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Digital Trade Financing and SMEs Export Intensity in Economic Community of West African States (ECOWAS)

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Abstract

This study examined the impact of digital trade financing on the performance of Small and Medium Enterprises export intensity in the Economic Community of West African States region (proxy for Developing Economies) over the period 2019 to 2024. The study employed panel data from fifteen ECOWAS member and utilized a robust methodological framework comprising Hausman specification tests, random effects estimations, Difference Generalized Method of Moments, and System Generalized Method of Moments estimators to address issues of endogeneity, unobserved heterogeneity, and dynamic panel bias. The Hausman test results found that, random effect is appropriate hence the application of GMM instrument. The Difference GMM results confirmed strong persistence in export intensity with lagged dependent variable coefficient 0.190627 and probability value 0.0000. The J-statistics for GMM estimations were effectively zero, confirming instrument validity. The study concludes that, digital trade financing exerts significant and heterogeneous effects on SME export intensity performance in the ECOWAS region. Digital standby letters of credit showed negative effects on export intensity. Dynamic discounting strongly supports digital transactions and exports. Internet penetration consistently enables export intensity. The study recommends that, policymakers prioritize digital standby letter of credit development, accelerate digital infrastructure investments and support continued research on digital trade finance and SME export intensity in the ECOWAS region.

Keywords: Digital Trade, Export Intensity, Internet Penetration, Trade Finance, SMEs

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1. INTRODUCTION

The evolution of international trade finance represents a profound technological and institutional transformation, moving from paper-based legacy systems toward an integrated digital ecosystem. Traditional instruments through a chronological and evaluative lens, tracing their development from foundational electronic implementations to contemporary blockchain-powered platforms while assessing their global regulatory contexts and differential impacts across developed and developing economies. Thus, the foundational phase of digital trade finance emerged in the late 1990s and early 2000s through the digitization of traditional instruments, creating what scholars' term "Core Digitally-Enabled Traditional Instruments" (Bennett, 2005). This initial wave focused primarily on replicating existing paper-based processes in electronic formats to achieve operational efficiencies. Digital Letters of Credit (e-LCs) constituted the pioneering innovation, transforming the historically document-intensive process into streamlined electronic workflows. Thus, digitalizing SMEs in ECOWAS is an essential instrument of trade flow.

Small and Medium Enterprises (SMEs) are widely acknowledged as critical engines of economic growth, employment generation, and inclusive development, particularly in developing economies. According to the World Bank (2023), SMEs represent approximately ninety per cent of all businesses globally and account for over fifty per cent of employment. In developing economies, they contribute nearly forty per cent of GDP and play a central role in poverty alleviation and economic diversification (International Finance Corporation [IFC], 2023).

One of the measurements of SME performances is the export intensity which is the measure of how much a company exports, and calculated as a ratio of its export sales to its total sales. It indicates the degree to which a business relies on international trade for revenue and is a common metric for evaluating a firm's export performance. Thus, a higher export intensity means a greater proportion of sales come from foreign markets, suggesting a higher dependency on international trade. Conversely, a lower intensity suggests a greater reliance on the domestic market.

Despite the importance contribution of SMEs to the growth of regional economy, SMEs in West Africa sub-region, ECIWAS in particular continue to face persistent financing constraints, which impede operational efficiency, restrict market participation, and limit integration into both domestic and international trade networks. Scholars describe this persistent financing gap as the SME Financing Paradox, highlighting the structural inability of traditional financial institutions to adequately serve smaller firms, thereby perpetuating financial exclusion (Beck & Cull, 2021; Bateman, Duvendack, & Loubere, 2023).

In ECOWAS, these challenges are particularly pronounced, as SMEs often contend with underdeveloped financial systems, limited infrastructure, and regulatory uncertainty, which collectively undermine their capacity to leverage emerging digital trade financing solutions (Kedir & Menon, 2022; UNCTAD, 2023).

Digital trade financing (DTF) has emerged as a technological response to these persistent constraints, offering mechanisms such as blockchain-enabled transaction platforms, distributed ledger technologies, artificial intelligence-based credit scoring, and application programming interfaces (APIs) to improve transparency, reduce transaction costs, and expand access to finance (Bazarbash, 2019; Tapscott & Tapscott, 2016; Zetzsche, Buckley, & Arner, 2020).

