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The Impact of Environmental Sustainability and Financial Resources Utilization on Firm Financial Performance: The Mediating Role of Leadership Styles

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ABSTRACT

The paper aims to explore the impact of environmental sustainability and financial resources utilization on a firm's financial performance through the mediation of leadership style in the manufacturing sector of Pakistan. First, a conceptual framework is devised among the relationship of exogenous and endogenous variables and the hypotheses are examined conferring to the relationships in the conceptual framework. Data is collected using a questionnaire from a sample of 47 registered manufacturing firms (Chemical, Pharmaceuticals). Then, the study is supported by neoclassical theory, resource-based theory, and financial slaked theory, multiple regression analyses are implemented with the data analyzed by the partial least square equation. The research results indicate that the utilization of financial resources has a positive relationship with firm financial performance. In the short run, the adoption of environmental sustainability is negatively related to the firm financial performance with a transactional leadership style, but in the long run, it will give positive impacts on the firm financial performance with transformational leadership. The comparative analysis of Leadership styles showed that transactional leadership style mediates better results than transformational leadership for the manufacturing sector of Pakistan. The study affords the modern ways, provides new insights to organizations, top management, and policymakers for the implementation of environmental sustainability and leadership skills for enhancing firm performance.

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1. Introduction

Environmental sustainability is a worldwide problem nowadays. Greenhouse gases emissions especially the leading carbon dioxide emissions badly affect the world's environmental sustainability (Tanveer et al., 2021). Pakistan stands 135th rank globally for greenhouse gases GHG emissions per capita and 16th rank for climate vulnerability (ESP, 2020). Luxurious Lifestyles, manufacturing technologies, fossil fuel consumption are the key drivers for climate change (Abas et al., 2017). Pakistan is hence contemplated being one of the important countries which have much focused on climate change adaption. The ruminant of environmental sustainability to a high extent, is due to its geographical location, demographics, and changing climate circumstances (ESP, 2020).

The research focused on the adoption of environmental sustainability from the perspective of manufacturing firms in Pakistan. In particular, the manufacturing sector plays a foremost role in the production of GHG emissions and a principal role in the GDP of the country (Abas et al., 2017). Out of the total emission of gases in the environment, the CO₂ emission is excessively produced (at 76%). The CO₂ emanates both in fossil fuel consumption and the manufacturing processes of the industries. Besides, 11% is caused by the land use patterns and forest sector. The GHG emissions in Pakistan led by the various sectors are categorized: Energy Sector (25%), Agriculture sector (24%), industrial sector (21%), and transport sector (14%), energy-related activities (10%), and buildings sector (6%) (ESP, 2020). This paper highlights the adoption of Environmental sustainability issues by manufacturing firms, that is, how they respond toward environmental sustainability adoption. It will also find the relationship between environmental sustainability adoption and firm financial performance. The manufacturing sector performs a key role to maintain the GDP of the country. It robust the economy as it has a multiplier effect on economic growth. The aggregate contribution of the manufacturing sector in the gross domestic product (GDP) of Pakistan is 13.6 percent in the year 2017-18 (Finance, 2019; ESP, 2020). The study focused on the two main categories of registered manufacturing firms (SBP, 2021). The main sectors targeted are the chemical sector and pharmaceuticals sector of Pakistan.

The current study concentrates on the impact of financial resources utilization on firm financial performance and examines the mediating effects of leadership style (Transformational and Transactional leadership). The financial resources utilization and environmental sustainability have an adjoining relation with each other in many ways i) Financial resources availability can impact firm financial performance, ii) Financial profitability of the firm motivates it to invest in environmental sustainability activities, iii) Financial resources slack can be inclined the firm toward environmental sustainability and ultimately results in the firm financial performance (Du & Li, 2019). Therefore, financial resources utilization, if appropriately utilized has a strong impact on firm enhanced performance. It has a strong impact using the team leadership style (Kashif et al., 2019). Moreover, the study inspected by (Al-najjar, 2017) states that external financial resources can be required for the corporate value of the firm and value addition of the firm. For example, such external financing is implemented in the United Kingdom Small and medium-sized enterprises and has got enhanced firm financial performance. Due to this reason, that small and medium-sized firms have a lot of financing hindrances. Financial access to the firms may lead to a superior firm's performance if financial literacy is present (Okello et al., 2017).

Firm financial performance is working as an endogenous variable in the paper. The integration of financial resources utilization and environmental sustainability provides

enhanced firm financial performance. It can improve firm financial performance in modern ways. Firm financial performance can be increased in many ways as mentioned: (i) Environmental performance can enhance firm financial performance, (ii) Financial resources utilization has a positive impact on the firm financial performance, (iii) High investment in environmental sustainability gives enrich firm financial performance (Adams et al., 2012).

The inimitable idea, of leadership styles, is analyzed as a mediator between the relationship of financial resources utilization and adoption of environmental sustainability on firm financial performance. The research investigated by (Carneiro & Carneiro, 2008) explores that innovations, technological developments, and specific targets in an organization are only achievable owing to the leaders. Leaders are core performers in the organization's strategic plans. The promptness of technological development in the various fields of the world needs good leadership skills to get outshine solutions. The assessment of transactional and transformational leadership styles communicates that both the leadership styles confer associated results after the realization of experience. Transactional leadership gets nourished by contingent rewards and transformational leadership works by inspiration (Taylor et al., 2015).

