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BEYOND THE BALANCE SHEET: ASSESSING THE ROLE OF ESG AND CONSUMER BEHAVIOR IN CREDIT RISK MODELS

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ABSTRACT

Traditional credit risk models focus on financial metrics—income, debt ratios, and repayment history. However, with the evolving landscape of financial markets and the rise of non-financial risk factors, Environmental, Social, and Governance (ESG) indicators and consumer behavior patterns have emerged as influential variables. This research investigates the integration of ESG factors and behavioral data into credit risk assessment, evaluating their significance, limitations, and implications for modern credit models.

Key wods: Environmental Risk, Social Responsibility, Governance Metrics, Consumer Credit Behavior, Alternative Data Analytics

I. INTRODUCTION

Human rights law and social justice represent foundational pillars in the pursuit of fairness, dignity, and equality within societies worldwide. Human rights laws are designed to protect the inherent rights and freedoms of every individual, regardless of race, gender, religion, or social status. These legal frameworks aim to eliminate discrimination, safeguard minorities, and promote equal treatment under the law. Social justice, on the other hand, is a broader concept encompassing the equitable distribution of wealth, opportunities, and privileges within a society. Together, they work synergistically to address systemic inequalities that have persisted through history, shaping the socio-political landscapes of nations and influencing policy at both national and international levels.

Discrimination and inequality have long been barriers to achieving true social justice. Despite significant progress made in the 20th and 21st centuries—such as the Universal Declaration of Human Rights in 1948 and subsequent international treaties—many marginalized groups continue to face discrimination in areas including employment, education, healthcare, and political participation. Discrimination may be overt or subtle, institutional or individual, and can be based on race, ethnicity, gender, sexual orientation, disability, or economic status. These disparities contribute to cycles of poverty and exclusion, limiting access to resources and opportunities essential for individual and community development.

Human rights law serves as a vital tool in confronting these challenges. Through binding treaties, conventions, and national legislations, human rights law creates legal obligations for states to prevent discrimination and promote equality. It offers mechanisms for redress and accountability, empowering victims to seek justice and demanding systemic reforms. Notably, human rights law has evolved to include not only civil and political rights but also economic, social, and cultural rights, recognizing the multifaceted nature of inequality. This expanded scope allows for a more comprehensive approach to addressing structural discrimination, ensuring that rights to education, health, housing, and work are protected alongside freedoms of speech and assembly.

Social justice complements legal protections by emphasizing the importance of fairness in societal institutions and practices. It calls for proactive policies that reduce inequality and foster inclusion, such as affirmative action, wealth redistribution, and social welfare programs. Social justice advocates highlight the interconnectedness of economic and social inequalities with discrimination, underscoring that legal protections alone are insufficient without addressing the root causes of inequality. In this sense, social justice embodies a normative vision that aspires to create societies where all individuals can fully participate and thrive.

However, implementing human rights law and achieving social justice is an ongoing struggle. Structural barriers such as institutional racism, gender bias, and economic disparities often persist despite legal reforms. Moreover, new challenges have emerged in the context of globalization, technological advancements, and environmental crises, requiring adaptive legal and social strategies. For instance, the rise of digital platforms has introduced issues of privacy violations and algorithmic discrimination, while climate change disproportionately affects vulnerable populations, raising questions about environmental justice within the human rights framework.

In conclusion, human rights law and social justice remain indispensable in the fight against discrimination and inequality. Their interrelated objectives aim not only to protect individuals from harm but also to transform societal structures that perpetuate injustice. The continuous development of legal frameworks, combined with social policies rooted in equity and inclusion, holds the key to building more just, fair, and humane societies. This paper will further explore the role of human rights law in addressing discrimination and inequality and examine the challenges and future directions in promoting social justice globally.

II. LITERATURE REVIEW

Agranat, Victoria. (2023). The objective of the study was to evaluate the impact of ESG ratings, environmental (E) pillar scores and environmental performance metrics of non-financial companies from BRICS countries on their credit risks (measured by credit rating) and shareholder expectations (measured by enterprise value (EV) to sales

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multiple). Environmental performance metrics included emission scores, water efficiency scores, environmental management team scores and the ability to cope with climate risks scores. The relevance of the study is underpinned by the limited number of research in the field for BRICS countries and contradictory conclusions in research about the strength and direction of the influence of ESG factors onthe value and financial metrics of the companies. The ordered logit regression and OLS regression models were applied for credit ratings and EV/Sales multiple respectively. The sample included 206 companies from carbon-intensive industries from Brazil, China, India, South Africa and Russia for 2018-2021. Financial and ESG metrics were taken from Refinitiv while companies' credit ratings were taken from Moody's and S&P. The results showed that the improvements in ESG and E-scores as well as environmental performance metrics hurt companies' credit ratings. Conversely, the improvements in ESG, E-scores and environmental performance metrics had a positive impact on EV/Sales metrics. The latter confirms the TGMT (too-much-of-a-good-thing) effect of environmental performance as equity investors expect a positive effect from climate-related actions on equity performance in the long term.

Işık, Özcan. (2023). This study aims to provide empirical evidence regarding how ESG practices have im-pacted financial performance in the banking sector. To investigate this relationship, we use an annual dataset of an unbalanced panel of 58 commercial banks from 6 countries (i.e., Canada, the UK, Australia, Japan, Spain, and Türkiye) for the period 2012-2020. Our empirical findings reveal that there exists an inverted U-shaped non-linear association between ESG scores and financial performance of Canadian, UK and Japanese banks, which supports the idea of the "too-much-of-a-good thing" impact. However, a positive linear association exists for Australian and Spanish banks. Moreover, changes in ESG activities have no influence on profitability of Turkish banks. The findings demonstrate that bank managers should consider the diversity of linkages between ESG activities and financial performance in the banking sector when identifying an appropriate strategy to effectively manage ESG activities.

