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Role of Emerging Financial Technology on Environmental and Social Governance of Textile Companies in Saudi Arabia

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Abstract: Purpose- This study aimed to investigate the substantial impact of financial technology on environmental and social governance (ESG). As a mediating variable, the study also examined the mediated effect of financial constraints, tax rebates, and government subsidies. Design/Methodology/Approach- The information was extracted from annual reports of publicly traded textile companies from 2011 to 2021. The quantitative research method and longitudinal research design were utilized. STATA software was used to conduct a panel regression analysis on the data. Findings- The findings suggest that financial technology positively and substantially impacts environmental and social governance. The other mediating effects also indicate that financial constraints, tax reimbursements, and government subsidies mediate between financial technology and environmental and social governance significantly and positively. Implications- The results indicate that financial technology substantially and positively affects environmental and social governance. The other mediating effects suggest that financial constraints, tax reimbursements, and government subsidies mediate significantly and positively between financial technology and environmental and social governance. Originality- This mediating effect is pioneering, particularly in the context of Saudi Arabia, as indicated by the research with the extended mediating model, which demonstrates significant contributions to previous studies.

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1. Introduction

Environmental, social, and governance (ESG) is an omnibus term for a set of metrics used to evaluate a company's performance by examining how well it manages its social and environmental impacts and the effectiveness of its governance structures (Agrawal et al., 2006). Investors who care about the environment frequently employ a set of criteria relating to a company's ESG investments. How a company protects the environment is one of the environmental criteria to consider. According to (Friedman, 2016), the fundamental social responsibility of a business is to maximize profits. (Antonetti et al., 2020) Many individuals support maximizing corporate economic efficacy. However, this viewpoint has generated controversy as sustainability issues, such as global warming, environmental contamination, and health services, have received increased attention. In this social and economic environment, businesses must actively implement ENG development concepts and seek organizational solutions to these problems (Cordazzo et al., 2020; Hsueh, 2019). Currently, investors and government policies are focusing closely on ENG.

Due to the new crown epidemic, the global volume of ethical investments is increasing. By 2020, 28% more firms will register with the UN-backed Rules to Responsible Investment. Even though Saudi Arabia's English development has been delayed, the community focuses more on it. "ENG initiatives and investments are dramatically expanded after General Secretary Xi set the 2060 carbon neutrality target at the UN General Assembly."

Nonetheless, several potential issues and obstacles are associated with the ENG procedures currently utilized by corporations. Corporate ENG practices are capital-intensive and susceptible to uncertainty (Broadstock et al., 2021). Due to inherent knowledge asymmetry, it may be difficult for many businesses that accomplish sustainable growth to achieve policy influence (Pedersen et al., 2021). Due to these complications, environmental, social, and governance growth ultimately becomes significantly more difficult to obtain. Recent financial market expansion has been fueled by science and technology. Simultaneously, financial technology (FinTech) has expanded rapidly (Haddad et al., 2019). ENG and FinTech share a green gene, and as FinTech becomes more prevalent, opportunities for corporate ENG investment growth will increase (Macchiavello et al., 2022). Can Fintech innovations truly aid existing businesses in improving their ENG performance? What, if you will, are its underlying operating principles? Earlier research has focused on how various variables, such as general economic growth (Cai et al., 2016), business classification (Pu, 2018), social capital (Jha et al., 2015), unexpected events (Ali et al., 2019), policymaking traits (Cronqvist et al., 2017), participation by organizational investors (Dyck et al., 2019), etc., influence organizational investment decisions. Understanding the effect of fintech growth on company performance and the factors that explain this is crucial because it closes an important research void and has significant implications for promoting long-term economic and social development. Enhancing comprehension of the mechanisms through which Fintech innovation impacts business performance.

