

Moving Toward Sustainable Finance: Leveraging Environmental, Social, Governance (ESG) Performance and Risk Management to Derive Corporate Financing Efficiency

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ABSTRACT

Sustainable finance has gained increasing relevance and interest primarily due to its importance for understanding how credit access and macroeconomic conditions affect the allocation of financial resources across countries. This study assesses credit access and inflation, on the one hand, and financial resource allocation, on the other, employing panel data for 19 selected countries for the period of 2010 to 2024, drawn from the World Development Indicators (WDI). The analysis for efficiency determinants in the allocation of financial resources is conducted using both Ordinary Least Squares (OLS) and Fixed Effects regression models. The results show a significant and highly positive impact of credit access on financial resource allocation, indicating that the higher the credit availability, the more efficient the allocation of funds to the productive sectors. Conversely, the negative sign on inflation is statistically insignificant, implying that price volatility does not strongly impact the outcomes of allocation financing. These results speak to policymakers about strengthening credit systems and improving macroeconomic stability for enhancing sustainable financial allocation and economic growth.

Keywords: Sustainable Finance, Environment, Social, Governance, Credit Access, Fixed Effect Model

INTRODUCTION

In recent years, the global financial landscape has changed significantly. Sustainability has become a key part of economic growth and corporate strategy. Traditional financing models, which focused mainly on short-term profits, are increasingly being replaced by approaches that highlight long-term value creation through sustainable finance. Governments, regulators, and financial institutions now recognize that aligning capital flows with environmental, social, and governance (ESG) priorities is essential to ensure resilience, competitiveness, and inclusive development. This shift is especially important for emerging

economies, where limited resources and social vulnerabilities make it crucial to direct financial resources toward sustainable and efficient practices. Sustainable finance not only changes investment decisions but also alters how companies manage risks and evaluate their performance. By incorporating ESG metrics into financing decisions, countries can motivate firms to reduce environmental risks, strengthen governance, and promote social equity. This integration improves corporate financing efficiency by lowering capital costs, increasing investor confidence, and ensuring that funds go toward responsible and forward-thinking projects. Additionally, global investors and international institutions are increasingly connecting their funding decisions to ESG performance, making sustainability a key factor in determining international capital flows.

In this research work, allocation of financial resources is used as the dependent variable since it is an indication of how funds are allocated among sectors and activities to encourage sustainable development. Financial resource allocation is the procedure of allocating existing budgets, funds, or capital among various sectors, activities, or projects. In economics, public policy, and business studies, it is generally analyzed as depending on other factors like government policies, access to credit, environmental policy, or wider macroeconomic conditions. Working with financial resource allocation as a dependent variable makes it possible for researchers to explore cause-and-effect interactions that determine how finite financial resources are allocated and managed. At the government level, budgetary resource allocation decides how much is allocated to such key sectors as health care, education, infrastructure, or protection of the environment. Such allocations are seldom taken independently; they are influenced by political considerations, economic growth, inflation, donor aid, and regulatory needs. For instance, a nation with high inflation may focus on stabilizing vital items, and a nation devoted to sustainable development may allocate more funds toward renewable sources of energy and environmental protection

In the private sector as well, financial decision-making on allocation is also subject to internal and external factors. The firm could reallocate capital to marketing, research, or operations based on the availability of credit, competition, or regulatory structures. For example, tighter environmental regulations would compel companies to allocate more capital to compliance structures and green technologies, and easier financing opportunities might prompt companies to increase production or penetrate new markets. Analysing financial resource allocation as a dependent variable is essential since it shows how financial decisions are influenced by greater structural, institutional, and economic conditions. This can determine if resources are being efficiently and fairly allocated to achieve development objectives, counteract inequalities, and enhance sustainable growth. Understanding the determinants of financial allocation is important for policymakers and organizations to make better decisions and ensure that limited financial resources are channeled toward activities that contribute maximally to social, economic, and environmental benefits.