Pakistan has initiated diverse environmental sustainability programs. For example, by the "Green Pakistan Program", 100 million trees are to be planted in the various regions of Pakistan. Other programs include the (CTCN) Climate Technology Center and Network; the (TNA) Technology needs assessment, (TAP) Technology Action Plan, (UNEP) United Nation Environment Program, and the (NAEP) National Action Environmental Plan are working under the collaboration of Turkey. Pakistan has performed a leading function in several environmental sustainability activities, such as the United Nations Conference of Parties on Climate Change (COP-21) in May 2015 in Paris and the United Nations Climate Change Conference ("COP23") Germany in November 2017 (ESP, 2020).

To the best of our knowledge, the past researchers endeavour a lot of attention to the environmental sustainability and firm financial performance, but the idea of financial resources utilization as an independent variable and mediation of leadership styles is not analyzed in an integrated framework. In the past, many scholars intentions on the environmental performance and firm financial performance by Tzouvanas et al. (2019), The impact of carbon dioxide emissions variations on firm financial performance Alvarez (2012), Environmental performance, financial performance and ownership structure in the manufacturing sector of China Liu et al. (2019), Towards green environment, How technological improvements reduce carbon productivity by Du and Li (2019), Impact of the pursuit of sustainability on the financial performance of the firm (Adams et al., 2012; Kadochnikov & Fedyunina, 2016), Disclosure of environmental information on firm financial performance Wang et al. (2020) So, the environmental sustainability can be achieved due to improved financial conditions of the firm. It requires remuneration for the green environment (Du & Li, 2019). Leadership functions an essential role for the success and enhance performance so, leadership Styles are focused as the mediator in the study (Mi et al., 2019). The research is unique in that no prior work is done in the manufacturing sector using leadership styles, among the relationship of adoption of environmental sustainability and financial resources utilization. The study emphasizes the two basic leadership styles i.e. transactional and transformational leadership. Leadership styles will enhance the firm's financial performance (Pham & Kim, 2019; Konara & Ganotakis, 2020).

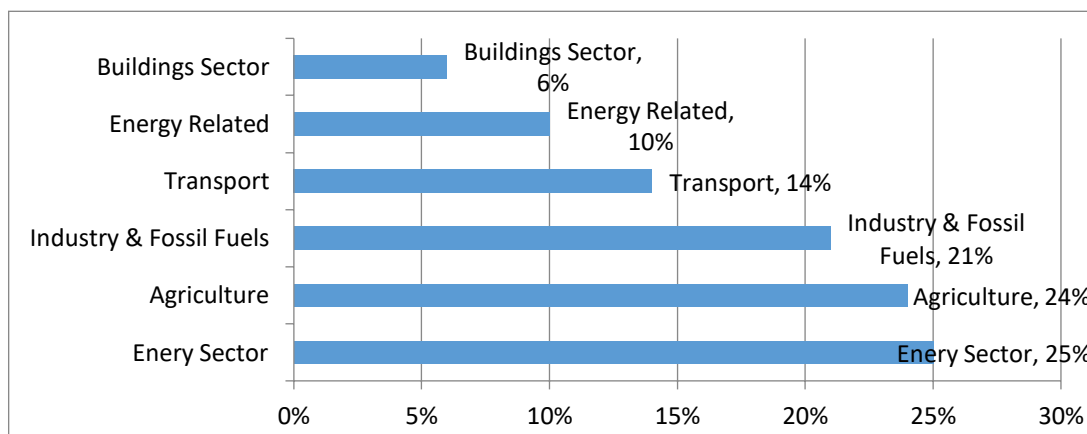


Figure 1: GHG Emissions Data for Different Sectors [Economic Survey of Pakistan, 2020]

The analysis of the paper concentrated on the mentioned questions and postulated the answers in the conclusion section (1) what is the impact of financial resources utilization on firm financial performance? (2) How adoption of environmental sustainability improves the firm's financial performance? (3) How the mediating role of transactional leadership style affects financial resources utilization and firm financial performance? (4) How the mediating role of transactional leadership style affects the adoption of environmental sustainability and firm financial performance? (5) What is the impact of the mediating role of the transformational leadership style between financial resources utilization and firm financial performance? (6) What is the impact of the mediating role of the transformational leadership style between the adoption of environmental sustainability and firm financial performance?

The research signifies modern ways for the top management, policymakers, government leadership, and managers of the firm for the implementation and verification of the environmental sustainability activities in the firms. The managers should communicate with the employees and implement environmental sustainability using the leadership styles (Transactional & Transformational) discussed in the paper. The research demonstrated the long term and short term effects of adapting environmental sustainability.

The paper is apportioned into five major sections. In the first introduction, Secondly, the paper is strongly supported by the literature review. Section three describes the research methodology. The fourth part gives data collections, sampling, and data analysis in the last Conclusion and discussions are explained.