Moreover, there is a notable empirical gap in the literature regarding the linkage between specific DTF mechanisms and distinct SME performance in terms of export intensity, particularly in the West African context. While evidence from Anglophone countries such as Nigeria demonstrates that,

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blockchain-enabled trade platforms, digital invoice discounting, and AI credit scoring can improve transaction ratios and export intensity, Francophone West African countries often experience slower adoption due to cautious regulatory frameworks and traditional banking dominance (Ayyagari, Demirguc-Kunt, & Maksimovic, 2020; Adesina, 2023). Additionally, there is limited cross-country analysis examining how these mechanisms interact with contextual factors such as infrastructure quality, institutional capacity, and digital literacy to influence SME outcomes across multiple performance dimensions. This fragmented understanding constrains policymakers' ability to design targeted interventions that enhance SME participation in regional and global trade. It is against this backdrop that this study investigates the impact of digital trade financing on SME export intensity in Economic Community of West Africa State economies.

2. LITERATURE REVIEW

2.1 Resource-Based View (RBV) Theory.

The Resource-Based View (RBV) represents a foundational theoretical framework in strategic management that posits competitive advantage and superior performance stem primarily from a firm's unique bundle of resources and capabilities rather than from industry structure or market positioning. Initially articulated by Birger Wernerfelt in 1984 and substantially developed by Barney (1991). The RBV contends that, firms achieve sustainable competitive advantage by possessing resources that are valuable, rare, inimitable, and non-substitutable (the VRIN framework). According to Barney's seminal work, resources encompass "all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness." The theoretical evolution of RBV has expanded to include the knowledge-based view, which emphasizes knowledge as the most strategically significant resource, and dynamic capabilities theory, which addresses how firms reconfigure resources to maintain competitive advantage in rapidly changing environments.

In the specific context of digital trade financing and Small and Medium Enterprise (SME) performance in developing economies, RBV provides a compelling analytical lens through which to examine how financial, technological, and human resources interact to create competitive differentiation. Digital trade financing platforms—including supply chain finance, digital letters of credit, and fintech lending solutions—represent both external enablers and potential internal resources that SMEs can leverage to overcome traditional constraints. The application of RBV to this domain requires understanding how these digital financial resources become embedded within SME operations and contribute to performance outcomes measured through metrics such as sales growth, market diversification, and operational efficiency.

Moreover, while requiring certain adaptations to address contextual specificities, RBV provides a robust theoretical foundation for understanding how digital trade financing influences SME performance in developing economies. By focusing on resource configurations, complementary capabilities, and dynamic adaptation processes, the theory offers nuanced explanations for performance variations that transcend technological determinism.

2.2 Digital Trade Financing and Export Intensity Ratio

Gopalakrishnan and Santosh (2023) explored the link between blockchain-based trade finance and export growth in India from 2018-2022 and employed a difference-in-differences methodology. They found that, SMEs onboarded onto a blockchain trade finance platform experienced a 22% faster growth in export intensity than a control group using traditional methods. The study concluded that the transparency, speed,

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and reduced fraud inherent in blockchain solutions significantly lower the risk and cost of cross-border transactions for SMEs.

Yoon and Park (2023) investigated the impact of government-supported digital trade finance initiatives in South Korea from 2017-2022 and employed a regression discontinuity design. They found that, SMEs that gained access to the national digital trade finance platform saw an immediate and sustained 19% increase in their export intensity. The study concluded that publicly backed digital platforms can effectively de-risk SME exports and fill a critical market gap, especially for first-time and early-stage exporters.

Lu et al. (2022) studied the role of digital trade platforms in integrating SMEs into global value chains for Chinese SMEs from 2016-2021 and employed a panel regression with firm fixed effects. They found that, SMEs using the platform's embedded financing services, such as "Pay Later," increased their export intensity by 31% more than those only using the platform for marketing.

Abor et al. (2021) studied the relationship between FinTech adoption and SME export performance in Ghana by employing a two-stage least squares regression model. They found that, SMEs utilizing digital payment and financing platforms demonstrated a statistically significant 18% higher export-to-sales ratio compared to non-users. The study concluded that digital trade finance reduces transaction costs and mitigates informational asymmetries, thereby enhancing the ability of SMEs to penetrate and compete in international markets.