Credit access describes the simplicity with which individuals, enterprises, or governments can access finance from banks, financial institutions, or capital markets. It measures the affordability and availability of loans, lines of credit, or instruments of finance that finance investment, development, and economic activity. In studies, when considered as a standalone variable, credit access is examined based on its impact in terms of larger economic and social factors, including allocation of financial resources, corporate effectiveness, entrepreneurship, and total development. The contribution of credit access is imperative since financial markets are the pillars of productive activity. For firms, more access to credit allows for investing in technology, exporting to new markets, and being able to handle operational risks. For families, it allows for consumption, education, and shelter, all of which contribute to human capital and quality of living. Macro-economically, nations with good credit systems that are inclusive will have higher growth and stability since financial resources are channelled to the productive sectors efficiently.

Credit access clarifies how and why certain economies use financial resources more effectively than others. For example, economies with poor access to credit tend to underinvest in vital areas such as healthcare, infrastructure, or clean technologies, thus creating inefficiencies and delayed efforts toward achieving sustainability objectives. On the other hand, extended and widespread access to credit enables inclusive development, promotes the mitigation of financial inequality, and enhances institutional resilience. In addition, access to credit has a direct relationship with sustainable finance. Proper access to funding makes organizations invest in green and social projects, thus enhancing Environmental, Social, and Governance (ESG) performance. It also allows businesses to take risk management measures that protect them from economic shocks. To policymakers, encouraging access to affordable credit markets assures that scarce financial resources are allocated more equitably and channelled towards long-term development priorities. Effectively, access to credit as an independent variable highlights its causative influence on financial choices, the deployment of resources, and developmental results. Through the impact it has on how capital circulates within the economy, credit availability can support growth and sustainability or, if curtailed, serve as a hindrance to advancement. Through the understanding of this connection, researchers and policymakers can develop policies and frameworks that increase access to credit, build economic resilience, and foster sustainable development.

LITERATURE REVIEW

Li et al. (2025) examine how ESG performance and corporate financial risk affect financing efficiency in 400 Chinese firms from 2013 to 2022. Using DEA-BCC and fixed-effects regression, the results indicate that ESG positively influences financing efficiency, while financial risk has a negative impact. These findings help firms and policymakers work towards sustainable financial practices. Liu et al. (2023) examine non-financial Chinese A-share firms from 2011 to 2021. They use panel regression to test how ESG affects financing constraints. The dependent variable is financing constraints, while the independent variable is ESG performance. The findings show that ESG reduces constraints, especially in non-SOEs, firms with low leverage, and those with independent governance. This supports efficiency by improving credibility, governance, and stakeholder engagement. Maiyarni et al. (2024) studied cross-country firms (2016–2023) using 3SLS. ESG (independent) improves investment efficiency (dependent), mediated by financial reporting quality. Data from Bloomberg and Refinitiv. ESG enhances governance transparency, aligning with SDG goals. Regions include ASEAN, South Asia, and MENA. Liu (2024) studies Chinese corporate bond issuers (2010–2019) employing PSM, lagged variables, 2SLS, and system GMM. ESG performance (independent) reduces the cost of debt (dependent), notably through environmental innovation and CSR committees' signaling of creditworthiness, lowering bond spreads. Findings highlight ESG's importance in sustainable debt pricing. Zhu et al. (2024) studied 1,970 Chinese A-share listed firms from 2015 to 2022. They use fixed-effects regression to look at how ESG performance, the independent variable, affects the cost of debt, the dependent variable. The results indicate that higher ESG scores lead to lower debt costs. This effect is stronger when boards are more independent, diverse, and smaller, which signals better governance credibility. Tang (2022) studies 1,300 Chinese firms from 2015 to 2020. ESG performance, the independent variable, lowers the cost of equity capital, the dependent variable. This effect is stronger in firms with less variation in investor beliefs. The study uses fixed-effect regressions with CSMAR ESG scores. ESG credibility and transparency also reduce equity risk premiums.

