



CONFLICT, INSTITUTIONAL FRAGILITY AND ENTREPRENEURIAL RESILIENCE IN AFRICA: CAN FINANCIAL INCLUSION CUSHION BUSINESS-CREATION SHOCKS?

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ABSTRACT

This study investigates how armed conflict and institutional-security fragility relate to formal business creation in Africa and whether financial inclusion cushions conflict-related shocks. The empirical evidence comes from a country-year panel assembled from the World Bank Entrepreneurship Database, the Uppsala Conflict Data Program Georeferenced Event Dataset, the Worldwide Governance Indicators, the World Development Indicators and Global Findex. The estimating sample contains 371 observations covering 45 African economies between 2015 and 2024. Formal entry is captured by the density of newly registered limited-liability companies, while conflict exposure is expressed as fatalities per 100,000 people. Institutional-security fragility combines political stability with government effectiveness, and the financial-access indicator is constructed from ATM and commercial-bank branch density. Two-way fixed effects form the main specification. The analysis is then repeated under different timing and modelling choices, including distributed lags, country-specific trends, first differences, predetermined finance, alternative conflict measures, Poisson estimation, Findex validation and leave-one-country-out exercises. One finding is notably persistent across these tests: greater institutional-security fragility is associated with weaker formal business creation. The coefficient on annual conflict intensity is far less stable after country effects, year effects and macroeconomic conditions are taken into account. The proposed buffering role of finance is equally uncertain. Although one dynamic specification produces a favourable interaction, that result disappears in the more demanding checks. For the economies and years observed here, formal entrepreneurial resilience is thus more consistently related to the institutional-security environment than to a wider conventional financial-access network.

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1.0 Introduction

Armed conflict alters the calculations on which entrepreneurs base entry, investment and formalisation decisions. The consequences are often concrete: equipment can be destroyed, employees and customers displaced, transport routes interrupted and payment arrangements disrupted. Enforcement of contracts may also become less dependable. Such conditions make regulated activities that require visible and sustained commitments more difficult to undertake. Entrepreneurial activity, however, does not necessarily disappear. Disruption and scarcity may create small market openings that are taken up through necessity-based or informal ventures. Recent evidence from emerging economies reflects this mixed response, while research on post-conflict recovery indicates that the return of business activity depends heavily on institutions, timing and local ecosystem conditions (Salvi et al., 2025; Moritz et al., 2024). Entrepreneurial resilience should therefore be assessed without treating informal survival activity and the formation of registered firms as interchangeable outcomes.

The distinction has particular relevance in African economies. Large informal sectors exist alongside uneven financial development, recurrent insecurity and substantial differences in state capacity. Once a venture is registered, it becomes more directly exposed to tax rules, legal requirements, administrative procedures and formal financial institutions than many informal businesses are. The literature likewise shows that formal and informal entrepreneurship react differently to institutional and policy conditions (Laing et al., 2022). Evidence from Nigeria also cautions against reading a large self-employment sector as proof of structural movement toward innovative formal entrepreneurship (Dimova & Pela,

2018). Accordingly, the number of newly registered limited-liability companies is used here as a more institution-dependent measure of formal entry than general self-employment.

The empirical structure of the paper follows three conditions that may shape formal entry. Conflict intensity captures the scale of violent disruption relative to population. Institutional-security fragility reflects the quality of the political and administrative setting through political stability and government effectiveness. Financial inclusion is represented mainly by access infrastructure - ATM and commercial-bank branch density - with Global Findex account ownership providing a separate demand-side check. New limited-liability-company density serves as the dependent variable. This arrangement separates the direct associations of conflict and institutional fragility from the distinct question of whether financial access alters the relationship between conflict and formal entry.