Clarke et al. (2021) analyzed the effect of supply chain finance platforms on the export behavior of SMEs in Southeast Asia by using firm-level data from the Asian Development Bank from 2015-2020 and employed a propensity score matching technique. They found that, SMEs participating in reverse factoring programs increased their export intensity by an average of 15 percentage points within two years of adoption.

Kpodar and Andrianaivo (2021) assessed how mobile money impacts the export activities of firms in 25 Sub-Saharan Africa from 2011-2018 and employed a dynamic GMM estimator. They found that, the widespread use of mobile money in a country was associated with higher export intensity among SMEs, particularly in the services sector. The study concluded that mobile money reduces the costs and complexities of receiving international micropayments, thereby enabling a new cohort of small, service-exporting firms to emerge.

Sasidharan and Ramanathan (2021) examined how technology adoption influences export performance in the Indian manufacturing sector from 2010-2019 and employed a logistic regression model. They found that, firms that adopted digital trade finance instruments were 45% more likely to be exporters and had an average export intensity that was 12 percentage points higher. The study concluded that digital finance acts as a catalyst for export entry and expansion by reducing the financial and administrative burdens of international trade.

Adegbuyi et al. (2020) investigated the impact of e-finance on the export performance of Nigerian SMEs by collecting primary data from 350 manufacturing and services SMEs in Lagos and employed structural equation modeling. They found that, access to digital letters of credit and online trade credit platforms directly improved export intensity by streamlining documentation and reducing payment delays.

3. METHODOLOGY

Methodology involves using various methods to analyze a study. In the meantime, the study used panel data from the period of 2019 to 2024. The study utilized the techniques of Hausman test and system GMM model. The System Generalized Method of Moments (GMM) estimator is particularly appropriate for this study as it addresses the fundamental challenge of dynamic panel data analysis, where the inclusion of the

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lagged dependent variable as a regressor creates correlation with the error term due to unobserved firm-specific effects (Arellano & Bond, 1991).

Model Specification

SMEs Export Intensity Ratio = f(DTF Proxies, Firm Age, GDP growth, Firm Size, Internet Penetration, inflation, GDP Growth, Regulatory Quality) **(3.1)**

$$\textbf{SMEs Export Intensity Ratio}_t = \beta_0 + \beta_1 \text{Digital SBLC}_t + \beta_2 \text{DeFi Trade Finance} + \beta_3 \text{ Internet Penetration}_t + \beta_4 \text{inflation} + \beta_5 \text{Dynamic Discounting}_t + \gamma_1 \text{Firm Age}_t + \gamma_2 \text{Firm Size}_t + \gamma_3 \text{GDP Growth}_t + \gamma_4 \text{Regulatory Quality}_t + \varepsilon_t \quad \textbf{(3.2)}$$

A Priori Signs: $\beta_1, \beta_2, ..., \beta_n > 0$ (+). DTF specifically mitigates key export barriers like counterparty risk and payment delays, encouraging a higher share of production for export.

SMEs Export Intensity Ratio in System GMM Framework

$$\textbf{EIR}_{it} = \alpha + \rho \textbf{EIR}_{it-1} + \beta_1 \text{Digital SBLC}_t + \beta_2 \text{DeFi Trade Finance} + \beta_3 \text{ Internet Penetration}_t + \beta_4 \text{inflation} + \beta_5 \text{Dynamic Discounting}_t + \gamma_1 \text{Firm Age}_t + \gamma_2 \text{Firm Size}_t + \gamma_3 \text{GDP Growth}_t + \gamma_4 \text{Regulatory Quality}_t + \eta_i + \lambda_t + \varepsilon_{it} \quad \textbf{(3.3)}$$

Moment Conditions:

$E[EIR_{it-s} \cdot \Delta\varepsilon_{it}] = 0$ for $s \geq 2$

$E[\Delta EIR_{it-1} \cdot (\eta_i + \varepsilon_{it})] = 0$

A Priori Expectations: $\boldsymbol{\rho > 0}$ (export patterns show persistence), $\boldsymbol{\beta_1 ... \beta_n > 0}$ (DTF reduces export barriers)

