Evaluating Sustainable Financial Architecture of the Oil & Gas Sector of Pakistan

By:

Hubban Amjad Sheikh (01-322242-006)

Qaiser Hafeez (01-322242-014)

(Program)

MBA (Weekend)

Supervisor: Sr. Prof. Dr. Naveed

HR and Management Department

Bahria University Islamabad

Spring 2026

Majors: FIN
Major/No. F20

Evaluating Sustainable Financial Architecture of the Oil & Gas Sector of Pakistan

By:

Hubban Amjad Sheikh (01-322242-006)

Qaiser Hafeez (01-322242-014)

(Program)

MBA (Weekend)

Supervisor. Sr. Prof. Dr. Naveed

HR and Management Department

Bahria University Islamabad

Spring 2026

Abstract

This research investigates the sustainable financial architecture of Pakistan's oil and gas (O&G) sector by analyzing the effects of corporate financial decisions on financial, environmental, and social sustainability. The study evaluates three primary financial dimensions: working capital management (WCM), capital structure (measured via the debt-to-asset ratio), and long-term capital investments. Additionally, the moderating influence of corporate governance is examined through board gender diversity and board independence. The overarching purpose is to explore whether corporate finance configurations in a volatile developing economy drive merely short-term financial survival or foster long-term environmental and social performance.

Employing a quantitative panel-data methodology, the study analyzes secondary data from listed O&G companies in Pakistan spanning the ten-year period from 2015 to 2024, sourced from corporate annual audited reports and Bloomberg terminals. Separate econometric regression models were estimated for financial, environmental, and social sustainability performance, both with and without interaction terms, to isolate direct and governance-moderated impacts.

The empirical results reveal that traditional financial sustainability is primarily dictated by capital leverage and working capital efficiency, with the adverse effect of leverage being particularly pronounced. Conversely, environmental sustainability is significantly driven by long-term strategic investments and firm size, proving that targeted capital deployment in green technologies and low-carbon infrastructure directly improves environmental scores. Social sustainability is positively influenced by long-term investments and macroeconomic inflation, whereas high leverage significantly drags on corporate social responsibility (CSR) spending, worker welfare, and workplace safety. Regarding governance interventions, board independence significantly mitigates the destructive impact of excess leverage on financial performance, while board gender diversity actively strengthens the positive contributions of long-term investments toward environmental and social sustainability outcomes.

The findings indicate that achieving genuine sustainability within Pakistan's O&G industry is impossible through superficial compliance or administrative ESG reporting alone. Instead, rigorous leverage controls, optimized working capital practices, the absolute protection of long-

term ESG capital budgets, and board-level diversity are critical. Ultimately, this research contributes an integrated, finance-centered framework for emerging markets, presenting empirical evidence that embedding ESG priorities directly into capital structure configurations and core corporate governance is essential for holistic industrial resilience.

Keywords: Sustainable Financial Architecture, Oil and Gas Sector, Capital Structure, Working Capital Management, Corporate Governance, Board Gender Diversity, Board Independence, ESG Performance, Pakistan, Circular Debt.

Contents

CHAPTER 1: Introduction 7
1.1. Introduction 7
1.2. Problem Statement 7
1.3 Research Gap 8
1.4. Research Questions 8
1.5. Research Objectives 8
1.6. Significance of the Study 9
1.6.1. Importance of sustainability goals and scores for Pakistan. 9
1.6.2. Improvement of the oil & gas sector of Pakistan. 9
1.6.3. Climate change and access to environmental financing. 10
CHAPTER 2: Literature Review 11
2.1. Introduction to Literature Review 11
2.2. Definitions – Independent Variables 11
2.2.1. Capital Structure 11
2.3. Definitions – Moderating Variables 13
2.4. Definitions – Dependent Variables 14
2.5. Theories 15
2.5.1. Stakeholder Theory 15
2.6. Variable Specific Literature Review 16
2.6.1. Capital Structure Impact on Environmental and Social Sustainability 16
2.6.2. Corporate Governance: Moderating the Relationship of Financial Architecture and Sustainability Scores 17
2.6.3. Investment Portfolio / Capital Budgeting Impact on Sustainability Scores 17
2.6.4. Working Capital Management Impact on Social Sustainability 17
2.7. Literature Review Table 17
2.8. Theoretical Framework 18
CHAPTER 3: Research Methodology 20
3.1. Research Approach 20
3.2. Nature and Structure of Data 20
3.3. Period of Study 20
3.4. Population 20
3.5. Sample 20
3.6. Variables Measurement 21
3.7. Data Reliability and Validity 22
3.7.2. Data Validity 22
3.8. Econometric Model 24

CHAPTER 4: DATA ANALYSIS RESULTS AND DISCUSSION 25
4.1. Introduction 25
4.2. Descriptive Statistics 25
4.2.1. Table Summary of Descriptive Statistics 25
4.2.2. Discussion on Table 4.2.1. 26
4.3. Correlation Matrix 26
4.3.1. Table of Correlation Matrix 26
4.3.2. Discussion on Table 27
4.4. Results and Analysis: Financial Sustainability Regression (without Moderating Variable) 28
4.5. Results and Analysis: Environmental Sustainability Regression (without Moderating Variable) 29
4.7. Results and Analysis: Financial Sustainability Regression (with Moderating Variable) 32
4.8. Results and Analysis: Environmental Sustainability Regression (with Moderating Variable) 33
4.9. Results and Analysis: Social Sustainability Regression (with Moderating Variable) 35
CHAPTER 5: KEY FINDINGS, IMPLICATIONS, AND CONCLUSION 37
5.1. Key Findings 37
5.2. Academic Implications 38
5.3. Practical Implications 38
5.4. Limitations 40
5.5. Conclusion 41
5.6. Recommendations 41
References 43