In the past, studies have primarily focused on developed nations (Macchiavello et al., 2022; Macpherson et al., 2021; Wang et al., 2022), while developing nations have received little attention. Previous research has also suggested that Fintech is in its infancy in developing countries (Liu et al., 2021), and one author has argued that developing nations should develop appropriate Fintech in their economies to improve their ESG (Goud et al., 2021). In other words, the majority of prior research has concentrated on the direct effect of Fintech on ESG, while the indirect impact has received little attention (Macchiavello et al., 2022; Macpherson et al., 2021; Wang et al., 2022). In other words, the tax rebate, financial constraints, and financial subsidies have direct effects on ESG, but they have received little attention as mediating variables (Khalil et al., 2022; Ng et al., 2020; Ren et al., 2022; Tan et al., 2022; Zhang et al., 2023). The authors argued that these variables could mediate the dependent (Du et al., 2022). The indirect impact of Fintech was also found to increase (Du et al., 2022). As a result, the current study examined the impact of Fintech on ESG via the moderating effect of tax rebates, financial constraints, and financial subsidies in the context of textile companies in Saudi Arabia, as previous studies have primarily focused on other developing economies and have considered developing economies. And in Saudi Arabia, textiles played a significant role in the country's social and economic growth (Aljoghaiman et al., 2022).

Consequently, our study examines a sample of Saudi Arabia-listed firms from 2011 to 2021. It refers to Su et al. (2021) for utilizing Python crawler technology to crawl each prefecture-level state's (a municipality officially under the national govt) FinTech keywords from 2011 to 2021 to develop a Fintech development index. The influence of national FinTech expansion on business ENG practices is still under investigation. This study also employs a model of mediating effects to examine how the mechanism operates. According to the empirical findings of the mediating framework, FinTech assists businesses with their internal financing issues and enables them to receive more government subsidies and tax benefits. This greatly improves ENG performance. According to a heterogeneity study, FinTech can improve corporate ENG outcomes in established firms and organizations where CEOs lack a background in finance or banking. Additionally, this paper makes the following contributions. 1) This paper is innovative from a research standpoint because it includes the degree of national FinTech growth to the methodology for ENG study. This is crucial for advancing ENG study (Macchiavello et al., 2022) because it connects the fields of sustainable finance and FinTech. Previous studies examining digital technology's impact on sustainable development performance, regions, and industries served primarily as research subjects. Some research (Deng et al., 2019) has examined the relationship between FinTech and sustainable growth performance but has not focused on businesses. They have not explicitly discussed the overall performance of ENG Company. "This paper focuses primarily on how the evolution of FinTech influences the English language's performance. 3) Concerning the study's methodology, this article comprehensively analyzes how FinTech growth influences operational efficiency from the perspectives of working capital constraints and external government budgetary considerations. This provides micro-empirical support for advancing deeper financial and technological integration and formulating sustainable, sensible growth strategies.

The study consisted of five sections: introduction, literature review, research methodology, data analysis and results, and discussion and recommendations.

2. Literature Review

2.1 Financial Technology and Environmental and Social Governance

Numerous factors influence the ENG performance of a company. Investment company shareholding (Dyck et al., 2019), executive qualities (Zhao et al., 2022), and family businesses (Abeysekera et al., 2020) are a few of the potential

determinants of an organization's "environmental, social, and governance" (ENG) efficiency that academics have investigated. Independent researchers have investigated the relationship between a company's ENG performance and variables such as state economic growth (Gillan et al., 2021), social status, and business classification (Belkania, 2019; Jha, 2019). However, relatively little research has been conducted on the relationship between FinTech and an organization's ENG performance. FinTech is crucial to developing green financial institutions; consequently, it may play a vital role in promoting the sustainable expansion of green financial services. According to the findings of the Dell'Erba (2021) study titled "Sustainable Finance and FinTech in Europe," EU policymakers should view fintech as an essential factor in sustainable development and focus on the connections between sustainable finance and fintech. This is because FinTech has the potential to not only promote the growth of democratic and green capital markets (Moro Visconti, 2019) but also to take the initiative toward sustainable development by assisting consumers and businesses in becoming environmentally friendly by utilizing a great deal of artificial intelligence and research methodology (Duchêne, 2020).

