 2019 (1.427), reflecting improved firm performance and macroeconomic stability. In contrast, corporate investment peaked in 2007 (0.266) but then exhibited a persistent decline, suggesting a shift toward greater reliance on internal financing. The onset of the COVID-19 pandemic in 2020 marked a critical turning point, characterized by a moderate decline in SGR alongside negative corporate investment, attributable to heightened economic uncertainty and liquidity constraints. Post-pandemic data (2021–2022) indicate a partial recovery in SGR; however, corporate investment remains subdued, underscoring ongoing structural challenges and diminished investor confidence. These observations underscore a nonlinear relationship between SGR

and investment, reflecting the complex interplay of financial and institutional constraints shaping firm growth within the MENA region.

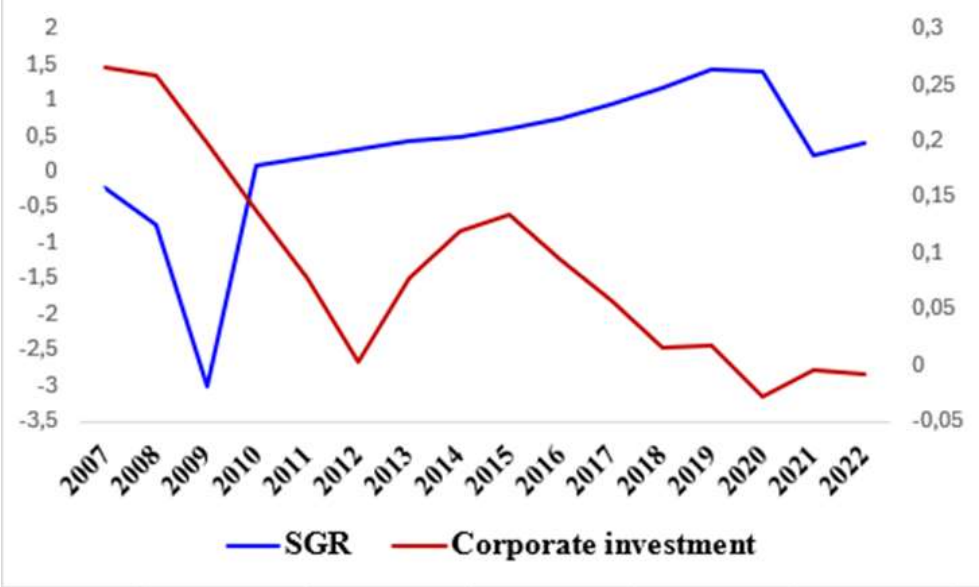

Figure 1: Average Corporate Investment and SGR, 2007-2022.

Table 4 presents the Pearson correlation matrix results, indicating no multicollinearity issues among the variables, as all correlation coefficients are below the 0.80 threshold. Additionally, variance inflation factor (VIF) values for all explanatory variables are below 10, further confirming the absence of multicollinearity in the model.

Table 4: Correlation Results.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	VIF
(1) SGR	1.000													
(2) FINV	-0.006*	1.000												1.04
(3) INSQ	0.013*	0.046*	1.000											1.84
(4) FLEV	0.021*	-0.041*	0.094*	1.000										1.17
(5) FSIZE	0.011	-0.026*	-0.022	0.024	1.000									1.02
(6) FTANG	-0.001*	-0.068*	-0.079*	0.161*	0.086*	1.000								1.20
(7) FRISK	0.008	-0.012	-0.134*	-0.055*	-0.073*	-0.216*	1.000							1.19
(8) FNDTS	0.056*	-0.133*	0.027*	0.257*	0.003	0.176*	0.175*	1.000						1.21
(9) FLIQ	0.032*	-0.078*	-0.309*	-0.072*	-0.008	-0.180*	0.131*	0.013	1.000					1.19
(10) FDIV	-0.012	0.001	-0.032*	-0.215*	-0.006	-0.053*	0.142*	0.093*	0.112*	1.000				1.10
(11) FNEI	-0.012	0.094*	-0.031*	-0.058*	-0.006	-0.002	-0.078*	-0.065*	0.010	0.025*	1.000			1.03
(12) GDP	0.024*	0.003	-0.084*	0.000	-0.007	0.011	0.051*	0.011	0.010	-0.031*	0.034*	1.000		1.03
(13) INF	-0.006	-0.003	-0.617*	-0.049*	-0.058*	-0.028*	0.185*	-0.066*	0.151*	-0.027*	0.060*	0.171*	1.000	1.74
Mean VIF														1.23

Notes: this table summarizes the correlation results between dependent and independent variables, as well as between independent variables. SGR is Sustainable firm growth; SGRt-1 is lagged one year of SGR; FINV is Tangible investment; INSQ is institutional quality; FLEV is Leverage; FSIZE is Firm size; FTANG is Asset tangibility; FRISK is Bankruptcy probability; FNDTS is non-debt tax shields; FLIQ is Liquidity; FDIV is Dividend; FNEI is Net equity issued; GDP is Economic growth; INF is Inflation

4.2. Results

This study investigates the threshold effect of institutional quality on the relationship between tangible investment and sustainable firm growth. To this end, we employ the DPTR model. The estimation results are summarized in Table 5.

The bootstrap linearity test statistics provide strong evidence supporting the presence of a threshold effect of institutional quality on the investment–growth nexus at the 1% level of

significance. The estimated threshold value of institutional quality, used as the transition variable, is -0.166. Moreover, 51% of the observations fall within the lower regime (below the threshold), while the remaining 49% belong to the higher regime (above the threshold). The results presented in Table 6 indicate that the coefficients of the lagged sustainable growth rate variable (SGRt-1) are statistically significant, although their signs differ across regimes. Specifically, the coefficients are positive and significant at the 1% level in the lower regime, while they become negative and significant at the same level in the upper regime. This finding reflects the threshold effect of institutional quality on the investment–sustainable growth nexus, suggesting that the influence of past sustainable growth on current growth varies depending on the institutional environment. Economically, sustained growth appears to support firm performance when institutional quality is low (lower regime). However, beyond a certain threshold of institutional quality (upper regime), lagged sustainable growth may adversely affect current sustainable growth, potentially indicating diminishing returns or shifting dynamics in more developed institutional contexts.