The unresolved issue is whether conventional financial inclusion offers dependable protection for formal business formation when violent conflict occurs. A large part of the conflict-and-entrepreneurship literature is concerned with informal or necessity-driven activity. Research on financial inclusion, on the other hand, has more often examined productivity, financing constraints and the performance of established firms than the behaviour of new registrations under insecurity (Konte & Tetteh, 2023; Simba et al., 2024; Salvi et al., 2025). Institutional studies add another dimension, since institutional quality is repeatedly associated with productive entrepreneurship, yet security conditions and administrative capacity are commonly examined apart from direct conflict exposure (Audretsch et al., 2024). Taken together, these strands leave limited multi-

country African evidence on how conflict, institutional fragility and finance jointly relate to formal business entry.

The country-year panel is reconstructed from the underlying source files, and peaceful years remain in the data as zero-conflict observations. The analysis begins with the direct relationships before considering whether finance or institutional fragility changes them. Specifically, the models examine conflict in relation to new-business density, institutional-security fragility in relation to formal entry, and the two interaction terms linking conflict respectively with finance and fragility. These estimates address four practical questions: whether formal entry is lower when conflict intensifies, whether weaker institutions are associated with lower entry, whether access to finance cushions disruption, and whether institutional weakness makes any conflict-related penalty more pronounced.

The study departs from much of the earlier work in several respects. First, event-level conflict information is linked to a formal entry measure rather than to broad self-employment or informal entrepreneurship. Second, the country panel is rebuilt directly from the international source files and retains peaceful country-years, making the treatment of conflict exposure transparent. Third, physical financial-access infrastructure is examined separately from behavioural account ownership instead of collapsing both into a single measure of financial inclusion. Fourth, the moderation claims are assessed across several specifications instead of being inferred from one favourable interaction coefficient. This approach provides a more qualified account of entrepreneurial resilience under conflict and institutional fragility.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Armed Conflict Intensity and Entrepreneurial Resilience

Armed-conflict intensity refers to the severity of organised violence experienced by an economy during a particular period. The measure used here is constructed from the Uppsala Conflict Data Program (UCDP) Georeferenced Event Dataset. Best-estimate fatalities are related to population and then log-transformed. Several mechanisms can connect conflict to formal business entry. Destruction of assets, displacement, market fragmentation, higher transaction costs and greater uncertainty can all make registration and investment less attractive. These possibilities are consistent with evidence that violent conflict changes entrepreneurial incentives and may divert activity toward necessity-based or informal forms (Salvi et al., 2025; Rugina & Klyver, 2025).

Entrepreneurial resilience describes the capacity of entrepreneurial activity to persist, adapt or recover under adverse conditions. In a post-conflict setting, resilience may involve delayed registration, reconstruction demand, return migration or renewed formalisation once conditions improve. Moritz et al. (2024) show that post-conflict entrepreneurship is highly contingent on institutions and ecosystem conditions, while Fathallah et al. (2026) emphasise the importance of institutional scaffolding and support organisations in fragile post-war economies. For this study, resilience is therefore inferred from the behaviour of formal business creation as security and institutional conditions change; it is not treated as a

favourable outcome that can be presumed beforehand.

2.1.2 Institutional-Security Fragility

Institutional-security fragility refers to weakness in the political and administrative arrangements that make economic exchange predictable. The construct combines the Worldwide Governance Indicators (WGI) measures of political stability and absence of violence/terrorism with government effectiveness, and is coded so that higher values indicate greater fragility. Formal entrepreneurship is particularly exposed to institutional conditions because registration, taxation, property rights and contract enforcement depend on functioning public systems (Acs et al., 2018; Audretsch et al., 2024).

The political-stability component is conceptually close to conflict because it includes perceptions of violence and terrorism. The composite is therefore not interpreted as a pure indicator of administrative capacity. Government effectiveness and political stability are also estimated separately so that the broader institutional-security environment can be distinguished from the signals carried by its individual components.