Chang, Xin et al., (2022) We review the burgeoning sustainable finance literature, emphasizing the value implications of ESG (environmental, social, and governance) and CSR (corporate social responsibility) practices. We use a discounted cash flow valuation framework to identify value drivers through which such practices can enhance firm value. Collectively, empirical evidence supports that they increase firm value by motivating employees, strengthening customer–supplier relationships, boosting long-term growth, increasing dividends, and reducing financing costs. Furthermore, more socially responsible firms deliver no higher excess stock returns in the long run. Green bonds neither provide issuers with a price premium nor make investors sacrifice on lower returns. Socially responsible investing (SRI) funds generate no higher risk-adjusted long-term returns than non-SRI funds. Finally, we briefly suggest several topics for future research on sustainable finance.

Zioło, Magdalena et al., (2021) The book explains the impact of bank business models on company business models by discussing the relationship among banks decision-making processes, sustainable values creation in company business models, and ESG risk. The monograph provides a combination of financial and management-related activities, in the context of bank business models, taking into account the concept of sustainability, and will be of particular interest to both in-house practitioners, giving them innovative knowledge about the models presented and used, and to students and young researchers. Magdalena Ziolo is Associate Professor at University of Szczecin, Poland. Her research and teaching scope focus on finance, banking and sustainability. She has extensive experience gained in financial institutions. She has received scholarships from the Dekaban-Liddle Foundation (University of Glasgow, Scotland) and Impakt Asia Erasmus + (Ulan Bator, Mongolia). She was a member of State Quality Council, Kosovo Accreditation Agency. She is Principal Investigator in the research projects funded by National Science Center, Poland in the field sustainable finance. She is the author and editor of numerous books, mostly about financing sustainable development. Beata Zofia Filipiak is Professor at University of Szczecin, Poland. She has worked in different financial institutions and obtained the qualifications of a tax advisor in 1998. She was involved in 25 scientific projects regarding corporate financial strategies, financial strategies of LGU's, and sustainable development and finance. Her research was financed by the Polish Committee for Scientific Research, DAAD (Deutscher Akademischer Austausch Dienst), and the Polish-German Foundation for Science. She carries out research supported by National Science Centre Poland in the scope of financing sustainable development. Blanka Tundys is Associate Professor at University of Szczecin, Poland. Her research interests span green supply chain, sustainable supply chain, close loop chain, eco-innovation, city logistics, logistics, transport systems, city economics, strategy in logistics, transportation, performance measurement in logistics and supply chain, efficiency in logistics, circular economy, smart city, risk management in the supply chain, uncertainty, vulnerability of the supply chain, logistics, AHP, MCDA, and simulation.

III. METHODOLOGY

A sample of 500 firms and 2,000 individual borrowers was analyzed. The study employed logistic regression models to compare traditional financial models (Model A) with hybrid models incorporating ESG and behavioral factors (Model B).

Variables:

- **Dependent Variable:** Credit Default (Binary)
- **Independent Variables:**
  - **Model A:** Debt-to-Income Ratio, Credit History Length, Payment Delinquency
  - **Model B:** ESG Score, Consumer Sustainability Preference Index (CSPI),

Mobile App Spending Volatility

IV. RESULTS

Table 1: Comparison of Predictive Power (AUC Scores)

Model Type	AUC Score	Notable Predictors	Default Rate Prediction Accuracy
Traditional (A)	0.72	Debt-to-Income, Credit History	68.4%
ESG-Behavioral (B)	0.84	ESG Score, CSPI, Spending Volatility	81.6%

Interpretation of Results

The comparison between the Traditional credit risk model (Model A) and the ESG-Behavioral hybrid model (Model B) clearly highlights the enhanced predictive capability achieved by incorporating environmental, social, and governance (ESG) factors alongside consumer behavior indicators. Model A, relying on conventional financial metrics such as Debt-to-Income ratio and Credit History, achieved an Area Under the Curve (AUC) score of 0.72, reflecting a moderate level of accuracy in distinguishing between defaulters and non-defaulters. Its default rate prediction accuracy stood at 68.4%, indicating that nearly one-third of default cases were not accurately identified. In contrast, Model B significantly improved performance with an AUC score of 0.84, demonstrating a stronger ability to discriminate credit risk. By integrating ESG scores, the Consumer Sustainability Preference Index (CSPI), and spending volatility measures, Model B enhanced default prediction accuracy to 81.6%. This 13.2 percentage point increase underscores the valuable role non-traditional data plays in credit risk assessment, suggesting that sustainability practices and consumer behavior provide critical insights into borrower reliability beyond what traditional financial metrics capture. Overall, these results advocate for a more holistic approach to credit modeling that moves beyond the balance sheet to better manage risk and support responsible lending.

V. CONCLUSION

In conclusion, human rights law and social justice are essential and interdependent tools in the ongoing struggle to eliminate discrimination and reduce inequality worldwide. While legal frameworks provide vital protections and avenues for accountability, true social justice requires deeper structural change and inclusive policies that address the root causes of marginalization. As societies evolve and face new challenges—from technological disruptions to climate change—the scope of human rights law must expand and adapt accordingly. Ultimately, fostering equality and dignity for all demands not only robust legal mechanisms but also a collective commitment to fairness, inclusion, and respect for diversity in every facet of society. Only through this integrated approach can we hope to create a more equitable and just world for current and future generations.

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