2. Related Literature

2.1. Financial Resources Utilization and Firm Financial Performance

Financial resources utilization is termed as the mainstay for any organization. It improves the economic growth and reduction in poverty of the country (Sun et al., 2019; Al-ahdal et al., 2020). Conforming to (Siano et al., 2010) financial resources play the leading role in firm financial performance. It exposes the role of an association between customers and corporate reputation. It stipulates techniques for managing corporate risks and maintains corporate reputations. Financial resources are supportive of the crisis management of the firms (Al-ahdal et al., 2020; Sun et al., 2019). The research provides theoretical and conceptual assistance regarding the corporate management principles, which allows well known and developed corporate financial management associated with corporate reputation. In real these

corporate principles are effective for both financial resources management and corporate reputation management (Siano et al., 2010; Karltorp, 2020).

The research conducted by (Boso et al., 2017; Scarpellini et al., 2018) is about the financial resources slack and sustainability performance, among the small and medium enterprises in Nigeria. It concludes that how a financial resource slack works for sustainability under various conditions; such as market pressure, stakeholder pressure, and political conditions in a developing economy. It indicates a negative relationship between financial resources slack and sustainability expenditures for small and medium-sized firms, but this is positive when market pressure is high (Boso et al., 2017; Kadochnikov & Fedyunina, 2016).

The author (Hasan & Habib, 2017) demonstrated the relationship between the corporate life cycle and corporate social responsibility CSR. The results illustrate that financial resources moderate the relationship of CSR across various lifecycles (Aragon-correa & Hiz, 2016). The findings of the study relate it with changing resource-based theory, which specifies the competitive advantage throughout different life cycles of the firm's ability to follow CSR activities (Moon & Min, 2020). Our research work is unique from previous work as financial resources utilization and sustainability effects are not determined in the past. So the research provides a great piece of analysis for environmental sustainability.

HI: There is a significant relationship between financial resources utilization and firm financial performance.

2.2. Adoption of Environmental Sustainability and Firm Financial Performance

The research work determined by the author (Tzouvanas et al., 2019) is deliberated, on the impact of environmental performance on the firm financial performance, in European manufacturing firms (Alissa, 2015). It implied an innovative approach to standard quantize methods for the relationship between environmental performance EP and firm financial performance FP (ROA & ROE). The findings of the paper are demonstrated in three ways: First, there is a strong positive relationship between environmental performance and firm financial performance. Secondly, it shows heterogeneous results among the conditional relationship between EP and FP (ROA & ROE). Thirdly, it is concluded that high profitability firms are more inclined towards investments in environmental activities (Liu, et al., 2019; Evans et al., 2017)

The prior research discussed carbon dioxide CO₂ emissions and firm performance. According to the author (Alvarez, 2012; Feng et al., 2018), the research stipulates a robust focus on greenhouse gas emissions. GHG is one of the essential criteria for monitoring and evaluating the effects of CO₂ emissions on business performance. It's an important time to transact in detail that firms focus and report the greenhouse gas emissions and comprise a core part of a firm's performance. The paper reflects the basic measures for firm financial performance such as return on assets and returns on equity (Birasnav, 2014). Its goal is to get knowledge of the two main aspects of climate change. On one hand, it considers the variations in the carbon dioxide CO₂ emissions for different countries manufacturing firms. On the other side, it contemplates the impact of carbon dioxide CO₂ emissions on firm performance. The result for the first consideration tells us that there are variations of carbon dioxide CO₂ emissions for different years' data. At the start, the results are negative but after some years it showed positive results. This is because at the start due to the environmental investments the profit of

the firms may suffer but it takes time to provide the long term results in the form of financial performance (Alvarez, 2012; Feng et al., 2018; Tang et al., 2017)

The investigation of (Adams et al., 2012)describes that environmental sustainability is a hot topic in the business & economic world. Environmental sustainability implications are not only working in sound manufacturing methods, but sustainability activities also paying attention to the various fields. For example, it focuses on and leadership areas. The research explores different questions such as, how firms define environmental sustainability?, how they manage environmental sustainability?, how the firms get engaged in environmental sustainability, and how to communicate to stakeholders (Wang et al., 2020; Roscoe, 2019) The reviewed paper examines the effects of environmental sustainability on firm financial performance. Corporate sustainability CS is considered to have a potential impact not on the shareholders' value creation but also, on the ability to develop replications with competitors. It used Dow's John sustainability index to measure the results. The results showed that the firms which adopt the excessive environmental sustainability aspects may have superior stock performance (Wang et al., 2020; Zhu et al., 2018).

H2: Adoption of Environmental Sustainability and Firm's Financial Performance are positively related to each other.

2.3. Leadership Styles and Firm Financial Performance

In this section, two key leadership styles (transformational leadership and transactional leadership) are supported by the work of past researches. In the conclusion section, the study will make a comparison among the two leadership styles that which one is the most effective either transformational leadership or transactional leadership. Moreover, the researchers analyzed the long run and short-run impacts of leadership style on firm performance.

The work explored by (Singh et al., 2020) is based on the linkage of green human resource management, green transformational leadership, green innovation, and environmental performance. The research is supported by two basic theories, which are resource-based theory (RBT) and ability-motivation-opportunity theory (AMOT). The results suggested that GHRM mediates the relationship of green transformational leadership on green innovation. Additionally, the green HRM has indirect effects on the environmental performance using green transformational leadership (Singh et al., 2020). The research by the author (Sheehan et al., 2020) described the impact of transformational leadership style in the firm from the unit work innovation perspective (Eide et al., 2020). Mobilizing ideas of the resource-based theory and the worker's time with implanted a test data that works under the concepts of transformational leadership style in work innovation performance.