Using the most recent financial technology (FinTech), businesses are now actively promoting the "green financial system" to protect the environment (Muganyi et al., 2021). Long-term, technological advancements will be advantageous to the environment because they will enable businesses to manage their resource issues more effectively and use those resources better. From a business standpoint, innovation in FinTech that utilizes big data and artificial intelligence can improve the environment and optimize economic processes, particularly by increasing green investment and enhancing green credit capacity (Cui et al., 2022). (Mi et al., 2019) FinTech can encourage businesses to make substantially larger investments in environmental preservation measures. Regarding society, corporations must allocate a certain amount of funds to social responsibility (Social). When faced with severe financial constraints, these businesses cease their socially responsible initiatives (Leong et al., 2021). FinTech, on the other hand, has the potential to substantially alleviate financial constraints, enabling companies to increase their investments in "corporate social responsibility (CSR) initiatives" (Xin et al., 2022). Similarly, releasing some of the restrictions on financing can enhance an organization's performance (Cao et al., 2020; Impullitti, 2022). If a company is successful, it will have more funds to invest in socially responsible initiatives, ultimately resulting in its improved performance in this area (Xu et al., 2022).

Regarding corporate governance (Governance), the majority of corporations were digital in regions with robust FinTech growth, and their digital processes were vulnerable to the threat of cyberattacks as well as data theft among companies in the same industry (Rabbani et al., 2020). According to Najaf et al. (2021), businesses that rely heavily on fintech are more likely to engage in international trade, increasing their exposure to political and foreign exchange risk. This line of thinking was presented geographically (Sojli et al., 2017). Corporations must increase the effectiveness of their governance practices due to higher operational risk (Claessens et al., 2013; Sinnadurai, 2018). Because FinTech companies develop new software and services for various industries, they must thoroughly comprehend the operational risk factors specific to these industries. Involvement in emerging sectors may result in higher operating expenses (Buchak et al., 2018), and interaction with numerous industries may necessitate considerable capital expenditures. Due to their operations' cross-industry and cross-regional nature, the evidence presented thus far suggests that, despite FinTech offering numerous benefits to businesses, these companies also face increased operational risks. This is because FinTech companies operate across numerous industries and geographies. As a result, companies with a high level of Fintech tend to perform better in corporate governance than other companies. Therefore, a high level of development in FinTech may catalyze ENG's development within corporations (Sako et al., 2022). Incorporating FinTech into the framework of ESG sustainability research may not only authorize conventional financial institutions through innovation and direct green evolution of businesses, thereby enhancing the ENG efficiency of such organizations, but it also has significant implications for the sustainable growth of the economy and society. For instance, incorporating FinTech into ESG sustainability studies can empower conventional financial institutions with technology and accelerate the transition to a green economy (Varga, 2018). The preceding discussion became the basis for the subsequent research hypothesis.

H1: Financial technology has a significant influence on environmental governance.

2.2 FinTech, Financing Constraints, and ESG

Because the "Chinese capital market" is not yet completely developed, there is a great deal of unpredictability surrounding company investments. Moreover, environmental, social, and governance (ESG) practices are becoming increasingly dependent on external funding due to the substantial initial investment required and the difficulty of attaining a rapid return on investment (Broadstock et al., 2021). However, obtaining financing can be difficult for organizations due to significant knowledge gaps between firms and banks and financial disincentives. These asymmetries and disincentives fall into three distinct categories: Alternatively, highly developed financial markets can alleviate the financial distress that corporations are experiencing, thereby improving the corporation's performance. This can mitigate some of the financial constraints that businesses must work within. (Anshari et al., 2019) concluded that digital markets made feasible by FinTech have the potential to improve the sustainability of agricultural business practices. In turn, this can increase access to financing, promoting sustainability in agricultural practices such as crowdfunding. By lowering the barriers to capital formation, FinTech's evolution has the potential to improve the performance of enterprises. FinTech utilizes cutting-edge information technology such as cloud computing, intelligent matching, and sufficient data management to manage large amounts of information and harvest customer data comprehensively, thereby giving financial institutions more power through technology spillover effects (Lapavitsas et al., 2022). Banks and other financial institutions can therefore collect data more efficiently. The multidimensional data of FinTech can be contrasted on both a horizontal and vertical axis, allowing financial institutions to obtain comprehensive information about multiple businesses. It aids in bridging the information divide between businesses and investors and between businesses. In addition, it assists in reducing the limitations businesses face in terms of corporate finance (Heiskanen, 2017). (Meiling et al., 2021) concluded that the expansion of FinTech helps alleviate corporate finance constraints and, as a result, promotes the overall sustainable efficiency of healthcare organizations. They accomplished this using "panel data from 11 Asia-Pacific" nations. According to Lamperti et al. (2021), financial technology is crucial for reducing the burden of financial constraints on businesses and fostering sustainable performance. In addition, there is a chance that FinTech will be able to enhance the performance of businesses by optimizing the financing channels they use, thereby reducing the financial constraints that these businesses face. Such characteristics may result in a considerable ENG