The results indicate that the coefficients of the INSQ variable are statistically significant in both regimes. In the lower regime, characterized by a low level of institutional quality, the coefficient is negative and significant at the 1% level, confirming a negative threshold effect of institutional quality on the FINV–SGR nexus. Conversely, in the upper regime, where institutional quality is high, the coefficient is positive and statistically significant, demonstrating a positive threshold effect of institutional quality on the investment–sustainable growth relationship. Notably, the lower regime corresponds to the optimal regime, as the magnitude of the coefficient is greater than that in the upper regime. Specifically, a 1% increase in institutional quality is associated with a 4.50% increase in SGR. These findings align with those of Xi (2024) and Khémiri et al. (2024), who documented a negative relationship between financial investment and sustainable growth. Accordingly, the main hypothesis H1, along with sub-hypotheses H1(a) and H1(b), are supported by the evidence.

For the control variables, the signs and significance levels differ across the two regimes. In the lower regime, characterized by poor institutional quality, FLEV exerts a negative and statistically significant effect on the SGR. Conversely, in the upper regime, where institutional quality is high, FLEV has a positive and significant impact on SGR. This finding underscores the critical role of institutional quality in moderating the effect of debt on sustainable firm growth. In environments with weak institutions, excessive leverage can exacerbate agency problems, increase the risk of fund misappropriation, and restrict access to financing on favorable terms, thereby impeding growth. In contrast, in well-governed institutional settings—marked by strong investor protections, transparency, and effective governance—firms are better positioned to leverage debt to finance productive investments, thus supporting sustainable growth. These results are consistent with prior studies, including Bagh et al., (2024), Xi (2024) and Lin & Li (2025), which demonstrate a positive relationship between leverage and sustainable corporate growth.

Similarly, FSIZE exhibits contrasting effects on SGR depending on the level of INSQ. In the lower regime, characterized by weak INSQ, FSIZE negatively impacts SGR, whereas in the upper regime with strong INSQ, FSIZE positively influences SGR. This suggests that the relationship between firm size and SGR is contingent upon the institutional environment. Under poor INSQ, larger firm size may exacerbate inefficiencies, governance challenges, and bureaucratic obstacles, thereby impeding growth. Conversely, in a robust institutional framework, larger firms benefit from improved governance structures, enhanced access to finance, and the ability to exploit economies of scale, which collectively foster sustainable growth. These findings align with Xi (2024), who documents a positive effect of firm size on sustainable growth among Chinese firms, although they contrast with the results of Bagh et al., (2024), who report an opposite effect

At low levels of INSQ, FTANG exerts a positive effect on SGR, whereas at high levels of INSQ, it has a significant negative impact on SGR. Economically, this suggests that the role of collateral varies with institutional quality. In weak institutional environments, collateral facilitates access to finance by providing lenders with greater assurance, thereby stimulating firm growth. Conversely, in strong institutional settings, where firms benefit from robust governance and transparency mechanisms, the reliance on collateral decreases. Excessive dependence on guarantees in such contexts may signal resource misallocation or over-borrowing, ultimately hindering sustainable growth. This negative relationship aligns with findings by Khémiri et al. (2023) regarding firms in North Africa.

Similarly, FRISK positively and significantly influences SGR in the low INSQ regime but turns

negative in the high INSQ regime. From an economic standpoint, in weaker institutional frameworks, a higher probability of bankruptcy may induce firms to adopt more cautious and optimized growth strategies, thereby supporting SGR. In contrast, in environments with stronger institutions, increased bankruptcy risk could reflect underlying inefficiencies or heightened risk exposure, which negatively affects SGR (Khémiri et al., 2023) report comparable results.

Furthermore, in the lower INSQ regime, FNDTS exhibits a significant positive relationship with SGR. Conversely, in the upper INSQ regime, FNDTS has a significant negative effect on SGR. This suggests that the impact of FNDTS on sustainable growth varies across institutional contexts. Under weak INSQ, FNDTS help reduce firms' tax burdens, enabling the reallocation of resources toward expansion and growth. In contrast, within stronger institutional frameworks, excessive reliance on FNDTS may indicate increased tax avoidance or a reduced incentive to invest in productive activities, thereby impeding long-term growth. These findings are consistent with those reported by Khémiri et al. (2023).

Similarly, FLIQ exerts a strong positive effect on SGR in the lower INSQ regime but negatively impacts SGR in the upper regime. This implies that in weak institutional environments, enhanced liquidity facilitates firm financing for growth, thereby fostering sustainable development. However, in more robust institutional settings, excess liquidity may result in inefficiencies such as resource misallocation, ultimately detracting from sustainable growth. These results align with the observations of Khémiri et al. (2024).

Similarly, the impact of FDIV on SGR differs across INSQ regimes (lower and upper). In the lower INSQ regime, FDIV exhibits a negative relationship with SGR, suggesting that dividend payments may constrain a firm's capacity to reinvest earnings into growth initiatives, thereby undermining sustainability. Conversely, in the higher INSQ regime, FDIV has a positive effect on SGR, indicating that dividend payments may reflect disciplined management practices and stable profit distribution, which in turn support sustainable corporate development. . These findings contrast with Khémiri et al. (2024), who document a generally inhibitory effect of dividend payments on SGR.

A comparable pattern is observed for the variable FNEI, where its effect on the SGR shifts from negative under low INSQ to positive under high INSQ.

Table 5: Baseline Findings: Threshold Effect of IQ on FINV–SGR Nexus.

Variables	Lower INSQ regime	Upper INSQ regime	Difference ($\delta=\lambda-\beta$)
SGR_{t-1}	0.500***	-0.459***	-0.959***
	(0.020)	(0.010)	(0.010)
FINV	-0.045***	0.029***	0.074***
	(0.002)	(0.001)	(0.001)
FLEV	-1.652***	0.587***	2.239***
	(0.016)	(0.012)	(0.004)
FSIZE	-0.005***	0.031***	0.036***
	(0.002)	(0.001)	(0.001)
FTANG	1.140***	-0.021*	-1.161***
	(0.014)	(0.012)	(0.002)
FRISK	0.065***	-0.010***	-0.075***
	(0.002)	(0.001)	(0.001)
FNDTS	0.728***	-0.962***	-1.690***
	(0.088)	(0.061)	(0.027)
FLIQ	1.905***	-0.396***	-2.301***
	(0.016)	(0.012)	(0.004)
FDIV	-0.560***	0.709***	1.269***
	(0.048)	(0.026)	(0.022)
FNEI	-0.950***	0.281***	1.231***
	(0.015)	(0.010)	(0.005)
GDP	1.148***	0.191***	-0,957***
	(0.024)	(0.012)	(0.012)
INF	1.507***	0.182***	-1.325***
	(0.023)	(0.011)	(0.012)
constant			-0.058***
			(0.003)
Threshold value ($\hat{\gamma}$)	-0.166*** [-0.169, -0.164]		
Percentage (%)	51%	49%	
Bootstrap (p-value)	0.000		
Observations			7712
Number of firms			482