The transformation leadership style is practiced using a double mediation model between the knowledge sharing climate model and internal knowledge sharing (Sheehan et al., 2020). It explicates the example of different electronics work units in the demonstration that started for reference where transformation leadership is practically applied and got positive results (Mi et al., 2019). TFL leads the study in a double mediation model, the results indicate that knowledge sharing climate results in ultimately enhances knowledge sharing within the work unit and leads towards innovation (Gao et al., 2020).

The research examined by (Afshari & Gibson, 2016; Chen et al., 2019) the theoretical applications, demonstrated that work in organizational commitment is created by the contingent reward. The paper implemented important leadership theories (Transaction and Commitment) for the performance measurement of the manufacturing and health sector. It is observed that there is a positive relationship between commitment and transactional

leadership style. The results demonstrated that psychological needs and satisfaction have partial mediating effects on the relationship of contingent reward, transactional leadership, and working organizational commitment (Afshari & Gibson, 2016; Zhang, 2019). Our study literature supported the past researches in many ways: Firstly, it demonstrated the relationships among the variables. Secondly, it explained all the variables implementation in the prior researches done by many scholars.

H3a: Transformational leadership mediates between the relationship of financial resources utilization and firm financial performance.

H3b: Transactional leadership mediates between the relationship of financial resources utilization and firm financial performance.

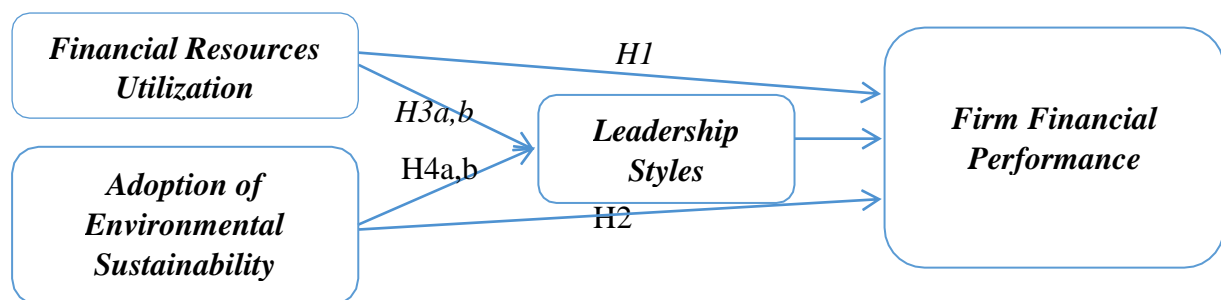
H4a: Transformational Leadership Mediates the relationship between environmental sustainability and firm financial performance.

H4b: Transactional leadership mediates the relationship between environmental sustainability and firm financial performance.

3. Research Methodology & Data Collection Procedures

The methodology section is comprised of the mentioned steps: Firstly, the paper developed a conceptual framework with the hypotheses of the study. Further, the research is supported by the theoretical framework and in the last; sampling and data collection methods are briefly enlightened. Exogenous variables of the study are financial resources utilization, adoption of environmental sustainability and an endogenous variable used is firm financial performance while leadership styles (Transformational and Transactional) are mediators in the study. For the formulated framework data is obtained using the questionnaire method due to the unavailability of the secondary data. Additionally, the questionnaire method is a good technique to get data in a short time with minimum cost. The use of leadership styles is qualitative so it is measured using a questionnaire.

3.1. Conceptual Frame Work



3.2. Theoretical Framework and Research Hypotheses Development

Adoption of environmental sustainability and financial resources utilization are the significant factors, which are governed by the firm financial performance. The study examined that, how firms can achieve better financial performance, by the implementation of environmental sustainability activities. Moreover, the impact of financial resources utilization is analyzed with firm financial performance. Both relationships are also considered in the mediation effects of leadership styles.

3.2.1. Neo-Classical Theory

The Neoclassical theory demonstrated negative output with the adoption of environmental sustainability on firm financial performance. The adoption of environmental sustainability causes the firms, to tolerate a high cost for it, and ultimately the profitability of the firms will

decrease. The neoclassical theory determined that mostly the firm which has to rigorously follow the environmental sustainability activities has to bear the high cost for the green environment. So, the firms have a competitive disadvantage, over other firms in terms of profitability and returns (Marcus Wagner, et al., 2002; Coad, 2010; Attari et al., 2016).

Manufacturing firms both chemical and oil can deposit a large number of toxic gases in the environment. For manufacturing firms, the high cost is required to minimize the carbon emissions, due to which affects the marginal costs of the production. The paper hypothesis is rejected in a developing country such as Pakistan. As Pakistan is a developing country and high cost is required to maintain the environmental sustainability. Pakistan owns a national industry like Pakistan Steel Mills that provides many iron manufacturing products (Steel, 2020). However, Pakistan steel mills are highly concerned about environmental sustainability in the country. The government of Pakistan has to focus to take strict measures for the implementation of environmental sustainability. Additionally, the government should provide subsidies and technological advancement to the manufacturing sector, to achieve the green production process. Our research work supports Neo-Classical theory.