development cost for long-tail clients with weak financial demands, substantial green financialization, and questionable ecological benefits. FinTech promotes the delivery of financial services to long-tail organizations whose members lack financial expertise. As a result, expenses associated with ENG development are reduced, and investment demand among financial consumers on the markets for equities and bonds is increased. The FinTech industry is founded on various deep learning algorithms and model portfolios. FinTech, on the other hand, has the potential to substantially improve the infrastructure underlying the registration, trading, verification, and payment of assets (Chiu et al., 2019). Through technological advancement, improving the capital market system is also feasible, thereby increasing the amount of financing available on the capital market.

Along with distributed fault tolerance, the immutability of data and information is one of the technical advantages of fintech. Undoubtedly, utilizing FinTech to increase the quantity and quality of capital market funding would immediately alleviate the financial obstacles businesses face when implementing ENG. Moreover, there is no doubt that this will occur in an environmentally friendly manner. Consequently, based on prior discussion, it is hypothesized that

H2: Financial technology has a significant effect on financial constraints.

H3: Financial constraints have a significant effect on environmental governance.

H4: Financial constraints significantly mediate between financial technology and environmental governance.

2.3 FinTech, Government Subsidies, Tax Rebates, and Environmental Governance

Currently, businesses are required to make a substantial initial investment to initiate ENG investments, and it isn't easy to obtain a quick return on these investments (Li et al., 2022). This results in significant positive market externalities; however, many businesses lack the motivation to invest in ENG due to the high initial investment required. Providing businesses with price properties influenced by positive externalities caused by government subsidies may encourage them to continue engaging in activities with significant positive externalities. Consequently, fiscal incentive programs may be used to incentivize corporations to invest in ENG-related expenditures, thereby enhancing the overall performance of the corporations about ENG. This can be achieved by strengthening the companies' overall performance. On the other hand, government departments may lack comprehensive environmental, social, and governance data due to information asymmetry. Due to this, it is impossible to accurately quantify companies' process to invest in ENG and distinguish the relative benefits of various corporate ENG initiatives. In addition, this makes it difficult for many businesses capable of sustainable development to obtain government policy preferences. The expansion of Fintech has the potential to stimulate the government's financial incentive programs, ultimately resulting in enhanced corporate ENG performance. This will be accomplished due to the expansion of Fintech. More specifically, the government uses FinTech to take advantage of big data using block chain technology to analyze enterprise characteristics in a comprehensive manner ex-ante, to produce a reliable, correct content of firms, or to paint a portrait of corporate clients rapidly and accurately. In addition, the government utilizes FinTech to assess enterprise customers' value accurately. [Additional citation is necessary] After that, the government will be able to rapidly comprehend the dynamic information of businesses, supervise business operations, and enhance the liquidity and security of funds used for government subsidies and tax rebates (Tasnia et al., 2021). On the other hand, due to investments in environmental, social, and governance (ENG), businesses that have relied on tax breaks and government subsidies for an extended period appear more likely to engage in hedonistic behavior and corruption, resulting in a crowding-out effect over time. In addition to AI, big data, and other techniques, fintech could enhance the government's capacity to administer and evaluate ENG initiatives effectively. This can increase the precision of financial instruments and tax laws designed to improve the ENG performance of organizations. This can be achieved by curbing the hedonism of business owners and augmenting the government's ability to identify and monitor operations related to environmental, social, and governance issues. In addition, the government can access corporate information and expedite its authorization of corporate ENG investment projects by removing data barriers through data exchange between government agencies and investment firms. This situation benefits all parties involved. Banks transmit to the government information about enterprises that is relevant to the government. The government then employs machine learning and other algorithms to analyze massive business-related data. Based on the results of this analysis, the government identifies businesses with the potential for sustainable development, provides subsidies in a timely and efficient manner, and tries to resolve the issue of financing restrictions that businesses must overcome.