2.1.3 Financial Inclusion and Financial-Access Infrastructure

Financial inclusion refers broadly to the availability and use of formal financial services. The main annual measure used in this study is more narrowly characterised as financial-access infrastructure because it combines automated teller machine density with commercial-bank branch density. It therefore measures the physical reach of formal finance rather than the full behavioural meaning of financial inclusion. Global Findex account ownership is analysed

separately to assess whether the conclusions differ when financial participation is measured from the demand side.

Financial access could support resilience by maintaining payment, saving, liquidity and working-capital channels. African studies suggest that conventional financial services and mobile money can be mutually reinforcing in the operation of firms. Yet access remains uneven, and collateral requirements and institutional weaknesses continue to exclude many small and medium-sized enterprises (Konte & Tetteh, 2023; Simba et al., 2024). This evidence gives some basis for expecting finance to soften the effects of disruption. What this evidence does not establish is whether the ordinary availability of branches, ATMs and related access channels is enough to keep new firms entering the formal sector when conflict disrupts normal economic activity.

2.1.4 Formal Business Creation

Formal business creation, as used in this paper, means entry into the regulated economy through legal registration. The measure is the World Bank's new-business density: newly registered limited-liability companies relative to the working-age population. It is intentionally narrower than self-employment, household enterprise activity or informal entrepreneurship. That narrower focus is necessary because the institutional demands attached to registration are part of the phenomenon being studied. Prior evidence also shows that formal and informal entrepreneurship can respond differently to policy and institutional conditions (Laing et al., 2022).

2.2 Theoretical Review

Institutional Theory offers the principal explanation for why the institutional environment should matter for formal entry. Formal rules and the arrangements used to enforce them shape the degree of uncertainty surrounding exchange (North, 1990; Scott, 2014). For a prospective formal entrepreneur, weak political stability, ineffective administration and unpredictable registration or exchange procedures raise both expected cost and uncertainty. The theoretical implication is straightforward: as institutional-security fragility rises, formal business creation should tend to weaken.

A resilience perspective adds a second consideration. Resilience is not the absence of disruption; it concerns the ability to continue, adjust or recover despite it. In conflict-affected economies, that ability depends partly on whether basic institutional and financial functions still work - firms must be able to register, transact and obtain liquidity (Moritz et al., 2024; Fathallah et al., 2026). Financial access is consequently treated as a potential buffer rather than as an outcome in its own right. If payment and financial channels remain usable, conflict may have a smaller association with formal entry. Institutional-security fragility should work in the opposite direction because it reduces the institutional support available when violence increases uncertainty.

The combined framework therefore predicts direct adverse effects of conflict and institutional-security fragility on formal business creation, a positive conflict-by-finance interaction, and a negative conflict-by-fragility interaction. The theoretical contribution lies in examining these mechanisms simultaneously and testing whether the proposed moderation

relationships remain stable across alternative specifications.

2.3 Empirical Review

Empirical research shows that conflict can have heterogeneous entrepreneurial consequences. Salvi et al. (2025) report that armed conflict may stimulate informal entrepreneurship in emerging economies through demand substitution and resource reallocation. Rugina and Klyver (2025) similarly show that wartime business formation can reflect necessity, agency and community motives. These findings do not imply that formal entry increases under conflict; rather, they reinforce the need to distinguish the type of entrepreneurship being measured. Moritz et al. (2024) find that entrepreneurship in post-conflict economies contributes to recovery only under particular institutional and ecosystem conditions.

Institutional evidence is more consistent. Acs et al. (2018) and Bosma et al. (2018) link institutional configurations to entrepreneurial quality and economic outcomes, while Audretsch et al. (2024) show that institutional quality shapes entrepreneurial ecosystems and the productivity of entrepreneurial activity. Queissner et al. (2025), however, find heterogeneous relationships across ecosystem elements, suggesting that institutional influences should not be treated as mechanically uniform. These studies support the inclusion of institutional-security fragility while also motivating the component-level robustness analysis.

