BAB V
CONCLUSION

5.1 Conclusion

This study assessed the influence of Environmental, Social, and Governance (ESG) indicators, along with Leverage and Efficiency ratios, on the financial performance of NYSE-listed energy companies. Financial performance was measured using Profitability (ROA) and Firm Valuation (Price-to-Book Ratio). A total of eleven hypotheses were tested using SEM-PLS with 5,000 bootstrap samples. The results are concluded as follows:

- H1: Environmental has a negative and significant influence on profitability.
  This indicates that higher environmental risk exposure undermines profitability within the evaluated model.
- H2: Social has no significant influence on profitability.
  This indicates that social factors were not statistically validated as performance drivers for profitability within the evaluated model.
- H3: Governance has no significant influence on profitability.
  This indicates that governance structures were not statistically validated as performance drivers for profitability within the evaluated model.
- H4: Leverage has a negative and significant influence on profitability.
  This indicates that higher debt levels constrain financial flexibility and adversely impact profitability within the evaluated model.
- H5: Efficiency has no significant influence on profitability.
  This indicates that operational efficiency, as measured by asset turnover, was not statistically validated as a performance driver for profitability within the evaluated model.
- H6: Environmental has a negative and significant influence on firm valuation.
  This indicates that elevated environmental risk exposure negatively affects investor sentiment, leading to reduced firm valuation.
- H7: Social has no significant influence on firm valuation.
  This indicates that social factors were not statistically validated as market drivers for firm valuation within the evaluated model.

- H8: Governance has no significant influence on firm valuation.
  This indicates that governance structures were not statistically validated as market drivers for firm valuation within the evaluated model.
- H9: Leverage has no significant influence on firm valuation.
  This indicates that leverage metrics were not statistically validated as market drivers for firm valuation within the evaluated model.
- H10: Efficiency has no significant influence on firm valuation.
  This indicates that operational efficiency was not statistically validated as a market driver for firm valuation within the evaluated model.
- H11: Profitability has a positive and significant influence on firm valuation.
  This affirms that strong profitability enhances investor confidence and serves as a validated market driver for firm valuation within the evaluated model.

These findings indicate that not all ESG components and financial ratios carry equal financial weight. Environmental performance, leverage management, and profitability are key factors influencing financial outcomes, especially within capital-intensive and sustainability-sensitive industries such as energy.

The analysis uses cross-sectional 2024 data and shows short-run associations. The negative coefficients on Environmental reflect transition and compliance costs recorded in the study period and do not imply that environmental investment reduces value in general. Over multi-year horizons, environmental initiatives can lower legal, regulatory, and reputational risks and may reduce the cost of capital. Results for Social and Governance were not significant in this dataset and should not be interpreted as a recommendation to lessen Social and Governance practices. Given the model's negative Q^2 values, the evidence is explanatory rather than predictive and should not be generalized beyond the study scope.

5.2 Practical Implications

The following implications translate the findings of the study into practice for corporate managers, investors, and regulators. The implications should serve to help ensure that short-run associations are not misconstrued as long-run prescriptions, and that the model is viewed as an explanatory device rather than a predictive one.

For Corporate Management

- Manage environmental performance as a resilience investment.
  It is likely that the short-run negative association between environmental risk and profitability and valuation is reflective of transition and compliance costs in 2024. Stopping environmental programming to increase margins is inadvisable. Neglect or reduced investment can manifest greater legal, regulatory, and reputation risk and drive up the cost of capital over time.

- Plan transition costs deliberately.
  Cost accounting around emissions reductions, monitoring, mitigation technologies (control), and potential remediation need to plan multi-year programs and costs. Building out projects, including those that have operational benefits and risk mitigations, and starting with disclosure of milestones and reporting expectations will reduce stakeholders' uncertainty.

- Strengthen transparency.
  Climate and sustainability disclosures that reference standard frameworks consistently will help investors differentiate between genuine transition progress and short-run earnings compression. Instead, you should focus on managing quantitative targets, interim milestones, and board oversight and review.

- Manage capital structure accordingly.
  The modelling depicted leverage, as risk mitigation to profitability. Debt should be maintained commensurate with cash-flow resilience. Stress test interest coverage against different scenarios including carbon pricing, regulation bestowing penalties, or payouts for remediation.

- Maintain profitability quality.
  Profitability as a driver of valuation is still accepted. Concentrate on margin quality, cash conversion, and project discipline so transition spending is coupled with credible returns and balanced risk.

- Adhere to Social, and Governance.
  While Social and Governance results were not statistically significant in this dataset, they are vital to license to operate, incident prevention and human-capital

stability and credible oversight. They can also accrue value from delayed or indirect avenues not identifiable in a one-year cross-section.

For Investors

- Differentiate between short-term costs and long-term value.
  Environmental investments may be financially constraining to near-term margins but will decrease long-run risk. Rather than penalizing companies that are deliberately transitioning, assess multi-period cash-flow vigilantly.

- Engage horizon-adjusted valuation.
  Perform scenario and sensitivity analyses that account for not only the regulatory environment that is rapidly tightening, changing preferences, but the price of carbon and technology learning curves. Rethink discount rates and terminal assumptions to reflect the risk reduction from credible commitments to the environment.

- Monitor leverage discipline.
  Look beyond Total Debt Ratio, interest coverage, and maturity schedules that all positively correlated with system profitability in the model. More debt reduces flexibility to absorb transition costs, so lean toward balance sheets that can bear transition costs with little jeopardy.