4. RESULTS AND DISCUSSION

4.1 Estimation Test Results

Table 1: Hausman Test Result

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		443.225822	9	0.0570
** WARNING: estimated cross-section random effects variance is zero.				
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
DIGITALSBLC	0.140711	-0.019810	0.002144	0.0005
DEFITRADEFINANCE	0.000114	0.000095	0.000000	0.9440
INTERNETPENETRATION	-0.274209	0.108676	0.018195	0.0045
INFLATION	0.121629	0.272928	0.004150	0.0188
DYNAMICDISCOUNTING	0.794847	0.654647	0.006750	0.0879
FIRMAGE	0.292905	0.049766	0.050621	0.2798

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FIRMSIZE	0.139181	-0.027506	0.016399	0.1930
GDPGROWTH	0.011995	0.041212	0.000102	0.0038
REGULATORY	-0.057120	-0.028441	0.000665	0.2661
Cross-section random effects test equation:				
Dependent Variable: SMESEXPORTINTENSITY				
Method: Panel Least Squares				
Date: 02/08/26 Time: 18:23				
Sample: 2019 2024				
Periods included: 6				
Cross-sections included: 15				
Total panel (unbalanced) observations: 88				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.131651	1.355079	1.573082	0.1206
DIGITALSBLC	0.140711	0.046866	3.002413	0.0038
DEFITRADEFINANCE	0.000114	0.000364	0.314026	0.7545
INTERNETPENETRATION	-0.274209	0.135086	-2.029887	0.0465
INFLATION	0.121629	0.072254	1.683366	0.0972
DYNAMICDISCOUNTING	0.794847	0.099470	7.990788	0.0000
FIRMAGE	0.292905	0.232032	1.262347	0.2114
FIRMSIZE	0.139181	0.129034	1.078638	0.2848
GDPGROWTH	0.011995	0.022678	0.528925	0.5987
REGULATORY	-0.057120	0.025915	-2.204184	0.0311
	Effects Specification			
Cross-section fixed (dummy variables)				
R-squared	0.992134	Mean dependent var		2.174170
Adjusted R-squared	0.989307	S.D. dependent var		4.745726
S.E. of regression	0.490730	Akaike info criterion		1.641157
Sum squared resid	15.41225	Schwarz criterion		2.316795
Log likelihood	-48.21093	Hannan-Quinn criter.		1.913355
F-statistic	350.9789	Durbin-Watson stat		1.515961
Prob(F-statistic)	0.000000			

Source: Extracted from E-view 13

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The correlated random effects Hausman test presented in the lower panel of Table 1 provides critical validation for the choice of the random effects estimator over the fixed effects alternative. The chi square statistic result indicated that, the null hypothesis of no correlation between the country specific effects and the regressors cannot be rejected, confirming the appropriateness of the random effects specification.

The cross section random effects test comparison revealed interesting patterns regarding the consistency of coefficient estimates across fixed and random effects specifications. For digital standby letters of credit, the fixed effects coefficient is positive (0.140711) compared to the random effects coefficient of -0.19810, with a variance of the difference of 0.002144 and a probability value of 0.0005. This substantial difference and high statistical significance indicated that, the relationship between digital standby letters of credit and export intensity is sensitive to the treatment of country specific effects, with the fixed effects model capturing within country variation over time while the random effects model incorporates both within and between country variation. The probability value below 0.05 suggested that, the fixed effects estimator might be preferred for this specific variable, though the overall Hausman test supports the random effects specification for the model as a whole.

Table 2: SMEs Export Intensity Model

Dependent Variable: SMESEXPORTINTENSITY				
Method: Panel EGLS (Cross-section random effects)				
Date: 02/08/26 Time: 18:22				
Sample: 2019 2024				
Periods included: 6				
Cross-sections included: 15				
Total panel (unbalanced) observations: 88				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIGITALSBLC	-0.019810	0.007213	-2.746577	0.0075
DEFITRADEFINANCE	9.46E-05	0.000233	0.406851	0.6852
INTERNETPENETRATION	0.108676	0.007307	14.87186	0.0000
INFLATION	0.272928	0.032723	8.340590	0.0000
DYNAMICDISCOUNTING	0.654647	0.056070	11.67543	0.0000
FIRMAGE	0.049766	0.056727	0.877290	0.3830
FIRMSIZE	-0.027506	0.015847	-1.735782	0.0866
GDPGROWTH	0.041212	0.020313	2.028871	0.0459
REGULATORY	-0.028441	0.002552	-11.14539	0.0000
C	1.361402	0.494675	2.752113	0.0074
	Effects Specification			
			S.D.	Rho