The financial evidence is also mixed. Konte and Tetteh (2023) show that traditional finance and mobile money can complement one another in improving African firm productivity. Simba et al. (2024) demonstrate that involuntary financial exclusion remains substantial among African

small and medium-sized enterprises. These studies, however, are concerned mainly with established firms and access constraints rather than with whether financial access changes the relationship between armed conflict and new formal registrations. The difference in both outcome and mechanism leaves a distinct empirical gap.

Viewed together, the literature shows that conflict, institutions and finance are all relevant to entrepreneurship, but offers limited evidence on how they jointly relate to formal business creation in a multi-country African panel. The present study addresses this gap by linking conflict exposure to formal new-business density, modelling institutional-security fragility directly, and examining whether financial access and fragility alter the conflict-entry relationship.

2.4 Hypotheses and Conceptual Framework

H1: Higher armed-conflict intensity is associated with lower formal new-business density.

H2: Greater institutional-security fragility is associated with lower formal new-business density.

H3: Financial access positively moderates the relationship between armed conflict and formal business creation.

H4: Institutional-security fragility negatively moderates the relationship between armed conflict and formal business creation.

Figure 1 presents the conceptual framework. The model treats armed conflict intensity and institutional-security fragility as direct predictors of formal business creation. Financial-access infrastructure is specified as a moderator of the conflict-entry relationship, while institutional-security fragility is also tested as a moderator. Macroeconomic controls are included to reduce confounding from income, growth and inflation. The figure also shows the operational indicators used for each construct.

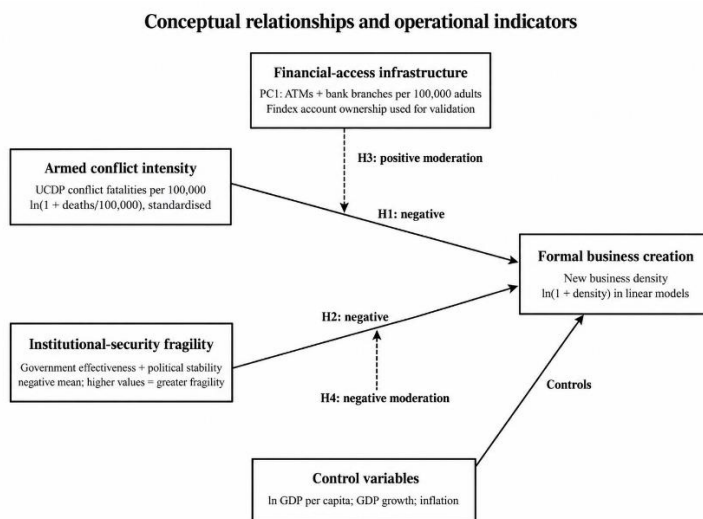


Figure 1. Conceptual framework and hypothesised relationships. Source: Author's conceptualisation from study variables and data sources.

3.0 Methodology

3.1 Research Design and Study Period

The study adopts a quantitative longitudinal panel design because the research questions concern changes within African economies over time and require simultaneous control for unobserved country-specific characteristics and common year shocks. A cross-sectional design would not distinguish persistent country characteristics from within-country changes, while a purely time-series design would not exploit cross-country variation. The panel approach is therefore appropriate for estimating associations between conflict, institutional-security fragility, financial access and formal business creation while controlling for country and year fixed effects.

The study covers 2015-2024. This period was selected because it provides the broadest recent overlap across the World Bank Entrepreneurship Database, the UCDP Georeferenced Event Dataset version 26.1, Worldwide Governance Indicators, World Development Indicators and the financial-access series needed to construct the panel. The window also captures pre-pandemic, pandemic and post-pandemic years and several conflict episodes across Africa, while avoiding the severe loss of observations that would result from extending the period beyond the common data availability of the core variables.

3.2 Data Sources, Sample Construction and Analytical Unit

Formal business creation is drawn from the World Bank Entrepreneurship Database. Conflict data come from the Uppsala Conflict Data Program (UCDP) Georeferenced Event Dataset version 26.1. Government effectiveness and political stability are obtained from the Worldwide Governance Indicators (WGI), while financial-access and macroeconomic controls are obtained from the World Development Indicators (WDI). Global Findex account ownership is used for validation in available survey years.