3.3. Research Data Collection

The quantitative research method is applied to the research data collection. Data is obtained from the 47 registered manufacturing firms, with the State Bank of Pakistan (SBP, 2021). Data is collected using five Likert scale questionnaires, with variables and demographic constructs. The constructs for the exogenous variables of the study are financial resources utilization, adoption of environmental sustainability, leadership styles (Transformational and Transactional Leadership) as a mediator, and endogenous variables as firm financial performance. The entire questionnaire is adopted from past researches published in various journals. Details of the constructs of the questionnaire, with items and sources, are mentioned in the below table.

Table 1: Constructs Formation

<i>Variables</i>	<i>Items</i>	<i>Constructs</i>	<i>Source</i>
Financial Resources Utilization	09	Adopted	(Wassie, 2019)
Environmental Sustainability	13	Adopted	(Adams et al., 2012)
Transformational Leadership	09	Adopted	(Asghar & Oino, 2017)
Transactional Leadership	09	Adopted	(Asghar & Oino, 2017)
Firm Financial Performance	7	Adopted	(Al-matari, 2014)

3.4. Sample Selection and Observations

The study is quantitative research so; two basic sampling techniques are adopted the random sampling and convenience sampling. The respondents of the study are the employees of registered manufacturing firms. The employees are top-level managers, officers, and other employees working in the manufacturing sector with at least five years of working experience. For the pretest and pilot study, 50 questionnaires got filled by experts belonging to the manufacturing sector. After it, a total of 600 questionnaires got filled from the employees of the registered manufacturing firms (Chemical and Pharmaceuticals Sector) mentioned by the State Bank of Pakistan. After deducting the missing and suspicious questionnaire it remains 421. The response rate for the data collection is 70% which is a good response. The data is collected from 421 respondents based on 10 times the multiple questions in the questionnaire standard mentioned by (Hair et al., 2011).

4. Results & Analysis

In this section Research analysis strategies are briefly explained. The research analysis is manipulated by two professional-level software's which is Smart PLS (Square Equation Molding) (Henseler & Sarstedt, 2013) and a statistical package of social sciences SPSS (Arkkelin, 2014). In smart PLS Path coefficient model is created with a reflective measurement model of exogenous and endogenous variables.

4.1. Empirical Model

The mathematical equation for the regression analysis is given below which is based on the various dimensions of the study.

$$\text{Firm Financial Performance} = \alpha + \alpha_1\text{EDU_Level} + \alpha_2\text{LOC} + \alpha_3\text{NO_OF_EMP} + \alpha_4\text{GHG_PRUD} + \alpha_6\text{TYP_ORG} + \alpha_7\text{FRU} + \alpha_8\text{ES} + \alpha_9\text{TL} + \alpha_{10}\text{TS} + \varepsilon \quad (1)$$

In the above multiple regression equation, the EDU represents the education level; LOC donates the location of the firm, NO shows the Number of employees, GHG PRUD represents the Greenhouse gases, TYP ORG donates type of the organization, FRU represents the utilization of the financial resources, ES donates the adoption of environmental sustainability, TL donates transformational leadership, TS represents the transactional leadership and in the last ε represents the error level. Regression and correlation analysis are implemented to measure the relationship between the control and main variables of the study.

Table 2 gives the empirical model descriptions which are mentioned in the study. In terms of age, the maximum number of respondents has ages between 31 to 45 years which is a mature age and is very supportive of the study results. Most of the data is collected from Lahore and Karachi. Lahore and Karachi are the most populous business cities in Pakistan. The data indicates the education level for most of the respondents is graduation and master's. It determines that in the manufacturing sector most educated employees are working. In-country like Pakistan people is mostly motivated toward education instead of technical ones. Most of the data is collected from the chemical sector of Pakistan. GHG emissions data indicate that the production of GHG is 96.7 percent but only 24.9 percent of the firms follow the environmental sustainability rules to a high extent. The environmental sustainability rules are less followed by 36.8% and 38.2% follow at a moderate level. So, it is concluded that a lot of environmental sustainability adoption is required in the manufacturing sector of Pakistan to get a better environmental position.

Table 2: Demographic Analysis

<i>Age of Respondents</i>	<i>Frequencies</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<i>25 to 30 Years</i>	<i>84</i>	<i>20.0</i>	<i>20.0</i>
<i>31 to 35 Years</i>	<i>109</i>	<i>25.9</i>	<i>45.8</i>
<i>35 to 40 Years</i>	<i>103</i>	<i>24.5</i>	<i>70.3</i>
<i>41 to 45 Years</i>	<i>102</i>	<i>24.2</i>	<i>94.5</i>
<i>45 to 50 Years</i>	<i>23</i>	<i>5.5</i>	<i>100.0</i>
<i>Total</i>	<i>421</i>	<i>100.0</i>	
<i>Location</i>	<i>Frequencies</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<i>Karachi</i>	<i>142</i>	<i>33.7</i>	<i>33.7</i>
<i>Lahore</i>	<i>218</i>	<i>51.8</i>	<i>85.5</i>
<i>Islamabad</i>	<i>20</i>	<i>4.8</i>	<i>90.3</i>
<i>Faisalabad</i>	<i>41</i>	<i>9.7</i>	<i>100.0</i>