Moreover, government subsidies to businesses validate ENG investment, and as a result of these subsidies, businesses will be more motivated to invest in ENG because of the government's support. FinTech's in-depth data mining and analysis enables government agencies to obtain more information about the characteristics of businesses and the hazards they face, thereby making specific government policies more feasible. Moreover, government subsidies regulate enterprise credit and risk. Based on the prior discussion, the following research hypothesis has been developed:

H5: Financial technology has a significant effect on tax rebates.

H6: Financial Technology has a significant effect on government subsidies.

H7: Tax rebate has a significant effect on environmental governance.

H8: Government subsidies have a significant effect on environmental governance.

H9: Tax rebate significantly mediates between financial technologies and environmental governance.

H10: Government subsidies significantly mediate between financial technologies and environmental governance.

3. Research Methodologies

The data was collected from the annual reports and data stream of listed textile companies in Saudi Arabia from 2011 through 2021. In the interim, we applied several treatments and tools to an initial research sample to affirm the dependability and accuracy of the empirical study's results. In contrast to the trend of the textile industry, the financial reputation, asset reputation, and process characteristics of listed companies within the financial industry remain relatively distinct from those of other industries. In addition to data samples that lacked a gearing ratio from 0 to 1, several other economic indicators displayed abnormal behavior. Continuous variables were modified by a 1% tail reduction to eliminate the influence of extreme values on empirical findings. We obtained 200 annual firm observations for the period 2011 to 2021. Several variables lacked values, so the sample size for subsequent regressions will be altered. In addition, the study employed a quantitative and longitudinal research design,

which is optimal when secondary data are collected numerically (Dimitrov, 2008). Investigate FinTech development's effects on the environment, society, and governance. The study also examined the moderating effect of financial constraints, tax reimbursements, and government subsidies between FinTech and Saudi textile companies' environmental, social, and governance practices. In the following equations, the direct and indirect effects are evaluated.

ENG=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+uit **(Equation.1)**

FC=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+uit **(Equation.2)**
ENG=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+b_5FC+uit **(Equation.3)**

Subsidy=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+uit **(Equation.4)**

ENG=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+$b_5$subsidy+uit **(Equation.5)**

Taxrebate=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+uit **(Equation.6)**

ENG=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+b_5Texrebate+uit **(Equation.7)**

Subsidy=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+uit **(Equation.8)**
ENG=a_0+b_1FinTechit+$b_2$size+b_3Indep+$b_4$cashflow+$b_5$subsidy+uit **(Equation.9)**

Environmental governance (EG) is a dependent variable in this model, indicating the firm's EG performance over time. In this study, FinTech is the primary independent variable, and the coefficient demonstrates the impact of financial technology on the performance of English-language texts. If the coefficient is greater than zero, it indicates that the development of financial technology enhances the English performance of firms. Added to that, As noted in the antecedent theoretical study, FinTech may influence the environmental, social, and governance (ESG) performance of companies through two distinct mechanisms: easing companies' financial constraints and enhancing fiscal policy incentives ("government grants, tax rebates"). The research then suggests using the underlying econometric model to assess mediating effects. The independent factors are assigned the same definitions as in previous research. Mi, t appears to be the mediating elements or mechanical factors, such as "finance constraint (FC), government subsidy (Subsidy), and tax rebate (TaxRebate)" Consequently, tax rebates, subsidies, and financial constraints are utilized as a mediating variable. The controls denote the set of control variables, which consists of "firm size (SIZE), cash flows (cashflow), return on assets (ROA), and board independence (Indpence). The year is represented by t, the industry by i, and the random disturbance term by i, t.