The analytical unit is the country-year. Reconstructing the panel directly from the source files yields 371 complete country-year observations from 45 African economies. All African economies with usable business-formation, financial-access, governance and macroeconomic observations are retained; countries are not excluded because they are peaceful or financially advanced. Event-level UCDP fatalities are aggregated by country-year, and country-years without a recorded UCDP event are coded as zero conflict. The distributed-lag specification contains 326 observations from 44 economies because a lag requires a prior-year observation. The Findex validation contains 87 country-wave observations from 37 economies.

To support reproducibility, the source data, processed analytical files and replication materials are archived in the Zenodo repository associated with DOI 10.5281/zenodo.22216445.

3.3 Measurement of Variables

Table 1 summarises the operational definition, transformation and primary source of each variable used in the analysis.

Table 1. Variable operationalisation and data sources

Construct	Operational measure	Transformation / interpretation	Primary source
Formal business creation	New business density; number of new limited-liability companies	$\ln(1 + \text{density})$ in linear models; new LLC count in PPML	World Bank Entrepreneurship Database
Conflict intensity	Best-estimate UCDP fatalities per 100,000 population	$\ln(1 + \text{deaths}/100,000)$, then standardised	UCDP GED v26.1 + WDI population
Financial-access infrastructure	ATMs and commercial-bank branches per 100,000 adults	First principal component of log-transformed access indicators	WDI
Institutional-security fragility	Government effectiveness and political stability	Negative mean of WGI estimates; higher = more fragile	WGI
Income level	GDP per capita, constant 2015 US\$	Natural logarithm	WDI
Economic growth	Annual real GDP growth	Percentage	WDI
Inflation	Consumer-price inflation	Percentage; upper values capped at 200 in baseline	WDI
Findex validation	Adults with an account	Standardised account ownership in survey years	Global Findex

Note. ATM = automated teller machine; GDP = gross domestic product; LLC = limited-liability company; PPML = Poisson pseudo-maximum likelihood; UCDP GED = Uppsala Conflict Data Program Georeferenced Event Dataset; WDI = World Development Indicators; WGI = Worldwide Governance Indicators.

Financial-access infrastructure is obtained from the first principal component of log-transformed ATM and commercial-bank branch densities. In the final sample, the first component explains 92.31% of the common variance and loads approximately equally on both indicators. Institutional-security fragility is the negative average of government effectiveness and political stability, so larger values indicate weaker institutional-security conditions. Because the political-stability measure partly incorporates violence and terrorism perceptions, the two WGI components are also analysed separately.

3.4 Model Specification

The functional relationship is specified as follows:

$$FBC_{it} = f(CONF_{it}, FIN_{it}, FRAG_{it}, CONF_{it} \times FIN_{it}, CONF_{it} \times FRAG_{it}, GDPPC_{it}, GDPG_{it}, INF_{it}) \quad (1)$$

where FBC denotes formal business creation, CONF armed-conflict intensity, FIN financial-access infrastructure, FRAG institutional-security fragility, GDPPC gross domestic product per capita, GDPG real GDP growth and INF inflation. The baseline econometric model is:

$$\ln(1 + FBC_{it}) = \beta_0 + \beta_1 CONF_{it} + \beta_2 FIN_{it} + \beta_3 FRAG_{it} + \beta_4 (CONF_{it} \times FIN_{it}) + \beta_5 (CONF_{it} \times FRAG_{it}) + \beta_6 \ln GDPPC_{it} + \beta_7 GDPG_{it} + \beta_8 INF_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (2)$$

In Equation (2), α_i represents country fixed effects, λ_t represents year fixed effects and ε_{it} is the idiosyncratic error term. The two-way fixed-effects specification identifies associations from within-country variation after controlling for time-invariant country characteristics and common year shocks. Country-clustered standard errors are used to allow arbitrary serial

correlation and heteroskedasticity within economies.