Notes: this table summarizes the DPTR results. The threshold value represents the estimated cut-off point obtained using the DPTR method. The Percentage (%) indicates the proportion of firms falling within each regime. Finally, the bootstrap p-value corresponds to the linearity test. SGR is Sustainable firm growth; SGRt-1 is lagged one year of SGR; FINV is Tangible investment; INSQ is institutional quality; FLEV is Leverage; FSIZE is Firm size; FTANG is Asset tangibility; FRISK is Bankruptcy probability; FNDTS is non-debt tax shields; FLIQ is Liquidity; FDIV is Dividend; FNEI is Net equity issued; GDP is Economic growth; INF is Inflation.*** displays level of significance at 1%, 5%, and 10%. Values in bracket illustrate standard error.

Economically, this suggests that in environments with weak institutional frameworks, the issuance of new shares may be perceived negatively due to concerns over shareholder dilution and the potential signaling of financial instability, which can

undermine investor confidence and hinder SGR (Myers & Majluf, 1984). Conversely, in settings characterized by strong INSQ, equity issuance is likely viewed more favorably, as it serves to reinforce the firm's capital base and finance long-term investment initiatives, thereby fostering sustainable growth (Didier et al., 2021).

Finally, macroeconomic factors such as GDP growth and inflation positively affect SGR across both INSQ regimes. Economic expansion and moderate inflation enhance consumption, productivity, and innovation, thereby fostering conditions conducive to firm growth. Firms operating within high INSQ environments benefit from improved access to finance and stronger governance mechanisms, which further amplify the positive impact of these macroeconomic factors on SGR.

Importantly, even in low INSQ contexts, sustained economic growth and controlled inflation incentivize firms to adopt sustainable investment and compliance strategies. These findings are consistent with those documented by Bagh et al. (2024).

4.3. Robustness Checks

4.3.1. Changing Dependent Variable

To confirm the robustness of our results, we performed a follow-up test using a modification of the SFG measurement.

According to the contributions of Khémiri et al. (2024), we employed Van Horne's static SFG model (referred to as FSGR). FSGR is calculated as retained earnings × net profit rate × (1 + gearing) × {1/(total assets/total sales) - 1}. For proxy measures, we have employed sales growth. The variable has been termed the SFGR variable. It is found as a ratio of the difference between sales at time t and time t - 1 and sales at time t - 1. The results are presented in Table 6.

The results derived concur with those established in Table 6. This is proof that INSQ has a threshold effect on the investment-sustainable growth nexus. From the results disclosed by Table 6, FSGR levels are greater than SGR levels. Particularly, for the upper regime, the FSGR level is estimated to be 0.124 while the SGR level is just 0.029%. This implies that MENA firms' growth rate for sustainable growth (FSGR) is superior to their sales growth rate (SGR), indicating a capital surplus relative to their short-term investment needs. Effective management of such a surplus is required to avoid financial inefficiency and maximize profitability.

Table 6: Alternative Measure of SGR.

Variables	Lower INSQ regime	Upper INSQ regime	Difference ($\delta=\lambda-\beta$)
$FSGR_{t-1}$	-0.120***	0.430***	0.650***
	(0.001)	(0.003)	(0.002)
FINV	-0.068***	0.124***	0.192***
	(0.001)	(0.002)	(0.001)
FLEV	0.468***	-1.581***	-2.049***
	(0.002)	(0.012)	(0.010)
FSIZE	-0.007***	0.101***	0.108***
	(0.001)	(0.003)	(0.002)
FTANG	-0.321***	0.532***	0.853***
	(0.002)	(0.019)	(0.017)
FRISK	0.071***	0.051***	-0.020***
	(0.001)	(0.003)	(0.002)
FNDTS	0.207***	0.807***	0.600***
	(0.004)	(0.104)	(0.010)
FLIQ	0.188***	-0.296***	0.484***
	(0.004)	(0.017)	(0.013)
FDIV	-0.025***	-0.892***	-0.867***
	(0.009)	(0.048)	(0.039)
FNEI	0.049***	0.128***	0.079***
	(0.001)	(0.015)	(0.014)
GDP	-0.301***	-0.379***	-0.078***
	(0.004)	(0.025)	(0.021)
INF	0.002	-0.559***	-0.557***
	(0.007)	(0.042)	(0.035)
Constant			-0.465***
			(0.037)
Threshold value ($\hat{\gamma}$)	-0.166*** [-0.169, -0.164]		
Percentage (%)	51%	49%	
Bootstrap (p-value)			0.000
Observations			7712
Number of firms			482

Notes: this table summarizes the DPTR results. The threshold value represents the estimated cut-off point obtained using the DPTR method. The Percentage (%) indicates the proportion of firms falling within each regime. Finally, the bootstrap p-value corresponds to the linearity test. SGR is Sustainable firm growth; SGRt-1 is lagged one year of SGR; FINV is Tangible investment; INSQ is institutional quality; FLEV is Leverage; FSIZE is Firm size; FTANG is Asset tangibility; FRISK is Bankruptcy probability; FNDTS is non-debt tax shields; FLIQ is Liquidity; FDIV is Dividend; FNEI is Net equity issued; GDP is Economic growth; INF is Inflation.*** displays level of significance at 1%, 5%, and 10%. Values in bracket illustrate standard error.

It may be increasing the liquidity to achieve new investment projects, debt reduction to increase the financial strength, or payment of greater dividends to increase the confidence of investors. Besides, improvement in the institutional quality becomes imperative to encourage new investment projects so that it becomes a more open and stable environment.

This has the tendency to increase the efficiency of the process of capital allocation and make sustainable corporate growth stronger. This result again corroborates hypothesis H 1 and sub-hypotheses H1(a) and H1(b).

4.3.2. Changing Independent Variable

Table 7: Alternative Measure of FINV.