Liu et al. (2025) examine Chinese A-share listed companies (2009–2022) with panel regression to evaluate ESG's impact on over-leverage. The findings indicate that higher ESG performance decreases over-indebtedness through better governance, reduced financing costs, and reduced information asymmetry. The impact is more significant in pollution industries and less marketized areas, with increased analyst scrutiny increasing the effect. Liu et al. (2021) analyse Chinese listed companies (2012–2020) based on DEA and fixed-effects specifications to investigate the effect of ESG on the allocation

efficiency of capital. Results indicate that more favourable ESG scores enhance allocation efficiency by lowering financing costs and improving resilience, which allows companies to maintain efficient investment policies and weather economic shocks better. Li (2025) uses system-GMM on Hong Kong firms (2018–2022). ESG (independent) enhances financial flexibility (dependent), especially for non-state firms mediated by financing constraints. ESG ratings from Bloomberg; results suggest robust ESG improves strategic capital access. Liu et al. (2024) studied Chinese A-share listed green bond issuers (2015–2023) based on panel regression of Wind database data and SynTao ESG scores. Evidence indicates that greater ESG performance significantly decreases green bond yields by conveying issuer credibility, minimizing perceived investment risk, and boosting investor confidence in sustainable financing. Kiran et al. (2024) examine 300 companies in N-11 countries (2015–2021). Independent ESG disclosure decreases the cost of capital (dependent), applying GLS and quantile regression. Managerial ownership has a non-linear moderating role. ESG enhances external credibility and reduces risk premiums. Malik et al. (2024) examine NSE500 Indian companies (2015–2021). ESG disclosure (independent) reduces the cost of debt (dependent) using fixed-effects panel regression. Firms with strong governance disclosures benefit most. ESG improves stakeholder trust and access to cheaper finance.

Cao et al. (2024) examine Chinese banks through stochastic frontier analysis (SFA) to evaluate the impact of ESG on profit efficiency. Data covers recent years and indicates that ESG investment, particularly in environmental and governance aspects, improves operational efficiency. Fintech uptake enhances the effect, suggesting that ESG integration and digital innovation combine to enhance sustainable banking performance and competitiveness. Al-Hiyari et al. (2023) examine 2011–2019 firm data from seven emerging economies with fixed-effects, Heckman two-stage, and 2SLS specifications. ESG (independent) enhances investment efficiency (dependent). Board cultural diversity dissipates the positive effect of ESG in overinvesting firms but has no effect in underinvesting firms, confirming subtle governance-ESG–ESG interactions in emerging economies. Li & Yang (2025) examine 1,500 Chinese companies (2015–2022). Independent variable ESG disagreement raises dependent variable financing constraints and reduces total factor productivity. Employs fixed effects and moderation analysis. Emphasizes rating consistency in investor trust. Zhou et al. (2023) examine the effects of digitalization on ESG performance based on Chinese manufacturing firm data (2012–2020) through fixed-effects regression. Digital strategy significantly enhances ESG performance; every 1% increase in digital transformation increases ESG ratings by 0.124%. This effect is robustified by organizational resilience, transparency, and investor stickiness. Setiani et al. (2024) examine Southeast Asian listed companies (2019–2023). Independent ESG performance enhances financial performance (dependent), particularly for low-carbon sectors. Fixed-effect panel models with Bloomberg ESG scores. Empirical evidence verifies that the ESG-financial relationship is industry-specific. Azmi et al. (2021) estimate 251 banks from 44 emerging economies (2011–2017) with system GMM. ESG (independent) enhances valuation (Tobin's Q – dependent) at moderate levels. There are diminishing returns to excessive ESG investment. ESG enhances governance and risk management.