A distributed-lag model adds one-year-lagged conflict and its interactions to distinguish immediate from delayed associations:

$$\ln(1 + FBC_{it}) = \beta_0 + \beta_1 CONF_{it} + \beta_2 FIN_{it} + \beta_3 FRAG_{it} + \beta_4 (CONF_{it} \times FIN_{it}) + \beta_5 (CONF_{it} \times FRAG_{it}) + \beta_9 CONF_{i,t-1} + \beta_{10} (CONF_{i,t-1} \times FIN_{it}) + \beta_{11} (CONF_{i,t-1} \times FRAG_{it}) + \text{controls} + \alpha_i + \lambda_t + u_{it} \quad (3)$$

Additional specifications introduce country-specific linear trends, lag financial access by one year, estimate first differences, replace the continuous conflict measure with binary and winsorised alternatives, decompose the institutional index, and estimate new limited-liability-company counts using a Poisson model with log working-age population as an exposure offset. These models are treated as robustness checks rather than as substitutes for the baseline specification.

3.5 A Priori Expectations, Estimation Procedure and Decision Rule

Based on the theoretical framework, β_1 is expected to be negative because greater conflict intensity should reduce formal business creation; β_2 is expected to be positive because stronger financial access should support formal entry; β_3 is expected to be negative because greater institutional-security fragility should discourage formalisation; β_4 is expected to be positive if financial access cushions the adverse conflict relationship; and β_5 is expected to be negative if fragility amplifies the conflict penalty. Higher income and real GDP growth are expected to support formal entry, while inflation is expected to have a negative association because macroeconomic instability can increase uncertainty and operating costs.

The estimation procedure begins with descriptive statistics, followed by the baseline two-way fixed-effects regression, the distributed-lag model, and robustness checks. Post-estimation diagnostics are reported after the regression results. Statistical significance is evaluated at the 5% level using two-tailed tests. A directional hypothesis is considered empirically supported when the relevant coefficient has the expected sign and $p < .05$; otherwise it is reported as not supported. Because the design is observational, coefficients are interpreted as associations rather than causal effects.

The statistical analysis was implemented through a reproducible Python workflow. Data

preparation and numerical operations were undertaken with pandas and NumPy; fixed-effects, clustered-inference and Poisson estimations were implemented with standard econometric Python libraries; and principal-component analysis was used to construct the financial-access index. The executable replication code archived with the study should accompany the submission so that the reported estimates can be reproduced.

4.0 Results and Discussion

4.1 Descriptive Results

Table 2 presents the descriptive statistics for the 371 country-year observations in the baseline panel.

Table 2. Descriptive statistics

Variable	N	Mean	SD	Min	Max
New business density	371	2.433	3.945	0.008	27.006
Conflict deaths per 100,000	371	1.095	7.474	0.000	131.615
Conflict intensity (log)	371	0.256	0.610	0.000	4.887
Financial-access infrastructure index	371	0.000	1.361	-2.614	3.447
Institutional-security fragility index	371	0.490	0.607	-1.066	2.131
GDP per capita (constant 2015 US\$)	371	2604.244	3204.210	254.403	19481.646
GDP growth (%)	371	3.303	3.983	-20.805	15.844
Inflation (%)	371	8.116	17.383	-3.233	200.000

Note. Complete-case baseline panel, 2015-2024. Conflict is strongly right-skewed and is log-transformed before standardisation.

As shown in Table 2, the sample is highly heterogeneous. New-business density averages 2.43 registrations per 1,000 working-age adults, while conflict fatalities are strongly right-skewed and reach more than 130 deaths per 100,000 in extreme observations. The wide dispersion in income, inflation and conflict exposure confirms the need for transformations, fixed effects and robustness checks rather than reliance on simple cross-sectional comparisons.