<i>Total</i>	<i>421</i>	<i>100.0</i>	
<i>Education Level</i>	<i>Frequencies</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<i>Diploma</i>	<i>54</i>	<i>12.8</i>	<i>12.8</i>
<i>Matric</i>	<i>7</i>	<i>1.7</i>	<i>14.5</i>
<i>Intermediate</i>	<i>66</i>	<i>15.7</i>	<i>30.2</i>
<i>Graduation</i>	<i>117</i>	<i>27.8</i>	<i>58.0</i>
<i>Masters</i>	<i>175</i>	<i>41.6</i>	<i>99.5</i>
<i>CA</i>	<i>2</i>	<i>0.5</i>	<i>100.0</i>
<i>Total</i>	<i>421</i>	<i>100.0</i>	
<i>Major Production</i>	<i>Frequencies</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<i>Pharmaceuticals</i>	<i>65</i>	<i>15.4</i>	<i>15.4</i>
<i>Manufacturing</i>	<i>95</i>	<i>22.6</i>	<i>38.0</i>
<i>Chemical</i>	<i>261</i>	<i>62.0</i>	<i>100.0</i>
<i>Total</i>	<i>421</i>	<i>100.0</i>	
<i>GHG Emissions</i>	<i>Frequencies</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<i>Yes</i>	<i>407</i>	<i>96.7</i>	<i>96.7</i>
<i>No</i>	<i>14</i>	<i>3.3</i>	<i>100.0</i>
<i>Total</i>	<i>421</i>	<i>100.0</i>	
<i>Environmental Rules</i>	<i>Frequencies</i>	<i>Percent</i>	<i>Cumulative Percent</i>
<i>Low</i>	<i>155</i>	<i>36.8</i>	<i>36.8</i>
<i>Moderate</i>	<i>161</i>	<i>38.2</i>	<i>75.1</i>
<i>High</i>	<i>105</i>	<i>24.9</i>	<i>100.0</i>
<i>Total</i>	<i>421</i>	<i>100.0</i>	

4.2. Evaluation of Measurement Models

In smart PLS (SEM) two types of models are used which are the reflective measurement model and formative measurement Model. The main analysis techniques for the reflective measurement model are mentioned below.

- 1) Internal Consistency Reliability is measured by Chronbach Alpha.
- 2) Indicator reliability is observed through Factor Loading of Constructs.
- 3) Convergent validity is calculated by Average Variance Extracted (AVE)
- 4) Discriminant validity is examined by Fornerrll-Larcker Criterion.

In Table 3 it is interpreted that, the data reliability and validity of the constructs are according to the thumb of rule. The standard for Cronbach Alpha value is between 0 and 1. Composite reliability values indicated the inter-correlations of observed indicators. The composite reliability values standard values are 0.60 to 0.70 for acceptable and 0.80 to 0.90 (Hair et al., 2011) values are satisfactory. All the values of Cronbach alpha lie between 0 and 1 so; it lies in the acceptable set. The composite reliability values for an entire set of constructs are greater than 0.80 so it shows satisfactory results. The convergent value indicates to what extent a measure correlates positively with other measures of the same construct. The standard for AVE value is 0.50 or above (Hair et al., 2011), the values in the table are above 0.50 which are in the acceptable range.

Table 3: Internal Consistency Reliability

Construct	Cronbach Alpha	Composite Reliability	AVE
Adoption of Environmental Sustainability	0.808	0.859	0.565
Firm Financial Performance	0.819	0.866	0.580

Financial Resources Utilization	0.791	0.848	0.445
Transformational Leadership	0.780	0.845	0.577
Transactional Leadership	0.811	0.864	0.515

Table 4 accesses the measurement model items, along with factor loadings for the exogenous and endogenous variables for each construct. The factor loading values of each construct are mentioned below. Moreover, those constructs are removed from the study, whose factor loading values are less than the standard value ($0.5 <$). The standard rule of thumb for the factor loadings is that it has a value of 0.60 or higher (Hair et al., 2011) for each separate construct. Initially, the constructs for financial resources utilization is 9 but 2 questions were removed due to low factor loadings. The constructs for the adoption of environmental sustainability is 13 so, five questions are removed due to lower factor loading values. Leadership Styles has 18 questions six questions are removed due to low factor loadings. In the last endogenous variable firm financial performance, all factor loading values are greater than 0.60 so, no construct is eliminated.

Table 4: Measurement Model Values)

Latent Variable	Indicators	Loadings	Indicator Reliability	Composite Reliability	AVE	Discriminant Validity
FRU	FRU_1	0.649	0.791	0.848	0.445	Yes
	FRU_2	0.682				
	FRU_3	0.686				
	FRU_4	0.717				
	FRU_5	0.715				
	FRU_6	0.707				
	FRU_7	0.612				
ES	ES_1	0.643	0.808	0.859	0.565	Yes
	ES_11	0.644				
	ES_2	0.630				
	ES_4	0.704				
	ES_6	0.631				
	ES_7	0.729				
	ES_8	0.736				
TL	TL_3	0.670	0.780	0.845	0.577	Yes
	TL_4	0.725				
	TL_5	0.653				
	TL_6	0.671				
	TL_7	0.698				
	TL_8	0.723				
TS	TS_2	0.642	0.811	0.864	0.515	Yes
	TS_3	0.721				
	TS_4	0.741				
	TS_5	0.745				
	TS_6	0.751				
	TS_7	0.700				
	FP_1	0.665				
FP_2	0.674					
FP_3	0.691					

FP	FP_4	0.718	0.819	0.866	0.580	Yes
	FP_5	0.758				
	FP_6	0.717				
	FP_7	0.618				

FRU = Financial Resources Utilization, ES = Environmental Sustainability, TL= Transformational Leadership, TS = Transactional Leadership FP = Firm Financial Performance.