Variables	Lower INSQ regime	Upper INSQ regime	Difference ($\delta=\lambda-\beta$)
SGR_{t-1}	-0.029***	0.098***	0.127***
	(0.003)	(0.004)	(0.001)
FINVA	-0.009***	0.279***	0.288***
	(0.001)	(0.002)	(0.001)
FLEV	0.321***	-1.372***	-1.693***
	(0.019)	(0.025)	(0.004)
FSIZE	0.008***	0.022***	0.014***
	(0.001)	(0.002)	(0.001)
FTANG	-0.656***	2.546***	3.202***
	(0.024)	(0.025)	(0.001)
FRISK	-0.016***	0.073***	0.089***
	(0.002)	(0.003)	(0.001)
FNDTS	1.781***	0.828***	-0.953***
	(0.112)	(0.150)	(0.038)
FLIQ	-0.683***	2.628***	3.311***
	(0.021)	(0.028)	(0.007)
FDIV	0.113***	-4.930***	-5.043***
	(0.041)	(0.080)	(0.039)
FNEI	-0.072***	-0.376***	-0.304***
	(0.012)	(0.024)	(0.012)
GDP	0.155***	1.491***	1.336***
	(0.019)	(0.038)	(0.019)
INF	0.193***	0.072*	-0.121***
	(0.018)	(0.042)	(0.024)
Constant			-0.237***
			(0.032)
Threshold value ($\hat{\gamma}$)	-0.166*** [-0.168, -0.163]		
Percentage (%)	51%	49%	
Bootstrap (p-value)			0.000
Observations			7712
Number of firms			482

Apart from that, we used a proxy variable for Investment (FINVA). This variable is measured by the ratio of the difference between the value of tangible assets at time t - 1 to the value of tangible assets at time t -1 (FINVA). The ratio has been utilized to estimate short-term investment (Khémiri et al., 2024).

Table 7 summarizes the results and validates there remains a threshold effect of INSQ on FINVA-SGR nexus, thus validating hypothesis 1. This validates the robustness of the main findings.

4.3.3. Subsample Analysis

This sub-section attempts to realize whether the result from the previous steps is reflective of the whole region or not but is limited to a portion of countries. For this, we stratified our sample into two groups: GCC and non-GCC countries.

The results in Table 8 again show that INSQ has a threshold effect on investment-sustainable growth nexus for both groups. As set out in the previous regressions, the threshold effect of institutional quality suggests contrary dynamics. Where institutional quality is low (lower regime), investment slows down sustainable growth, but when institutional quality is high, it speeds it up. This applies to both GCC and non-GCC countries.

However, the critical values of institutional quality are different: -0.115 for GCC countries and somewhat lower, at -0.136, for non-GCC countries. This can only mean that a better-structured institutional framework helps the GCC economies in that firms are able to enjoy the benefits of investment earlier.

By contrast, the non-GCC countries must have a higher quality of institutions if investment is to be a good catalyst of sustainable growth. These results emphasize the inherent role of institutions towards maximizing the investment-sustainable growth relationship and reaffirm the relevance of improved governance to guarantee maximization of the beneficial effects of investment flows.

Table 8: Subsample Analysis Results.

Variables	GCC countries			Non GCC countries		
	Lower INSQ regime	Upper INSQ regime	Difference ($\delta=\lambda-\beta$)	Lower INSQ regime	Upper INSQ regime	Difference ($\delta=\lambda-\beta$)
SGR_{t-1}	-0.050***	0.280***	0.320***	0.572***	-0.537***	-1.109***
	(0.007)	(0.011)	(0.004)	(0.001)	(0.003)	(0.002)
FINV	-0.076***	0.054***	0.130***	-0.010***	0.428***	0.438***
	(0.002)	(0.003)	(0.001)	(0.001)	(0.025)	(0.024)
FLEV	-0.090***	-0.705***	-0.615***	0.017***	1.074***	1.057***
	(0.018)	(0.024)	(0.006)	(0.001)	(0.099)	(0.098)
FSIZE	0.052***	-0.042***	0.094***	-0.008***	-0.024***	-0.016***

	(0.002)	(0.003)	(0.001)	(0.001)	(0.004)	(0.003)
FTANG	0.734***	1.195***	0.461***	-0.364***	-0.178***	0.186***
	(0.019)	(0.023)	(0.004)	(0.003)	(0.043)	(0.040)
FRISK	0.037***	0.064***	0.027***	-0.004***	-0.005	0.001
	(0.002)	(0.003)	(0.001)	(0.001)	(0.026)	(0.025)
FNDTS	-0.600***	0.119***	0.719***.	0.457***	-0.995***	-1.452***
	(0.014)	(0.016)	(0.002)	(0.017)	(0.108)	(0.091)
FLIQ	-0.299***	1.034***	1.333***	-0.067***	-0.313***	-0.246***
	(0.018)	(0.020)	(0.002)	(0.001)	(0.066)	(0.065)
FDIV	-0.062	-1.244***	-1.182***	-0.092***	-0.645***	-0.553**
	(0.041)	(0.046)	(0.005)	(0.003)	(0.197)	(0.194)
FNEI	0.658***	-1.167***	-1.825***	-0.001	-0.596***	-0.597***
	(0.020)	(0.021)	(0.001)	(0.001)	(0.086)	(0.085)
GDP	-0.531***	2.311***	2.542***	0.168***	-0.150***	-0.318***
	(0.041)	(0.054)	(0.013)	(0.003)	(0.009)	(0.006)
INF	-1.671***	1.809***	3.480	0.010***	-0.021***	-0.031***
	(0.046)	(0.075)	(0.029)	(0.001)	(0.002)	(0.001)
constant			-0.546***			0.486***
			(0.036)			(0.016)
Threshold value ($\hat{\gamma}$)	-0.115*** [-0.132, -0.097]			-0.136*** [-0.137, -0.135]		
Bootstrap (p-value)	0.000				0.000	
Observations			3904			3808
Number of firms			244			238

4.3.4. Changing the Econometric Methods

Table 9: Static PTR Model Results.