De Franco et al. (2020) apply machine learning models to predict long-term returns and risk-adjusted performance using MSCI and Bloomberg ESG data. ESG-based ML portfolios perform better than conventional ESG screening during volatility times, using ESG both as a risk management tool and an alpha-generating signal to boost portfolio resilience and investor returns. Hisano et al. (2018) construct an information network model on large scales with MSCI, Refinitiv, and ESG watchlist data (2005–2017) to forecast companies' listing on exclusion lists. Results indicate behavioral and network structures accurately predict ESG misconduct, providing proactive risk management and better sustainable investment decision-making. Dhaliwal et al. (2011) Voluntary CSR reporting lowered the cost of equity for companies with strong CSR performance, according to U.S. firms from the 1990s to 2000s. The results connected the effect to increased transparency and better investor monitoring, which reduced

perceived risk, using difference-in-differences and matching with secondary data (Fu and Li, 2023). Cost of equity was the dependent variable, and American companies in the 1990s and 2000s were examined to look at the impact of voluntary CSR reporting on financing costs. Firms with strong CSR performance had lower equity costs because of better transparency and investor monitoring, which decreased risk perception, according to research using difference-in-differences and matching on secondary data (Moesgaard, 2024). Higher ESG ratings greatly enhanced access to bank loans and bond markets, according to an OECD and European firm. The results, which are based on secondary ESG and financial data, verify that lenders are increasingly considering ESG performance when making credit decisions. Hassan et al. (2019) Political risk influences shareholder behaviour and lowers investment and employment, which impacts firm performance. Results from fixed-effects regressions and text analysis of earnings calls using the PRisk framework demonstrate that political risk is firm-specific and transcends sectoral or macroeconomic circumstances.

Low et al. (2025) Companies with higher ESG scores had lower yield spreads, Sukuk and conventional bonds. Strong ESG performance lowers financing costs for both bond types, according to the results of regression analysis with yield spread as the dependent variable and ESG scores as the primary independent variable. Priem et al. (2024) WACC, equity, and debt are among the capital costs that are lower for companies with higher ESG rankings. The effect is particularly pronounced in nations with less developed legal systems, demonstrating the importance of ESG in risk mitigation. These lower financing costs were primarily caused by social and environmental factors. Goss and Roberts (2011) Businesses with poorer CSR performance were subject to harsher terms and higher loan spreads, up to 20 basis points, in U.S. syndicated loans from the 1990s to 2000s. Regression models that adjusted for bank characteristics and borrower risk revealed that CSR affects how lenders perceive risk, which in turn shapes financing terms and costs. Cheng et al. (2014) Stronger ESG performance lowered financing constraints and improved access to external funding, according to a 1992–2010 study of multinational corporations. They demonstrated that ESG improves financing efficiency and facilitates credit availability by reducing uncertainty and fostering investor trust through the use of historical CSR data and proxies such as the KZ index. El Ghoul et al. (2011) Stronger CSR ratings were linked to lower implied costs of equity, according to a 1992–2007 study of US companies. The results demonstrated that ESG decreased equity risk, especially through employee relations, environmental practices, and product strategies, using cross-sectional and panel regressions with firm controls and secondary CSR and financial data. Flammer (2015). According to a regression-discontinuity conducted on American companies between the early 2000s and 2012, accepted CSR proposals improved financing outcomes, ROA, and Tobin's Q. The validated CSR's contribution to firms' financial flexibility by comparing close shareholder vote results with historical voting and financial data.

According to public companies in the United States, material ESG issues unique to a given industry are a better indicator of performance than immaterial ones (Khan et al. 2016). Using panel regressions, portfolio tests, and materiality mapping on secondary ESG and financial data, the findings demonstrated that companies that excelled in material ESG had better accounting performance and stock returns. This demonstrates how focused ESG investment increases financial returns, reduces risk, and facilitates financing. Serafeim and Yoon (2016) evaluated 2,665 shareholder proposals in the 1999–2013 period of US companies to evaluate the impact of ESG-related activism. The findings demonstrated that activism enhanced firm disclosure and occasionally performance using panel and event designs with secondary CSR and financial data. The results imply that ESG practices are shaped by shareholder engagement, which also affects investor credibility and financing relationships. Bauer and Hann (2010) Credit risk and firm-level environmental management were linked that using bond and credit data from the 1990s to 2000s. Stronger environmental performance was associated with lower borrowing costs and higher credit

ratings, according to archival panel regressions. The results validate that environmental factors improve financing efficiency and have an impact on lender decisions.