Table 5: Discriminant Validity

Fornell-Larcker Criterion	ES	FP	FRU	TL	TS
Adoption of Environmental Sustainability	0.682				
Firm Financial Performance	0.562	0.693			
Financial resources Utilization	0.663	0.584	0.667		
Transformational Leadership Style	0.636	0.589	0.636	0.691	
Transactional Leadership Style	0.621	0.625	0.596	0.613	0.718

FRU = Financial Resources Utilization, ES = Environmental Sustainability, TL= Transformational Leadership, TS = Transactional Leadership FP = Firm Financial Performance.

The discriminant validity criterion is discussed in table 6. Discriminant validity is the criterion that measures the extent to which the construct is distinct from other constructs by defined empirical standards. Discriminant validity can be measured through cross-loading techniques for each construct. Fornell-Larcker Criterion is the best measure for discriminant validity. The thumb of rule for the discriminant validity is that the square root of the average variance extracted for the constructs must be greater than the previous value extracted (Hair et al., 2011). In diagonal, all the values are up to the standard.

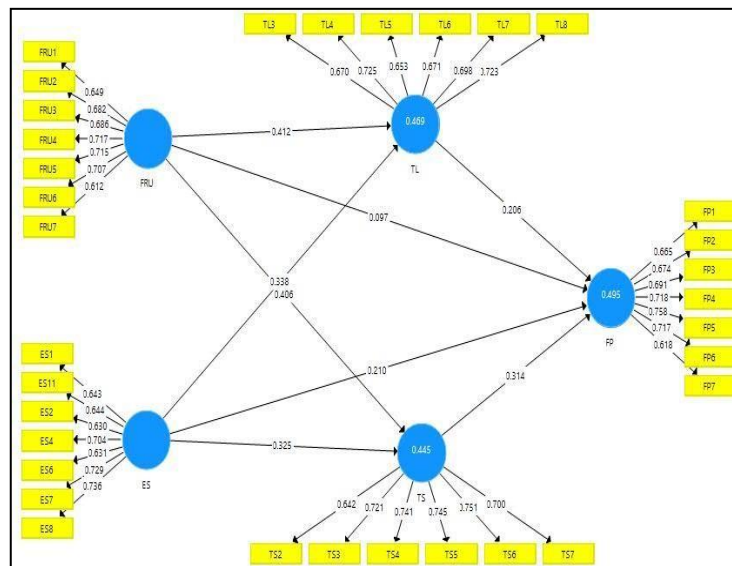


Figure 2: Measurement Model

4.3. Evaluation of Structural Model

The structural path model is developed using Smart PLS, in which all the exogenous and endogenous variables are connected by the paths. The path coefficient model gives the criterion for hypotheses acceptance and rejection. The mediation of leadership styles is

assessed using the two styles. Separate mediation effects are governed by the models which are transformational leadership and transactional leadership.

- 1) Path Coefficient Model
- 2) Coefficient of Determination

Table 6: Path Coefficient Model

Hypothesis	Relationship	β Value	t-Value	P- Value	Results
H1	FRU->FP	0.195	2.479	0.013	Accepted
H2	ES->FP	0.106	1.762	0.078	Rejected
Mediation Analysis					
Hypothesis	R	β Value	t-Value	VAF	Results
H3	FRU->TL->FP	0.0768	0.2718	0.2825	Partial Support
H4	FRU->TS->FP	0.1049	0.2999	0.3499	Partial Support
H5	ES->TL->FP	0.0769	0.1829	0.4207	Partial Support
H6	ES->TS->FP	0.1290	0.2350	0.5489	Partial Support

The path coefficient model from Table 6 gives the standardized rule for the decision of the hypothesis. The path coefficient model can be analyzed using the P-value, degree of freedom, and t-value. The Path coefficient model β standard value is between 0 and 1 (Hair et al., 2011). The t value indicates the strength of the relationship of the mediator the value for the hypothesis. Financial resources utilization and firm performance have a value greater than 1.96 which is accepted and adoption of environmental sustainability and firm financial performance value is less than 1.96 so, it is rejected. In a developing country like Pakistan, firms do not fulfill environmental sustainability activities so: it is negatively correlated. P values show the significance level of the hypothesis. The standard for P-value is, it has a value of less than 0.05. Both the values in the table are below 0.05 which shows the significance level.

4.3.1. Mediation Analysis

In the present study, leadership styles (Transformational Leadership and Transactional Leadership) are used as a mediator between the exogenous and endogenous variables. The mediation of the variables is analyzed by the thumb of the rule that the VAF (Variance Accounted for) value must be greater than 20% and may reach 80%. The value of 80 percent shows partial mediation but the values higher than 80% indicate full mediation effects. In the relationship between financial resources utilization and firm financial performance the transformational leadership has partially mediation of 28% but transactional leadership shows a higher value of 34%. In the relationship of adoption of environmental sustainability and firm financial performance transactional leadership mediates 54% and transformational leadership 42%.