4. Descriptive Statistics

The study's descriptive statistics are displayed in Table 1's predicted values. The mean value for environmental, social, and governance (ENG) is 6.315%, the mean value for financial technology (FinTech) is 7.908%, the mean value for size is 22.059, the mean value for leverage is 0.410, the mean value for return on assets (ROA) is 0.044, and the mean value for board independence (Indep) is 0.374. The anticipated values are provided in Table.1 below.

Table 1. Descriptive Statistics

	Obs	Mean	SD	Min	Max
ENG	200	6.314	1.008	1.000	9.000
FinTech	200	7.902	0.814	0.000	9.240
Size	200	22.059	1.244	17.641	28.257
Lev	200	0.410	0.205	0.007	0.996
ROA	200	0.044	0.074	−1.324	0.880
Indep	200	0.374	0.053	0.200	0.800
Cashflow	200	0.089	0.239	−5.844	8.808

Note: ENG-environmental and social governance, Fintech-financial technology, Lev-leverage, ROA-return on assets, Indep-Independence.

5. Hypothesis Results

The predicted values in Table.2 demonstrate the effects of FinTech enhancement on the firm's ENG performance. The analysis revealed that FinTech's regression coefficients are significantly positive, indicating that the FinTech improvement index has a positive relationship with the ENG of firms. As an illustration of economic significance, Table 1 is the corporate mean value. Every increment of growth in the FinTech development level in any city will increase the ENG by an average of (6.314). The relationship between regression outcomes, control variables, and ENG performance meets theoretical expectations, indicating that the coefficient for firm size is positive. It meets the significance threshold of 1%, indicating that the ENG performance of larger businesses is superior. The coefficient of LEV is substantially negative at the 1% level, indicating that debt finance will reduce the performance of the ENG. The coefficient of ROA is positive at 1%, indicating that any increase in ROA will improve an enterprise's ENG performance. The board independence coefficient at the 1% level demonstrated positive and statistically significant results, indicating that enhanced corporate governance raises the level of an enterprise's ENG performance. The position of a company's cash flow indicates its working capital position. Increased cash flow reduces a company's financial issues, improving its English performance.

Table 2. Direct Effect Results

	Coefficients	P values
FinTech	0.132***	0.033
Size	0.136***	0.015
Lev	−0.500***	0.058
ROA	0.403***	0.095
Indep	0.006***	0.002
Cashflow	0.083***	0.026
Constant	3.830***	0.649

Note: ENG-environmental and social governance, Fintech-financial technology, Lev-leverage, ROA-return on assets, Indep-Independence.

In addition, financial constraints may impact the growth of an enterprise; however, FinTech may alleviate these constraints by reducing information asymmetry through technology spillover properties. Table 2 shows the results of financing constraints that have been moderated. The variables described in columns 1 and 3 indicate the performance of companies in English. In contrast, the column-described variable represents the financing constraints of businesses. The estimated coefficient for FinTech in column 2 is less than zero, indicating that the development of FinTech reduces firms' financing constraints. The estimated coefficients of the FinTech variables remain substantially positive in columns 1 and 3 of Table 3, but these coefficients have decreased relative to their estimated values. The expected "coefficient of the financing constraint index (FC)" was negative at 5%, indicating the existence of a mechanism for addressing financing constraints. The FC mediates considerably and favorably between Fintech and ENG. Thus, empirical results validate the hypothesis that ENG performance improves due to channel financing constraints. These variables are predicted in Table.3, which follows.