Variables	**Lower INSQ regime**	**Upper INSQ regime**	**Difference ($\delta=\lambda-\beta$)**
FINV	-0.070***	0.050***	0.130***
	(0.001)	(0.003)	(0.001)
FLEV	-0.211***	0.119***	0.330***
	(0.010)	(0.011)	(0.001)
FSIZE	0.029***	-0.021***	-0.050***
	(0.001)	(0.002)	(0.001)
FTANG	-0.002	0.078***	0.080***
	(0.008)	(0.009)	(0.001)
FRISK	-0.005***	-0.001***	0.004***
	(0.001)	(0.002)	(0.001)
FNDTS	0.992***	-0.218**	-1.210***
	(0.087)	(0.097)	(0.010)
FLIQ	-0.033***	0.023***	0.055***
	(0.005)	(0.006)	(0.001)
FDIV	0.257***	-0.169***	-0.426***
	(0.023)	(0.027)	(0.004)
FNEI	-0.168***	0.119***	0.287***
	(0.007)	(0.008)	(0.001)
GDP	-0.656***	0.636***	1.292***
	(0.032)	(0.033)	(0.001)
INF	0.229***	-0.114***	-0.343***
	(0.003)	(0.008)	(0.005)
constant			-0.328***
			(0.015)
Threshold value ($\hat{\gamma}$)	-0.166*** [-0.168, -0.163]		
Percentage (%)	51%	49%	
Bootstrap (p-value)	0.000		
Observations			7712
Number of firms			482

In addition, we employ three alternative econometric techniques: (i) Seo and Shin's (2016) Static PTR model, (ii) Seo and Shin's (2016) DPTR model with a kink, and (iii) Kremer et al.'s (2013) DPTR model to estimate Equation (1). The findings are also consistent with the main outcomes (table 9 (Static PTR model results) and table 10 (Seo and Shin's (2016) DPTR model with a kink, and Kremer et al.'s (2013) DPTR model outcomes).

Table 10: DPTR Model with a Kink and Kremer et al.'s (2013) DPTR Model Outcomes.

Dependent variable: SGR	**(1)**	**(2)**
VARIABLES	DPTR model with a kink	Kremer et al.'s (2013) DPTR
SGR_{t-1}	0.187***	0.164***
	(0.001)	(0.003)
FINV	-0.060***	
	(0.001)	
FLEV	-1.019***	-0.785***
	(0.003)	(0.041)
FSIZE	-0.004***	-0.924***
	(0.001)	(0.064)
FTANG	0.861***	-1.376***
	(0.005)	(0.432)
FRISK	0.031***	0.580***
	(0.000)	(0.075)
FNDTS	3.657***	0.822***
	(0.022)	(0.026)
FLIQ	0.326***	-0.206***
	(0.005)	(0.051)
FDIV	-0.924***	-0.179***
	(0.013)	(0.013)
FNEI	-0.230***	-0.361***
	(0.003)	(0.049)
GDP	1.197***	0.136***
	(0.008)	(0.069)
INF	-0.049***	0.172**
	(0.008)	(0.080)
Constant		0.221***
		(0.088)
Threshold value ($\hat{\gamma}$)	-0.166*** [-0.177, -0.156]	-0.162 [-1.168, -0.160]
Below the threshold ($\hat{\beta}_2$)		-0.340***
		(0.038)
Above the threshold ($\hat{\lambda}_2$)		0.513***
		(0.046)
kink_slope	-0.422***	
	(0.009)	
Sup Wstar		3025.6***
		(503.023)
Observations	7712	7230
Number of firms	482	482
Number of instruments		78

4.4. Discussion

Although the threshold effect of INSQ on the relationship between FINV and sustainable SGR transitions from negative to positive, this finding clearly delineates the existence of two distinct regimes: a lower and an upper regime. In the lower regime, characterized by low institutional quality, FINV exerts a detrimental effect on SGR. Specifically,

in contexts marked by weak institutional frameworks, tangible investment is often undermined by inefficiencies, poor governance, and the misallocation of resources. In such environments, prevalent issues such as corruption, bureaucratic inefficiencies, and inadequate enforcement of property rights inhibit the productive deployment of capital. Firms operating under these conditions face elevated transaction costs, regulatory uncertainties, and potential political interference, all of which diminish the returns on capital investments.

Moreover, weak institutional quality tends to exacerbate agency problems, whereby managers may prioritize personal objectives over the firm's long-term performance, thereby engaging in unproductive or excessive investment in physical assets. These dynamics often result in suboptimal asset utilization, operational inefficiencies, and financial constraints that collectively undermine sustainable growth prospects. This outcome aligns with the principles of trade-off theory (Kraus & Litzenberger, 1973), which posits that firms must balance the costs and benefits of investment under financial constraints. In weak institutional environments, the risks and inefficiencies associated with tangible investment may outweigh potential gains, validating the sub-hypothesis H1(a) and supporting the theoretical framework of trade-off theory.

In the upper regime, characterized by high INSQ, FINV positively influences sustainable firm growth (SGR). Specifically, in favorable institutional environments, FINV becomes a key driver of sustainable growth. Strong governance structures, improved access to external financing, and reduced legal and regulatory risks facilitate more efficient allocation of resources and enhance overall business competitiveness. These institutional strengths not only attract long-term investment but also encourage innovation and the adoption of sustainable technologies, thereby reinforcing firms' capacity for resilience and long-term value creation.

High institutional quality mitigates agency conflicts by aligning managerial incentives with corporate sustainability objectives through strengthened oversight and accountability mechanisms. As a result, managers are more likely to pursue productive and strategically sound investment decisions that support sustained performance. This finding confirms sub-hypothesis H1(b) and is consistent with agency theory (Jensen & Meckling, 1976; Jensen, 1986), which underscores the importance of institutional mechanisms in reducing agency costs and improving capital allocation. More broadly, the result highlights the significance of institutional reforms in the MENA region to foster an investment environment conducive to sustainable and inclusive corporate growth.

These findings indicate that the threshold effect of INSQ has been relatively underexplored in the context of the investment–sustainable growth nexus, despite some recent evidence in related areas. Notably, Setianto et al. (2025) identified a threshold effect of institutional quality on the relationship between financial inclusion and banking stability. Regarding SGR, a limited number of studies have demonstrated that financial inclusion exhibits a threshold effect on firm growth or firm performance (Nizam et al., 2021; Khémiri et al., 2020; Khémiri et al., 2023). These studies predominantly draw on the theoretical predictions of agency theory and trade-off theory. Khémiri et al., (2024) particularly provided evidence of a non-linear relationship between investment and sustainable firm growth, suggesting that this relationship may be moderated by financial inclusion. However, none of these works explicitly investigate the moderating or threshold role of institutional quality in the investment, sustainability linkage, thereby underscoring the novelty and relevance of the present study.