- Base the evaluation on indicators of core profitability.
  Given profitability is positively correlated to valuation, one should be focused on firms that can generate sustainable returns while in the process of implementing their transition strategies. Examine the quality of the earnings, and relationship between capital projects and operating metrics related to transition.

- Value credibility, not labels.
  Distinguish between firms that disclose credible targets, governance, and capex stakeholders from aspirational firms. Evidence of committee oversight, verifiable metrics, and milestone progress should reduce expected risk premium.

For Regulators and Policymakers

- Identify new options to foster disclosure and allow comparability.
  Advance environmental disclosures that allow markets to separate transitional expenditure from structural weakness. Discuss about measurable targets and track progress, alongside independent verification.

- Provide policy clarity to lower risk.
  Consistent, well communicated standards that mitigate uncertainty enable firms to plan multi-year transitions and make proper investments in transitional activities that promote long-run profitability and value.

- Support prudent financing frameworks.
  Support capital structures and instruments that promote risk reduction and transitional expenditure rather than enabling excessive leverage in dangerous areas of environmental liability.

- Minimize misunderstandings.
  The short-term negative association between environmental risk and financial success should underscore that this finding does not justify diminished environmental, social, or governance norms.

These implications are limited to the study's 2024 cross-sectional horizon and the model's limited out-of-sample predictive power. The results should inform short-term responsible decisions while recognizing that many of the multiple benefits related to ESG typically offer benefits on multiyear horizons. The results should not be used to justify sacrificing environmental, social, or governance, for short-term financial results.

5.3 Limitations

While this study provides valuable insights into the financial impact of ESG scores on U.S.-listed energy companies, several limitations should be acknowledged.

Sample Scope and Generalizability

This analysis examines NYSE-listed energy firms with complete ESG and finance data as of observed in 2024, thus the results may not be generalizable to other

industries, markets, and time periods here, and similarly by examining firms with complete disclosure, and it may lead to the inclusion of some selection bias.

ESG Score Source and Structure

This research uses disaggregated Environmental, Social, and Governance (E, S, G) scores from a single third-party provider. However, ESG rating agencies often use different methodologies, leading to discrepancies across providers (Berg et al., 2022). As such, the measurement of ESG risk exposure may be influenced by scoring biases, coverage limitations, or inconsistent definitions across firms.

Furthermore, while this study separated the E, S, and G dimensions, the underlying indicators within each dimension were still aggregated. A more granular analysis might yield different insights, especially if specific sub-components (e.g., carbon emissions, board independence, labor practices) were tested individually.

Use of Secondary Data

All variables in this study were derived from publicly available secondary sources. Although this ensures consistency and comparability, it also limits control over data accuracy and timeliness. For example, the use of annual ESG and financial data may not fully capture short-term market reactions or intra-year operational changes.

Methodological Constraints

The research applied Partial Least Squares Structural Equation Modeling (PLS-SEM) using formative constructs and a cross-sectional design. While PLS-SEM is suitable for exploratory models and complex relationships, it does not account for time-series effects or dynamic relationships over multiple periods. In addition, the use of formative indicators limited the inclusion of common reflective model assessments such as convergent validity or discriminant validity.

Predictive Power

Lastly, the model's predictive relevance (Q^2) values were found to be negative for both endogenous variables, indicating limited out-of-sample prediction capability. While not uncommon in exploratory SEM-PLS frameworks, these limitations reinforce the need for future research to apply longitudinal models, incorporate real-time ESG data, or explore dynamic path dependencies to enhance prediction accuracy. Until then,

the current model should be viewed primarily as an explanatory tool rather than a predictive instrument.

5.4 Recommendations for Future Research

Building on the insights and limitations of this study, several directions for future research are suggested:

- Expand Industry and Geographic Scope

  Future studies could explore the financial impact of ESG dimensions across multiple industries beyond the energy sector. Sectors such as manufacturing, financial services, and technology may demonstrate different sensitivities to environmental, social, or governance factors. Expanding the analysis to non-U.S. markets, particularly in emerging economies, would also allow for more comparative insights regarding how regulatory environments and cultural values shape ESG-financial dynamics.

- Explore ESG Sub-dimensions

  While this study examined ESG at the dimensional level (E, S, and G), future research could investigate specific sub-indicators (e.g., greenhouse gas emissions, labor policies, board diversity) to identify which factors are most financially material. This would contribute to a more granular understanding of ESG performance and help firms prioritize specific areas of improvement.

- Incorporate Time-Series or Panel Data

  The use of panel data or longitudinal analysis could capture how ESG performance influences financial outcomes over time, offering more robust insights into causality and lag effects. This would also enable the assessment of how consistent ESG efforts (e.g., improvements in environmental practices) translate into financial rewards across different time horizons.

- Compare ESG Rating Methodologies

  Given the growing debate over rating inconsistency, future research may benefit from comparing multiple ESG data providers to evaluate how methodological differences influence research outcomes. Such comparisons could help standardize ESG practices and highlight which metrics align best with financial performance indicators.

- Investigate Moderating or Mediating Variables

  Further exploration of moderating or mediating factors—such as firm size, corporate reputation, risk tolerance, or investor sentiment—could enhance understanding of how and when ESG factors impact financial performance. For instance, the effect of environmental risk may be more pronounced for large-cap firms or firms with high public visibility.