Table 3. Financial constraints Mediation Results

	ENG		**FC**		**ENG**	
	Coefficients	P Values	Coefficients	P Values	Coefficients	P Values
FinTech	0.1402***	(0.0367)	−0.0290***	(0.0075)	0.1368***	(0.0366)
FC					−0.1357**	(0.0554)
Constant	5.3986***	(0.2637)	0.7912***	(0.0537)	1.5803***	(0.4756)
R-squared	0.0142		0.1367		0.0346	
Control	Yes		Yes		Yes	

Note: ENG-environmental and social governance, Fintech-financial technology, Lev-leverage, ROA-return on assets, Indep-Independence.

ENG investing, on the other hand, appears to be a long-term, highly dubious investment strategy. Knowledge asymmetries make it difficult for government agencies to obtain information regarding corporate R&D to evaluate the benefits of ENG investment schemes. Simultaneously, the government's tax and subsidy rebates for businesses demonstrate a clear trend: firms implementing advanced technology and creating more jobs are more likely to receive government assistance. On the other hand, many businesses that employ sustainable development strategies seek policy privileges. FinTech can assess credit risk in real-time and rapidly construct a "portrait" of a user's characteristics due to the combination of in-depth data analysis, data mining, and numerous algorithms and machine learning techniques. It provides government enterprises with additional information regarding microbusiness operations and credit concerns. By utilizing this data, it is possible to determine which companies have a significant need for innovation funding, allowing the government to provide these businesses with more financial resources to increase their ENG effectiveness. To better comprehend the influence of FinTech on the ENG performance of organizations. The government receives two kinds of funds from companies.

1. Tax-Rebates and Subsidiary.

The analysis results for the mediating function of government fiscal subsidies are displayed in Table.4 as predicted values. In columns 1, 2, and 5, explanatory variables regarding the ENG performance of organizations are shown, whereas in columns 2 and 4, explanatory variables regarding the government's Tax Rebate and Subsidy are presented. In the first column, the coefficient of FinTech is substantially positive, indicating that FinTech can significantly enhance ENG performance. Overall, the FinTech factor appears positive, indicating a 1% level in column 3, which is a lower value than the first column, which revealed that ENG performance is diminished if government subsidies are restricted. Thus, it has been demonstrated that government subsidies substantially affect the relationship between ENG performance and FinTech development. It has been confirmed that FinTech development partially mediates the English language performance of corporations. Column 4 demonstrates that tax rebates do not affect the English performance of corporations. The reason is that tax rebates to the government may be an unproductive rent-seeking action by entrepreneurs and government officials (Lakonishok et al., 1994). As a consequence, and as partially demonstrated by hypothesis number three, FinTech does not directly contribute to the internal conversion of tax refunds into ENG investments. These predicted results are displayed in Table.4 below.

Table 4. Subsidy and taxrate mediating effect results

	ENG	**Subsidy**	**Taxrebate**	**ENG**
Fintech	0.1755	0.1774	−0.0249	(0.1450)
	(0.0268)	(0.0631)	(0.0060)	(0.0060)
Subsidy	0.451			
	(0.001)			
Tax rebate				0.0016 (0.0014)
FinTech	0.1737			0.1800
	(0.0467)			(0.0494)
Constant	4.8272***	13.2524	10.2303	5.0365
	(0.2340)	(0.3368)	(1.9243)	(0.2834)
R-squared	0.0261	0.1950	0.068	0.0189
Control	Yes	Yes	Yes	Yes

Note: ENG-environmental and social governance, Fintech-financial technology, Lev-leverage, ROA-return on assets, Indep-Independence.

6. Conclusion

Companies in Saudi Arabia confront a significant challenge in shifting their focus from "optimizing economic progress and improving their environmental and social governance" to "balancing social and financial benefits." In this regard, it is a crucial aspect of this transition. Therefore, it is essential to investigate how financial technology has impacted the English language results of textile companies. This paper analyzes the impact of FinTech development on the English performance of Saudi Arabian textile companies using data from 2011 to 20221. The findings underscore the significance of FinTech innovation to the English language efficacy of businesses. The mechanism analysis demonstrates that FinTech contributes significantly to the ENG performance of businesses by mitigating their internal financing constraints and expanding their access to external government subsidies and tax rebates. In addition, the eastern region, established businesses, and companies employing CEOs without a financial services and banking background are more likely to

recognize the benefits of FinTech growth in enhancing company ENG performance.