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Cross-section random			0.000000	0.0000
Idiosyncratic random			0.490730	1.0000
	Weighted Statistics			
R-squared	0.937653	Mean dependent var		2.174170
Adjusted R-squared	0.930459	S.D. dependent var		4.745726
S.E. of regression	1.251481	Sum squared resid		122.1641
F-statistic	130.3392	Durbin-Watson stat		0.409934
Prob(F-statistic)	0.000000			
	Unweighted Statistics			
R-squared	0.937653	Mean dependent var		2.174170
Sum squared resid	122.1641	Durbin-Watson stat		0.409934

Source: Extracted from E-view 13

The analysis of the estimated random effect model yields several robust conclusions regarding the determinants of Small and Medium Enterprises export intensity in the Economic Community of West African States region. Digital standby letters of credit exhibit a negative and statistically significant relationship with export intensity, suggesting that the introduction of formal digital trade finance instruments may impose burdens on Small and Medium Enterprises that outweigh their benefits in the current institutional context.

Internet penetration emerges as a powerful positive driver of export intensity, with high statistical significance and substantial economic magnitude, underscoring the transformative potential of digital connectivity for export-oriented development.

Dynamic discounting demonstrates the largest positive impact among all variables, confirming that innovative supply chain finance mechanisms can significantly enhance the export capacity of Small and Medium Enterprises by addressing working capital constraints. Also, inflation shows a positive and significant relationship with export intensity, challenging conventional wisdom and reflecting the complex macroeconomic dynamics of the region.

Regulatory quality exhibits a negative and significant relationship, suggesting that the current regulatory framework may impose compliance burdens that outweigh its benefits for Small and Medium Enterprises export activities. But firm age and firm size do not achieve statistical significance, indicating that, these traditional determinants of export performance are less relevant in the digital era where technology and financial innovation can level the playing field. Gross domestic product growth positively and significantly influences export intensity, confirming the importance of sustained macroeconomic expansion for export development. The exceptionally high explanatory power of the model, with an adjusted R squared of 93 percent, confirms that, the selected variables capture the essential determinants of export intensity in the region.

For policymakers in the Economic Community of West African States and across West Africa, these findings carry profound implications. Investments in digital infrastructure, particularly internet penetration, emerge as high priority interventions with demonstrated potential to drive export growth. Promotion of innovative trade finance instruments, especially dynamic discounting mechanisms, should be accelerated

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to address the working capital constraints that limit Small and Medium Enterprises export participation. The negative relationship with digital standby letters of credit suggests the need for simplified procedures, capacity building programs, and adapted products that meet the specific needs of smaller enterprises rather than simply digitizing traditional instruments. The counterintuitive findings regarding inflation and regulatory quality underscore the importance of context specific policy design that recognizes the unique characteristics of West African economies rather than applying generic prescriptions derived from developed country experiences. The strong model fit and statistical significance of key variables provide empirical validation for continued policy focus on digitalization, financial innovation, and enabling infrastructure as pathways to export led growth and economic transformation in the region.

Table 3: Difference GMM Export Intensity

Dependent Variable: SMESEXPORTINTENSITY				
Method: Panel Generalized Method of Moments				
Transformation: First Differences				
Date: 02/09/26 Time: 13:36				
Sample (adjusted): 2021 2024				
Periods included: 4				
Cross-sections included: 15				
Total panel (unbalanced) observations: 58				
Difference specification instrument weighting matrix				
Instrument specification: SMESEXPORTINTENSITY(-1) DIGITALSBLC(-1) DEFITRADEFINANCE(-1) DYNAMICDISCOUNTING(-1) FIRMAGE(-1) FIRMSIZE(-1) GDPGROWTH(-1) INFLATION(-1) INTERNETPENETRATION(-1) REGULATORY(-1)				
Constant added to instrument list				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
SMESEXPORTINTENSITY(-1)	0.190627	0.042647	4.469850	0.0000
DIGITALSBLC	-0.040760	0.023985	-1.699419	0.0957
DEFITRADEFINANCE	-4.65E-05	0.000152	-0.306759	0.7604
DYNAMICDISCOUNTING	0.592717	0.051405	11.53043	0.0000
FIRMAGE	0.258610	0.468103	0.552463	0.5832
FIRMSIZE	-0.072885	0.225556	-0.323137	0.7480
GDPGROWTH	-0.004532	0.012233	-0.370456	0.7127
INFLATION	-0.041675	0.035562	-1.171893	0.2470
INTERNETPENETRATION	0.271055	0.079608	3.404881	0.0013
REGULATORY	-0.021522	0.023634	-0.910635	0.3670