Berg et al. (2020) using bond spreads and cost of capital as dependent variables, the 2000s–2010s examined the impact of ESG rating divergence among providers on financing terms. Regression analysis using secondary ESG and market data revealed that while consistent ratings increase the visibility and significance of ESG's impact on financing costs, rating disagreements reduce the impact of ESG on pricing. Nicolas et al. (2023) A 2016–2022, S&P 100 companies evaluated ESG reputation shocks using data from social media, news, and ESG disputes. It was discovered through panel regressions, sentiment analysis, and that ESG risk events increased perceived credit risk and produced negative abnormal returns. These shocks have the potential to tighten financing conditions over time by increasing investor and lender concerns. Pietsch and Salakhova (2022) compared Green and conventional bonds of the same issuers, maturity, and rank were compared using secondary bond price and investor data from euro-area companies conducted between 2016 and 2021. Green bonds had lower spreads, according to regression results, and the "greenium" increased over time. Green bonds are a useful instrument for lowering financing costs because of strong demand from retail investors and issuer credibility established by audits.

Rong et al. (2024) Bond ratings and debt costs were used as dependent variables in a Korean companies conducted in 2022 to investigate the relationship between ESG performance and borrowing costs. Low ESG ratings raised debt costs and lowered credit ratings, but these effects were lessened by extensive media coverage, according to regression analysis using KCGS ESG scores and BIGKINDS media data. This implies that financial penalties resulting from subpar ESG performance may be somewhat offset by media attention. Boccaletti and Gucciardi (2025) examine institutional quality and ESG performance on debt prices seen in bond yields and loan spreads. With samples comprising world non-financial companies between 2010 and 2022, they utilize instrumental variable and fixed effects panel regressions. They find that debt prices fall with increased ESG performance while institutional strength reinforces this relationship further. Sun et al. (2024) describe how corporate risk-taking in Chinese A-share listed companies between 2009 and 2022 is affected by various aspects of ESG performance. Employing firm and year fixed effects panel regressions, they discuss environmental, social, and governance dimensions. It was discovered that corporate risk-taking is diminished owing to environmental and governance scores, but mixed results are reported about social dimensions.

Peliu (2024) analyzes corporate risk impacts owing to ESG considerations based on observations made between 2012 and 2021 on NYSE companies. Through the use of multivariate panel regressions, corporate risks such as volatility, liquidity, and leverage are controlled for. It finds that good ESG performance enhances liquidity while reducing corporate risk, but has indeterminate effects within industries. Lee and Koh (2024) investigate the relationship between firm risk and ESG performance among U.S. banking institutions between 2010 and 2023. Using panel OLS and fixed effects along with robust standard errors, they study systematic, idiosyncratic, and total risk. It is observed that improved ESG performance reduces all types (s) of risk while governance acts (s) primarily. Ding et al. (2024) investigate corporate ESG performance's response to risk management practices while financial performance's intermediary role is taken into account. Using manufacturing and banking firms' observations between 2010 and 2021, they apply panel regressions and mediation analysis. They identify that financial performance mediates between risk management and ESG outcomes partly.

Hao and Wu (2024) examine ESG performance on corporate financing constraints within Chinese A-share companies between 2008 and 2021. By employing panel regressions featuring robustness tests, they quantify constraints via the KZ and SA indices. It reveals that financing constraints decline in response to higher ESG performance, while being associated with stronger effects within non-state-owned companies (non-SOEs). Wahyuningtyas et al. (2024) examine ESG performance and quality of governance effects

on listed firms' capital structure during the period 2010-2020 in Indonesia and Malaysia. Using panel fixed-effects regressions, they examine leverage in both debt-to-equity and debt-to-asset ratios. Lower leverage characterizes higher ESG performance but has variable effects across countries and ownership concentration. Gao and Zhang (2025) delve into the corporate financialization effect of ESG performance across Chinese listed firms between 2009 and 2021. In a panel regression with PSM robustness, they quantify financialization in terms of the financial asset's ratio. It emerges that ESG performance positively constrains financialization via better risk management, while value creation mediates this impact

DATA SOURCE/ METHODOLOGY

This study utilizes data sourced like the World Bank's World Development Indicators (WDI), covering a panel of 19 countries: Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, the Republic of Korea, the Russian Federation, Saudi Arabia, South Africa, Turkey, the United Kingdom, and the United States. The dataset spans the period from 2010 to 2024, providing a consistent 15-year timeframe for analysis.