Our findings indicate that the strategy under consideration varies across MENA sub-regions. Specifically, institutional quality plays a pivotal role in the GCC countries by enhancing resource allocation efficiency, reducing economic and legal uncertainty, and facilitating access to finance. These institutional advantages enable firms to fully capitalize on the benefits of tangible investment, thereby promoting long-term sustainable development within a stable and trustworthy environment. However, in the absence of strong institutional frameworks, real investment in the GCC countries may fail to generate sustained growth. Therefore, institutional reforms aimed at improving governance, transparency, and financial accessibility are essential to ensure that investment functions as a catalyst for sustainable and inclusive growth. Strengthening institutional quality in this context not only mitigates investment risks but also maximizes developmental outcomes.

5. CONCLUSION AND POLICY IMPLICATION

5.1. Conclusion

Based on panel data from non-financial listed firms in the MENA region spanning 2007 to 2022, this study investigates the impact of INSQ and FINV on SGR. The findings reveal a threshold effect of INSQ on the FINV–SGR relationship. Specifically, in

contexts of low institutional quality, FINV negatively affects SGR. In contrast, when institutional quality is high, FINV exerts a positive influence on SGR. This underscores the importance of a robust regulatory framework and effective governance structures.

These findings lend support to both agency theory and trade-off theory. The analysis demonstrates that the impact of FINV on SGR is contingent upon the level of INSQ. Particularly, FINV may hinder sustainable growth when institutional quality is weak. Conversely, in environments with strong institutional quality, FINV contributes positively to sustainable growth. Thus, the results enhance the existing literature on sustainable growth and offer policy guidance for MENA countries aiming to improve INSQ.

5.2. Implications

The results underscore the critical role of institutional quality in shaping the relationship between financial investment and sustainable growth in the MENA region. Accordingly, this study offers several managerial, economic, and political implications. From a managerial standpoint, it is essential for managers of MENA firms to assess the institutional context before making investment decisions. In environments characterized by weak governance, financial investments may result in inefficiencies, resource misallocation, and diminished returns due to institutional and regulatory shortcomings. To mitigate these risks, managers should strengthen internal governance mechanisms, prioritize efficient capital allocation, and focus on long-term productivity-enhancing investments. Particularly, under fragile institutional conditions, firms are advised to emphasize intangible investments such as technological innovation and human capital development to foster sustainable growth.

Economically, improved institutional quality is associated with more efficient investment processes and enhanced sustainable growth. Weak institutions often result in corruption, inefficient resource allocation, and reduced investment returns, thereby constraining long-term development. To address these challenges, policymakers must implement reforms that enhance investor confidence, increase transparency, and safeguard property rights. The impact of financial investment varies significantly depending on the institutional framework: countries with strong governance structures are more likely to achieve economic diversification and sustained growth, whereas those with weak institutions may face persistent instability and underperformance.

Politically, regulatory reforms are imperative to create an investment-friendly business environment. Governments in the MENA region should prioritize anti-corruption initiatives, judicial independence, and regulatory oversight to improve institutional quality. A robust institutional framework can attract both domestic and foreign investment, ensuring that capital inflows contribute meaningfully to economic development. Moreover, the promotion of public–private partnerships (PPPs) can help address infrastructure gaps, thereby enhancing investment efficiency in capital-intensive sectors. By prioritizing institutional reform, policymakers can lay the groundwork for investment-led, sustainable business growth, ultimately contributing to greater economic stability and long-term prosperity.

For GCC countries, where institutional quality is relatively higher, policy efforts should focus on consolidating governance frameworks to maintain levels above the -0.115% threshold, as this ensures regulatory stability and investor confidence. These economies should prioritize large-scale infrastructure projects and technology-driven initiatives that support economic diversification beyond hydrocarbons, leveraging their institutional strength to foster innovation ecosystems. Additionally, promoting PPPs can accelerate the development of advanced transport networks, renewable energy projects, and smart city initiatives, which are critical for sustaining long-term growth. For non-GCC countries, where institutional quality remains generally lower, the immediate priority is to implement structural reforms aimed at surpassing the -0.136% threshold. This includes strengthening property rights, improving contract enforcement, and reducing corruption to create a predictable business environment. Investments should target essential infrastructure such as electricity grids, road networks, and logistics systems to enhance productivity and attract private investment. Furthermore, transparent regulatory frameworks and targeted fiscal incentives are necessary to attract foreign direct investment (FDI), which can complement domestic capital formation and accelerate industrial development.

Finally, this result also underscores the importance of institutional reforms as a prerequisite for maximizing the benefits of tangible investments. By linking these perspectives to global and regional development agendas, the results align with SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure). Furthermore, these findings resonate with regional strategies such as the Arab Vision for Sustainable

Development 2030, which prioritizes governance improvements, economic diversification, and infrastructure development across MENA economies.

5.3. Limitations and Future Research

This study is subject to several limitations that should be acknowledged. First, it relies on aggregate institutional quality indicators, which, while useful, do not fully capture the nuanced and qualitative aspects of institutional arrangements. A more fine-grained analysis incorporating specific indicators, such as investor protection measures and corporate governance quality, could enhance the precision and explanatory power of the findings. Second, the study does not account for other potentially influential factors, such as tax regimes or corporate financing structures, which may also affect tangible investment and sustainable development outcomes. Future research could explore these additional determinants to provide a more comprehensive understanding of the drivers of sustainable and resilient growth in the MENA region. Such an extension would offer valuable insights into the formulation of more effective and context-specific policy interventions. Finally, it does not account for sectoral heterogeneity, which may influence the relationship between FINV and SGR. Furthermore, the analysis excludes intangible assets such as R&D and human capital, which could interact with tangible investments. Finally, institutional heterogeneity across MENA countries is only partially captured, suggesting the need for multi-threshold or institutional sub-dimension analysis. Finally, future studies could explore dynamic effects and external shocks to better assess firm resilience in the region.

REFERENCES

Abdelbary, I. (2023). From revolutions to institutions: The experience of Arab reform. International Journal of Islamic and Middle Eastern Finance and Management, 16.

Abozeid, H., Alamer, A., and Attia, E., (2024). Institutional Quality and Sustainable Firm Growth: Evidence From North African Countries, Sustainable Development, 2025; 0:1–13.