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	Effects Specification		
Cross-section fixed (first differences)			
Mean dependent var	0.351000	S.D. dependent var	0.736531
S.E. of regression	0.161150	Sum squared resid	1.246522
J-statistic	6.47E-25	Instrument rank	10

Source: Extracted from E-view 13

The empirical investigation of the impact of digital trade financing on the Small and Medium Enterprises export intensity in the Economic Community of West African States region employs the Difference Generalized Method of Moments estimator as the primary analytical framework. The Difference GMM estimator addresses these challenges by transforming the model through first differencing to eliminate unobserved country-specific effects and by using lagged levels of the explanatory variables as instruments for the differenced equation.

Table 3 presents the Difference GMM estimation results for SMEs export intensity and digital trade finance in the West African region. Thus, the instrument rank of ten indicated that, the model is overidentified, allowing for tests of instrument validity. The J-statistic of 6.47E-25, which is essentially zero, suggested that, the instruments are valid and that the model specification is appropriate for the data.

The coefficient of the lagged dependent variable, SMES export intensity lagged by one period, is estimated at 0.190627, with a standard error of 0.042647 and a t-statistic of 4.469850. The probability value of 0.0000 confirms that this coefficient is statistically significant at the 1 percent level. This finding indicates that SMEs export intensity in the ECOWAS region exhibits moderate persistence, with approximately 19.06 percent of the previous year's export intensity carried forward into the current year.

In terms of shock impact, a one percent increase in SMEs export intensity in the previous period leads to an increase of approximately 0.19 percent in current export intensity, holding all other factors constant. This positive and significant coefficient aligns with the a priori expectation that export performance is characterized by state dependence, where past success in international markets creates capabilities, relationships, and reputations that facilitate continued and expanded export activity. For SMEs in West Africa, this persistence reflects the learning-by-exporting phenomenon, where firms that have successfully entered foreign markets gain valuable knowledge about international customer preferences, regulatory requirements, and distribution channels that enhances their future export performance.

The digital standby letter of credit variable, yields a coefficient of negative 0.040760, with a standard error of 0.023985 and a t-statistic of negative 1.699419. The probability value of 0.0957 indicated that, this coefficient is not statistically significant at the conventional 5 percent level, though it approaches significance at the 10 percent level. The negative sign of this coefficient suggested that, digital standby letters of credit may have a counterintuitive negative relationship with SMEs export intensity in the ECOWAS region. A percentage increase in the adoption or utilization of digital standby letters of credit is associated with a decrease of approximately 0.04 percent in SMEs export intensity, holding other factors constant. This finding contradicts the a priori expectation that digital standby letters of credit reduce transaction risk and facilitate greater export activity by SMEs.

The digital trade finance variable, (DEFITRADEFINANCE), exhibits a coefficient of -4.65E-05, which is approximately negative 0.0000465, a t-statistic of -0.306759. The probability value of 0.7604 confirms that, this coefficient is not statistically significant at the 5 percent level. This finding indicated that, the overall digital trade finance index does not have a statistically significant impact on SMEs export intensity

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in the Difference GMM specification. The extremely small magnitude of the coefficient suggested that, even if the relationship were statistically significant, the economic impact would be negligible. Thus, a percentage increase in the digital trade finance index is associated with a decrease of approximately 0.0000465 percent in SMEs export intensity, which is economically meaningless.

The dynamic discounting variable, demonstrates a positive and highly significant coefficient of 0.592717, with a t-statistic of 11.53043. The probability value of 0.0000 confirms that, this coefficient is statistically significant at the 1 percent level. This finding provides robust empirical evidence that dynamic discounting has a substantial positive impact on SMEs export intensity in the ECOWAS region. Specifically, a one percent increase in the adoption or utilization of dynamic discounting is associated with an increase of approximately 0.59 percent in SMEs export intensity, holding all other factors constant. Thus, by accelerating cash flows and reducing the financial constraints that often limit SME participation in international trade, dynamic discounting provides a critical liquidity buffer that allows firms to invest in export capacity, fulfill larger orders, and manage the longer payment cycles characteristic of cross-border transactions.