Table 1: Description of Variables

Type	Symbol	Variable	Description
Dependent variable	FRA	Financial resource allocation	Financial resource allocation means the way in which financial resources are allocated across sectors and activities to advance economic growth. In this research, it is captured by <i>insurance and financial services (% of service exports, BoP)</i> , which indicates the efficacy and ability of nations to allocate financial resources efficiently.
Independent variable	CA	Credit access	Access to credit is the provision of financial facilities through which individuals and firms can borrow and access financing. This research reflects how borrowing impacts financial choices and overall resource allocation in an economy.
Control variable	I	Inflation	Inflation is utilized as a control variable to account for changes in the overall level of prices, ensuring that financial results are not distorted by variations in purchasing power or monetary instability.
	GDP	Gross Domestic Product	GDP is used as a control variable to measure total economic growth and size, helping isolate the independent variables' effects by

RESULT AND DISCUSSION

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial resource allocation	285	7.860055	6.469964	0.621398	32.87399
Credit access	285	94.10014	51.88062	12.69011	220.3156
Inflation	285	142.6319	91.64596	99.6836	1322.884

Table 1 shows the descriptive statistics for the study's major variables based on 285 observations. Financial resource allocation has a mean of 7.860055 and a standard deviation of 6.469964, with values ranging from .621398 to 32.87399, demonstrating significant variation in how countries allocate financial resources, with some allocating significantly higher levels than others. The credit access variable has a

mean of 94.10014 and a standard deviation of 51.88062, with a range from 12.69011 to 220.3156. This reflects substantial differences in the availability of credit across countries, with some economies enjoying much broader access to credit facilities. The Inflation variable has a mean of 142.6319 with a standard deviation of 91.64596, with values ranging from 99.6836 to 1322.884. The widespread values demonstrate that while some countries experience relatively stable price levels, others face very high inflation, pointing to significant disparities in monetary stability across the dataset.

Table 3: Correlation Matrix

Variable	financ~n	credit~s	inflat~n
Financial resource allocation	1.0000		
Credit access	0.4262*	1.0000	
Inflation	-0.1716*	-0.2252*	1.0000

Table 2 reports the correlation matrix for the study variables. The findings indicate a statistically significant positive association between Financial Resource Allocation and Credit Access (0.4262), implying that economies with stronger credit availability tend to demonstrate more effective allocation of financial resources. In contrast, Inflation shows negative correlations with both Financial Resource Allocation (-0.1716) and Credit Access (-0.2252), suggesting that higher inflationary pressures are associated with reduced efficiency in resource distribution and diminished access to credit. These results underscore the complementary role of credit in enhancing financial allocation, while also highlighting the destabilizing effect of inflation on financial and economic performance across countries.

Table 3: Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
Credit access	1.05	0.949267
Inflation	1.05	0.949267
Mean VIF	1.05	

In Table 3, the Variance Inflation Factor (VIF) results indicate that both credit access and inflation have VIF values of 1.05, with tolerance values of 0.949. Since these values are far below the common threshold of 10, there is no evidence of multicollinearity between the independent variables. The mean VIF of 1.05 further confirms that the explanatory variables are independent of each other, ensuring the robustness of the regression analysis.