4.3.2. Coefficient of determination

The coefficient of determination assesses the inner model patterns of the endogenous variables. It explains the variance of the inner model and dependent variables. It shows the degree of effect of independent variables on the dependent variables. In the paper, a total of

34 constructs got analyzed, which are resulted in inaccurate values for the coefficient of determination.

Table 7: Coefficient of Determination

Latent Variables	R Square	R Square Adjusted	Assessment
Firm Financial Performance	0.492	0.487	Moderate
Transformational Leadership	0.486	0.484	Moderate
Transactional Leadership	0.446	0.443	Moderate

Table 7 explains the coefficient of determination values for endogenous variables firm financial performance has value 48%, transformational leadership style affects 48% and transactional leadership styles shows 44 % effects.

5. Conclusion & Discussions

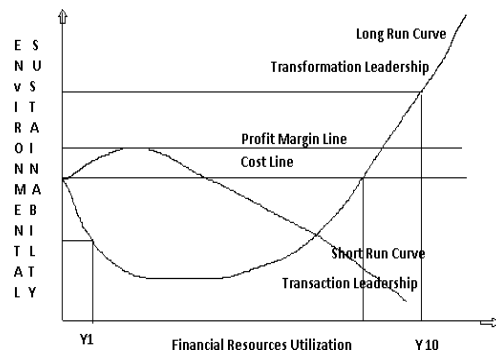


Figure: 3 Graphical Interpretations of Result

Our study examined the impact of financial resources utilization and adoption of environmental sustainability on firm financial performance under the mediation effects of transformational and transactional leadership styles. Data is collected by the questionnaire method, from registered manufacturing firms. The result of the study indicates that financial resources utilization has a positive impact on firm financial performance. The H1 hypothesis is accepted due to the significance t value 2.479 (less than 1.96). The relationship of financial resources utilization and firm financial performance mediates better for transactional Leadership. The *VAF* value for transformational leadership is 0.28 and for transactional leadership is 0.34 both showed partial mediation effects. Financial resources utilization, if appropriately accomplished can provide enhanced firm performance. Some of the firms face mistreatment and corruption cases in the utilization of the financial resources and ultimately attempt to decline. In Pakistan, employees are more focused on reward-based activities, so the transactional leadership style is more valid, than the transformational leadership style. Leadership plays an essential role in the success of any organization. Transactional leadership is better for developing countries such as Pakistan. The economy of Pakistan is developing and people get motivated by contingent rewards.

The second segment of the result showed that the short-run adoption of environmental sustainability is negatively supported by firm financial performance. The result insights, positive effects among the long-run relationship of environmental sustainability on firm financial performance, with mediating effects of transformational leadership. H2 hypotheses are rejected due to a small t Value which is 1.76 (required value must be greater than 1.96).

Besides this, the adoption of environmental sustainability and firm financial performance partially mediates by transactional leadership style as compared to transformational leadership. The *VAF* value for transformational leadership is 0.42 and for transactional leadership is 0.54 both showed partial mediation effects.

The study provides cavernous knowledge, about the implementation of environmental sustainability for manufacturing firms in Pakistan to get better Firm Financial Performance. Pakistan's manufacturing (Chemical & Pharmaceutical) sector is not properly concerned with the adoption of environmental sustainability rules. A small percentage of firms are adopting (*Low Adoption = 155, Moderate Adoption = 161, High Adoption = 105*) the environmental sustainability rules. Pakistan is facing serious environmental problems that will affect the country's financial, social, and health progress in several ways. A large number of industries (*407 OUT OF 421*) are producing greenhouse gases in the environment, but not shadowing environmental sustainability activities. It's now the responsibility of the government and policymakers to implement strict rules against the adoption of environmental sustainability. Also, transactional leadership Style is much valid than transformational leadership in the context of Pakistan due to the reason that it's a reward-based Leadership. So, the firms have to adopt the reward-based leadership style to achieve better performance for the firm and the environment. In the long run, environmental sustainability has positive impacts on firm financial performance, with the mediating effects of transformational leadership. Firms that invest in environmental sustainability may face financial problems in the initial stages. It gives long term results in organization market shares.

5.1. Managerial Implications and Recommendations

1. Firms must adopt leadership styles to get better environmental sustainability and firm financial performance. The transactional leadership style is grounded on a reward-based approach that's why it is more valid in countries like Pakistan. Employees working in firms of Pakistan get motivated by contingent rewards.
2. Leadership plays a key role in both financial resources utilization and the adoption of environmental sustainability. So, it must be adopted to get the desired results for the firms and society.
3. The study provides in-depth details about environmental sustainability issues. Managers of manufacturing firms must know about environmental sustainability. Additionally, the managers should communicate with the employees of the firm about the advantages of the green environment. The managers can lead by transactional and transformational leadership styles.
4. The paper helps top management and government leadership to make proper visits to firms and production units and make reports on a monthly and quarterly basis to improve environmental sustainability.
5. The government of Pakistan requires to focus on technological advancements for the improvement of environmental sustainability. Environmental sustainability is an alarming issue for many developing countries. The government of Pakistan must provide specific budgets and subsidies to the firms for the improvement of environmental sustainability.

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