Abuzayed, Bana, and Nedal Al-Fayoumi. 2016. Bank Concentration, Institutional Quality, and Economic Growth: Empirical Evidence from MENA Countries'. Review of International Business and Strategy 26 (2): 219–31.

Alasmari, S., Williams, S., Rich, N., & Rea, D. (2021). Sustainability of Quality Improvement Initiatives within the Saudi Ministry of Health Hospitals: An Institutional Overview. Saudi Journal of Health Systems Research, 1(1), 3–10.

Amin, H., & and Cochrane, L. (2024). The development of the education system in Qatar: Assessing the intended and unintended impacts of privatization policy shifts. British Journal of Middle Eastern Studies, 51(5), 1091–1111.

Arora, Lalit, Shailendra Kumar, and Piyush Verma. 2018. 'The Anatomy of Sustainable Growth Rate of Indian Manufacturing Firms'. Global Business Review 19 (4): 1050–71.

Attia, Eman Fathi, Rewayda Tobar, Heba Farid Fouad, Hamsa Hany Ezz Eldeen, Ahmed Chafai, and Wafa Khémiri. 2023. The Nonlinear Relationship between Corporate Social Responsibility and Hospitality and Tourism Corporate Financial Performance: Does Governance Matter?' Sustainability 15 (22): 15931.

Awartani, B., Belkhir, M., Boubaker, S., & Maghyereh, A. (2016). Corporate debt maturity in the MENA region: Does institutional quality matter? International Review of Financial Analysis, 46, 309–325.

Bagh, Tanveer, Bingjun Zhou, Suha Mahmoud Alawi, and Rauf I. Azam. 2024. ESG Resilience: Exploring the Non-Linear Effects of ESG Performance on Firms Sustainable Growth'. Research in International Business and Finance 70:102305.

Baumöhl, Eduard, and Evžen Kočenda. 2022. How Firms Survive in European Emerging Markets: A Survey'. Eastern European Economics 60 (5): 393–417.

Block, M. (2014). Reform Failure and Underdevelopment in Egypt: An Institutional Explanation.

Boubakri, Narjess, Sadok El Ghoul, and Walid Saffar. 2015. Firm Growth and Political Institutions'. Journal of Multinational Financial Management 31:104–25.

Boutros, A. (2019). The United Arab Emirates. In T. M. Funk & A. S. Boutros (Eds.), From Baksheesh to Bribery: Understanding the Global Fight Against Corruption and Graft (p. 0). Oxford University Press.

Çam, İlhan, and Gökhan Özer. 2021. Institutional Quality and Corporate Financing Decisions around the World'. The North American Journal of Economics and Finance 57:101401.

Chang, Chong-Chuo. 2023. The Impact of Quality of Institutions on Firm Performance: A Global Analysis'. International Review of Economics & Finance 83:694–716.

Coad, Alexander, and Nicola Grassano. 2016. 'Who's Doing Who? Growth of Sales, Employment, Assets, Profits and R&D Entangled in a Curious Five-Way Love Triangle'. IPTS Working Papers on Corporate R&D and Innovation.

Damodar N, Gujarati. 2004. Basic Econometrics'. The Mc-Graw Hill.

Didier, Tatiana, Ross Levine, Ruth Llovet Montanes, and Sergio L. Schmukler. 2021. Capital Market Financing and Firm Growth'. Journal of International Money and Finance 118:102459.

Elkington, John. Cannibals with Forks: The Triple Bottom Line of 21st Century Business. Capstone'. Oxford.

Emara, Noha, and Ayah El Said. 2021. Financial Inclusion and Economic Growth: The Role of Governance in Selected MENA Countries'. International Review of Economics & Finance 75:34–54.

Fama, Eugene F., and Michael C. Jensen. 1983. Separation of Ownership and Control'. The Journal of Law and Economics 26 (2): 301–25.

Fhima, Fredj, Ridha Nouira, and Khalid Sekkat. 2023. How Does Corruption Affect Sustainable Development? A Threshold Non-Linear Analysis. Economic Analysis and Policy 78:505–23.

Higgins, Robert C. 1977. 'How Much Growth Can a Firm Afford?' Financial Management, 7–16.

Hunter, M., Uwaydah Mardini, R., El-Seblani, A., & Elsayed, S. (2020). Anti-corruption, Transparency and Accountability: Case Study of Healthcare in the Arab Countries. Global Health Action, 13(sup1), 1704529.

IMF. (2024). Oman—A Financial Sector for the Economy of the Future. IMF Staff Country Reports, 2024(032).

Ionita, Catalin, and Elena Dinu. 2021. 'The Effect of Intangible Assets on Sustainable Growth and Firm Value–Evidence on Intellectual Capital Investment in Companies Listed on Bucharest Stock Exchange'. Kybernetes 50 (10): 2823–49.

Jensen, Michael C. 1986. 'Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers'. The American Economic Review 76 (2): 323–29.

Jensen, Michael C., and William H. Meckling. 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure'. Journal of Financial Economics 3 (4): 305–60.

Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi. 2011. The Worldwide Governance Indicators: Methodology and Analytical Issues1'. Hague Journal on the Rule of Law 3 (2): 220–46.

Khémiri, Wafa, Eman Fathi Attia, and Ahmed Chafai. 2024. How Financial Inclusion Moderates the Curvilinear Nexus between Tangible Investment and Sustainable Firm Growth: New Evidence from the Middle East and North Africa Region'. Sustainability 16 (6): 2573.

Khémiri, Wafa, and Hédi Noubbigh. 2020a. 'Does Sub-Saharan Africa Overinvest? Evidence from a Panel of Non-Financial Firms'. The Quarterly Review of Economics and Finance 77:118–30.

Khémiri, Wafa, and Hédi Noubbigh. 2020b. Size-Threshold Effect in Debt-Firm Performance Nexus in the Sub-Saharan Region: A Panel Smooth Transition Regression Approach'. The Quarterly Review of Economics and Finance 76:335–44.

Khémiri, Wafa, and Hédi Noubbigh. 2021. Joint Analysis of the Non-Linear Debt-Growth Nexus and Capital Account Liberalization: New Evidence from Sub-Saharan Region'. The Quarterly Review of Economics and Finance 80:614–26.