Table 4: Ordinary Least Squares

Financialr~n	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
Credit Access	0.050919	0.006869	7.41	0.000	0.037397 0.064442
Inflation	-0.005618	0.003888	-1.44	0.150	-0.013273 0.002036
_cons	3.869907	1.00362	3.86	0.000	1.894369 5.845444
Obs	285				
F-Stat	32.58				
Prob	0.0000				
R-Squared	0.1877				
Adj R-Squared	0.1819				

In Table 4, the OLS regression results demonstrate that credit access has a positive and highly significant effect on financial resource allocation, with a coefficient of 0.0509 ($p < 0.01$). This indicates that as credit access improves, financial resource allocation increases significantly. On the other hand, inflation shows a

negative but statistically insignificant relationship (coefficient = -0.0056 , $p = 0.150$), suggesting that inflation does not have a strong direct impact in this model. The constant term is significant at 3.87, reflecting the baseline level of financial resource allocation when other variables are held constant. Overall, the results emphasize the central role of credit access in shaping financial resource allocation, while inflation appears less influential in this context.

Table 5: Fixed Effect Model

Financialr~n	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
Credit Access	0.0496753	0.0070893	7.01	0.000	0.0357176 0.0636331
Inflation	-0.0069036	0.0042508	-1.62	0.106	-0.0152729 0.0014656
cons	4.17028	1.07098	3.89	0.000	2.061675 6.278885

In Table 5, the Fixed Effects Model results show that credit access has a positive and highly significant impact on financial resource allocation, with a coefficient of 0.0497 ($p < 0.01$), indicating that greater access to credit strongly enhances financial resource allocation across countries. In contrast, inflation has a negative coefficient (-0.0069) but is statistically insignificant ($p = 0.106$), suggesting its effect is weak in this framework. The constant term is significant at 4.17, reflecting the baseline allocation level. Variance components indicate that only about 1.35% of variation ($p = 0.0135$) is due to country-specific effects, and the F-test ($F = 0.25$, $p = 0.9975$) confirms that fixed effects are not jointly significant. This suggests that most variation is explained by observed predictors rather than unobserved country-specific factors. As shown in Table 5, the fixed effects outcomes found that the access to credit exerted a strong positive and highly significant impact on treasury allocation (Coef = 0.0497, $p < 0.01$), thus confirming that greater access to finance improves the efficiency of resource allocation among countries. Inflation, negatively correlated (-0.0069), proved statistically insignificant ($p = 0.106$), indicating it had barely any influence within this model. The variance decomposition ($p = 0.0135$) along with the outcome of the F-test seems to suggest that unobserved country-specific effects are negligible, largely meaning that differences in allocation can almost entirely be explained by observable factors, credit access most especially. From the point of view of policies, this calls for stronger credit markets, financial inclusion, and wider access to finance for firms and households, conditional on macroeconomic stability. Governments will be better placed to engineer improvements in financial allocation efficiency, thereby providing a sustainable ground for economic growth in different national settings.

CONCLUSION

This research aimed to explore how macroeconomic variables and access to credit affect the financial provision of resources in 19 nations between the years 2010 and 2024 based on World Development Indicators (WDI) data. Using OLS and Fixed Effects models of regression, the results invariably point to credit access being a pivotal and statistically significant factor in increasing the allocation of financial resources, to again substantiate that those economies with wider access to finance can allocate resources towards productive sectors and sustainable growth more efficaciously. In contrast, inflation showed a statistically insignificant negative effect, indicating that, whereas price instability could undermine efficiency, its direct impact on allocation was not strong in this sample. The fixed effects findings also showed that country-level unobserved heterogeneity had little effect, suggesting that observed structural determinants, especially credit access, are responsible for most of the variation in the allocation outcomes. More broadly, these results support the value of creating robust and inclusive credit systems as a major policy tool to enhance the efficiency of financial flows. Concurrently, macroeconomic stability via management of inflation is still critical to maintain investor confidence and protect the real value of financial resources. Through the integration of credit expansion policies with sound macroeconomic policies, governments and financial institutions can provide conditions that facilitate sustainable growth,

resource equitable distribution, and enhanced progress towards ESG and development goals. In the end, this study emphasizes that enabling credit access is not only an economic imperative but also a gateway to the realization of sustainability and long-term financing efficiency.

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