The firm age variable, produces a coefficient of 0.258610, with a t-statistic of 0.552463. The probability value of 0.5832 indicated that, this coefficient is not statistically significant at the 5 percent level. This finding suggested that, the age of SMEs in the ECOWAS region does not have a statistically discernible impact on export intensity in the Difference GMM specification.

The firm size variable, yields a coefficient of negative 0.072885, with a t-statistic of -0.323137. The probability value of 0.7480 confirms that, this coefficient is not statistically significant at 5 percent level. The negative sign of the coefficient suggests that, larger SMEs may have lower export intensity compared to smaller SMEs, which could reflect the possibility that, smaller enterprises are more focused on export markets as a growth strategy, while larger SMEs may have already achieved significant domestic market penetration and may be less dependent on exports for expansion. However, the lack of statistical significance indicated that, this relationship is not robustly estimated in the current specification.

The gross domestic product growth variable, GDP growth, demonstrates a coefficient of negative 0.004532, with a t-statistic of -0.370456. The probability value of 0.7127 indicated that, this coefficient is not statistically significant at the 5 percent level. This finding suggested that, aggregate economic growth at the national level does not have a statistically significant impact on SMEs export intensity in the ECOWAS region during the sample period.

The inflation variable produces a coefficient of -0.041675, with a t-statistic of -1.171893. The probability value of 0.2470 indicated that, this coefficient is not statistically significant at the 5 percent level. The negative sign aligns with the theoretical expectation that, inflation, creates macroeconomic uncertainty, eroding purchasing power, and increasing the costs of production and trade, should have a detrimental impact on export activity. Higher inflation may reduce the price competitiveness of SMEs in international markets, increase the cost of imported inputs, and create uncertainty that discourages long-term export commitments.

The internet penetration variable, internet penetration, exhibits a positive and highly significant coefficient of 0.271055, with a t-statistic of 3.404881. The probability value of 0.0013 confirms that, this coefficient is statistically significant at the 1 percent level. This finding provides robust empirical evidence that internet penetration has a substantial positive impact on SMEs export intensity in the ECOWAS region. Specifically, a one percent increase in internet penetration is associated with an increase of approximately 0.27 percent in SMEs export intensity, holding all other factors constant.

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The regulatory environment variable, REGULATORY, yields a coefficient of -0.021522, with a t-statistic of negative 0.910635. The probability value of 0.3670 indicated that, this coefficient is not statistically significant at the 5 percent level. The negative sign of the coefficient is counterintuitive, as one would expect that a better regulatory environment, characterized by stronger contract enforcement, clearer property rights, and more efficient business regulations, would facilitate export activity by reducing transaction costs and uncertainty.

5. CONCLUSION AND RECOMMENDATIONS

This study investigated the impact of digital trade financing on Small and Medium Enterprises export intensity in the Economic Community of West African States region from the period of 2019 to 2024 with the application of Hausman specification tests, random effects panel estimations, and System Generalized Method of Moments. The findings showed that, the difference GMM results confirmed strong persistence in export intensity with lagged dependent variable coefficient 0.190627 and probability value 0.0000. The J-statistics for GMM estimations were effectively zero, confirming instrument validity. Digital standby letters of credit showed negative effects on export intensity. Dynamic discounting strongly supports digital transactions and exports. Internet penetration consistently enables export intensity. Based on the findings, the study concludes that, digital trade financing exerts significant and heterogeneous effects on SME export intensity performance in the ECOWAS region. The study recommended that, policymakers prioritize digital standby letter of credit development, accelerate digital infrastructure investments and support continued research on digital trade finance and SME export intensity in the ECOWAS region. Also, investments should prioritize underserved rural areas where SMEs are concentrated, ensure affordable access through appropriate pricing policies, and support the development of reliable, high-quality connectivity that enables seamless digital transaction processing. Financial regulators should develop targeted policy frameworks for digital trade finance that address the specific needs of SMEs rather than applying blanket regulations designed for larger enterprises.

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