7. Implications and Future Directions

These results have policy implications for advancing FinTech and rapidly constructing a sustainable nation. During this crucial period when the economy is transitioning from rapid expansion to quality development, Saudi Arabia must actively promote the development of textile companies. FinTech companies must receive ample policy support from the government to promote the combination of capital markets and financial services using science and technology, which would aid in financing development. With an eye toward the future, the Saudi Arabian government must prioritize achieving a delicate balance between finance, SMEs and developing a diverse financial services industry. Its only means of environmental protection, improvement of social and governance investment, and new economic growth dynamics are if it reduces overall financial service barriers, makes it simpler for most businesses to obtain financial services at lower prices, and promotes the growth of FinTech.

Government agencies should view financial technology as a breakthrough to assist textile companies in obtaining the necessary funding and to enhance the service role that the financial sector performs in the real economy. Businesses, the economic backbone, perform a crucial role in advancing the economy and society toward sustainability. They must assume greater responsibility for "environmental protection, social responsibility, and strengthening their internal governance structures" Utilizing financial technology may increase the efficiency of resource distribution across enterprises and reduce their financial burden. In contrast, enterprises have encountered "difficult" and "expensive" financing problems. Utilizing financial technology may increase the efficiency of resource distribution across enterprises and reduce their financial burden. First, we must comprehend how traditional banks and Fintech companies can collaborate to promote innovation in the financial sector. To generate specialized, one-of-a-kind financial products and expand the availability of banking, we must rely on FinTech to accelerate the development of a multi-tiered, extensive banking system. The performance of enterprises should not be enhanced primarily or exclusively through fiscal policies. Increasing government subsidies and tax rebates sometimes promote "rent-seeking" behavior in ENG investments, encouraging inertia in ENG investments by businesses. Businesses and government agencies must invest equally in developing digital technologies to ensure a prosperous future. By leveraging financial technology, governments can more precisely determine which companies must be granted monetary and tax incentives. Moreover, businesses may employ digital technologies to identify ENG investments with favorable prospects to reduce uncertainty surrounding ENG investments. The only way to accomplish a healthy economic and social equilibrium and advance the cause of sustainable development in the building of nations is to maximize the connection influence between government and businesses.

While this study examines the conceptual and practical relationship between FinTech and ENG, it does so with certain caveats and limitations. This investigation prioritizes publicly traded Saudi Arabian textile companies between 2011 and 2021 as a first step. This empirical study demonstrates that the expansion of FinTech significantly enhances organizations' ENG performance. However, the results are limited because this study examined only publicly traded textile companies in Saudi Arabia. Future research may expand the scope to include corporations from various countries. Examining the role that national context, economic growth, and institutional contexts play in determining the nature of the relationship between ENG performance and Fintech. This paper uses Saudi Arabia's ENG rating data for the remainder of its ENG analysis. Unfortunately, this paper cannot thoroughly investigate Fintech developers' effects on ENG predictor variables, especially given that Saudi Arabia's ENG rating does not publish corporate ENG performance scores. Additional research in this area can compare the various approaches to measuring ENG performance within corporations, concentrating on FinTech development's impact on the multiple subscales of ENG performance. Lastly, the scope of this study is limited to a linear analysis of the relationship between FinTech development and ENG results at companies. Investigating the relationship between FinTech innovation and corporations' environmental, social, and governance (ESG) performance should not be limited to a linear line.

Additionally, excessive development in FinTech may have a negative effect on the ENG performance of businesses. In addition, the research was limited in its focus on the mediating impact. In contrast, several other moderating variables could mediate the relationship between Fintech and ESG, thereby enhancing the predictive value of the study. Therefore, it is indicated that corporate governance could be used as a moderating variable in future research to determine the relationship's strengths and weaknesses.

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