Kherigi, I., Amiri, K., Sahraoui, S., Klai, I., & Ajmi, S. (2020). Quality Assurance in Tunisian Higher Education: A case-driven analysis of prevalent policymaking practice. AlMuntaqa, 3(2), 50–63.

Kraus, Alan, and Robert H. Litzenberger. 1973. A State-Preference Model of Optimal Financial Leverage'. The Journal of Finance 28 (4): 911–22.

Kremer, Stephanie, Alexander Bick, and Dieter Nautz. 2013. Inflation and Growth: New Evidence from a Dynamic Panel Threshold Analysis'. Empirical Economics 44 (2): 861–78.

Kwon, Taek Ho, Sung C. Bae, and Soon Hong Park. 2021. The Interactions of Corporate Sales Growth and Diversification Strategy: Cross-Country Evidence'. Journal of International Financial Markets, Institutions and Money 75:101422.

Law, Siong Hook, Ali M. Kutan, and N. A. M. Naseem. 2018. The Role of Institutions in Finance Curse: Evidence from International Data'. Journal of Comparative Economics 46 (1): 174–91.

Lin, Feng-Li, and Tsangyao Chang. 2011. Does Debt Affect Firm Value in Taiwan? A Panel Threshold Regression Analysis'. Applied Economics 43 (1): 117–28.

Lin, Yuya, and Shoubo Li. 2025. 'Supply Chain Resilience, ESG Performance, and Corporate Growth'. International Review of Economics & Finance 97:103763.

Lind, Jo Thori, and Halvor Mehlum. 2010. With or Without U? The Appropriate Test for a U-Shaped Relationship*: Practitioners' Corner'. Oxford Bulletin of Economics and Statistics 72 (1): 109–18.
Mauro, Paolo. 1995. Corruption and Growth'. The Quarterly Journal of Economics 110 (3): 681–712.
Michalakea, T. (2022). Anticorruption and Transitional Justice: A Distinction Without a Difference. Human Rights Law Review, 22(2), ngac014.
Myers, Stewart C., and Nicholas S. Majluf. 1984. Corporate Financing and Investment Decisions When Firms Have Information That Investors Do Not Have'. Journal of Financial Economics 13 (2): 187–221.
NBAQ. (2017). The NBAQ Handbook for Institutional Accreditation. NBAQ.
Nizam, Rosmah, Zulkefly Abdul Karim, Tamat Sarmidi, and Aisyah Abdul Rahman. 2021. Financial Inclusion and Firm Growth in ASEAN-5 Countries: A New Evidence Using Threshold Regression'. Finance Research Letters 41:101861.
North, Douglass C. 1990. Institutions, Institutional Change and Economic Performance. Cambridge university press.

Okobo, Marian Mukosolu, Robinson Onuoha Ugwoke, and Ekom Etim Akpan. 2022. 'Investment in Tangible Non-Current Assets and Financial Performance of Food Manufacturing Firms in Nigeria'. Innovations 19 (3): 360–72.
OECD. (2025). Institutional Review of the National Institute for Governance and Sustainable Development in Egypt. OECD Public Governance Reviews.
Quddus, Abdul, Drahomira Pavelkova, Sarfraz Hussain, and Tien Phat Pham. 2022. 'The Impact of Investment Decisions on Firm Financial Performance Moderated by Economic Policy Uncertainty: Evidence from the Manufacturing Sector of Pakistan'. Asian Economic and Financial Review 12 (11): 969.
Rabinovich, Joel. 2023. 'Tangible and Intangible Investments and Sales Growth of US Firms'. Structural Change and Economic Dynamics 66:200–212.
Reform Matrix. (2021). Jordan's Reform Matrix (2018 – 2024) Background and Progress. Ministry Of Planning and International Cooperation.
Richardson, Scott. 2006. 'Over-Investment of Free Cash Flow'. Review of Accounting Studies 11 (2–3): 159–89.
Sajid, S., Javied, U., Ul Hassan, S., Abbas, Z., and Partt, S., (2025). Sustainable energy and financial inclusion: a pathway for South Asia's financial transformation. Journal of Financial Economic Policy, https://doi.org/10.1108/JFEP-11-2024-0352.
Seo, Myung Hwan, and Yongcheol Shin. 2016. Dynamic Panels with Threshold Effect and Endogeneity'. Journal of Econometrics 195 (2): 169–86.
Seo, Myung Hwan, Sueyoul Kim, and Young-Joo Kim. 2019. 'Estimation of Dynamic Panel Threshold Model Using Stata'. The Stata Journal: Promoting Communications on Statistics and Stata 19 (3): 685–97.
Setianto, Rahmat Heru, W. N. W. Azman-Saini, and Siong Hook Law. 2025. Threshold Effects of Institutional Quality on the Financial Inclusion and Stability Nexus: International Evidence'. Borsa Istanbul Review.
Shleifer, Andrei, and Robert W. Vishny. 1993. Corruption'. The Quarterly Journal of Economics 108 (3): 599–617.
Stiglitz, Joseph E., and Andrew Weiss. 1981. 'Credit Rationing in Markets with Imperfect Information'. The American Economic Review 71 (3): 393–410.
Stulz, RenéM. 1990. 'Managerial Discretion and Optimal Financing Policies'. Journal of Financial Economics 26 (1): 3–27.
Wei, Ming, and Xingui Xu. 2025. 'The Impact of Local Debt Management on Corporate ESG Performance: A Quasi-Natural Experiment Based on the New Budget Law'. Finance Research Letters 74:106716.
Wood, Donna J. 1991. 'Corporate Social Performance Revisited'. The Academy of Management Review 16 (4): 691.
World BANK. (2025). Strategic and Targeted Reforms Can Strengthen Morocco's Business Landscape: Report.
Xie, Yamin. 2024. 'The Impact of ESG Performance on Corporate Sustainable Growth from the Perspective of Carbon Sentiment'. Journal of Environmental Management 367:121913.
Yen, Dang Thi Hai, Nguyen Thi Huong, and Dao Thi Hoang Anh. 2023. 'The Impact of Capital Investments on Firm Financial Performance–Empirical Evidence from the Listed Food and Agriculture Companies in Vietnam'. Vietnam Journal of Agricultural Sciences 6 (1): 1735–44.
Zhang, Leinan, Qingyan Zeng, Silin Zhang, Shuqin Li, and Liang Wang. 2022. 'Transaction-Specific Investment and Organizational Performance: A Meta-Analysis'. Sustainability 14 (9): 5395.