4.2 Baseline and Distributed-Lag Regression Results

Table 3 reports the baseline two-way fixed-effects estimates, the distributed-lag specification and the model with country-specific linear trends.

Table 3. Conflict, institutions, finance and formal business creation

Variable	Baseline TWFE	Distributed-lag TWFE	Country trends
Conflict intensity	-0.015 (0.028)	-0.024 (0.038)	-0.001 (0.046)
Lagged conflict	-	0.023 (0.028)	0.017 (0.039)
Financial-access infrastructure	-0.007 (0.125)	-0.021 (0.111)	0.017 (0.184)
Institutional-security fragility	-0.183** (0.074)	-0.193*** (0.071)	-0.205** (0.093)
Conflict × financial access	-0.004 (0.024)	0.055** (0.027)	0.020 (0.029)
Lagged conflict × financial access	-	-0.010 (0.033)	0.036 (0.034)
Conflict × institutional-security fragility	0.032 (0.021)	0.081** (0.041)	0.029 (0.034)
Lagged conflict × institutional-security fragility	-	-0.020 (0.040)	0.010 (0.056)
Country fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country-specific trends	No	No	Yes
Observations	371	326	326
Economies	45	44	44

Note. Dependent variable: $\ln(1 + \text{new-business density})$. Country-clustered standard errors in parentheses. Controls: $\ln$ GDP per capita, GDP growth and inflation. ** $p < .05$; *** $p < .01$. TWFE = two-way fixed effects.

Table 3 shows that institutional-security fragility is the most stable substantive predictor. The coefficient is negative in the baseline regression and remains negative when the model is extended with a lag structure and with country-specific trends. In each case it is statistically significant. This pattern is consistent with H₂ and with the institutional argument that uncertainty rises when political and administrative arrangements are weak. It also fits the broader ecosystem evidence linking stronger institutions with more productive forms of entrepreneurship (Acs et al., 2018; Audretsch et al., 2024).

Conflict intensity tells a different story. In both the baseline and distributed-lag specifications, neither the current conflict coefficient nor its one-year lag reaches statistical significance; H₁ is therefore not supported. That result should not be taken to mean that violence carries no economic cost. It means, more narrowly, that once common year movements, persistent country differences and the included macroeconomic controls are accounted for, annual changes in conflict intensity are not accompanied by a stable average movement in national formal-entry density. Such a pattern is

consistent with evidence that entrepreneurial responses to conflict differ across settings and may be expressed through informal rather than registered activity (Salvi et al., 2025; Rugina & Klyver, 2025).

The baseline interaction between conflict and financial access is very small and statistically indistinguishable from zero. A positive interaction appears when the distributed-lag specification is used, but it no longer holds after country-specific trends are introduced. The conflict-by-fragility term is similarly sensitive to specification and, when significant in the dynamic model, carries the opposite sign to the proposed amplification effect. At this point, the interaction results do not provide a sufficiently stable basis for a moderation claim; their interpretation therefore depends on the robustness exercises that follow.

4.3 Post-Estimation Diagnostics

The baseline specification was followed by checks for multicollinearity and residual cross-sectional dependence. The fixed-effects-residualised variance inflation factors are reported in Table 4.

Table 4. Fixed-effects multicollinearity diagnostics

Regressor	FE-residualised VIF
Conflict intensity	6.57
Financial-access infrastructure	1.14
Institutional-security fragility	1.39
Conflict × financial access	1.80
Conflict × institutional-security fragility	7.16
Log GDP per capita	1.08

GDP growth	1.04
Inflation	1.06

Note. VIFs are calculated after residualising substantive regressors on country and year fixed effects. The higher values for conflict and conflict $\times$ fragility are consistent with interaction-induced collinearity and warrant cautious interpretation of individual coefficients.

Table 4 indicates moderate interaction-related collinearity for conflict intensity and the conflict-by-fragility term, but the remaining regressors show low VIFs. The distributed-lag residual cross-sectional-dependence test yields $CD = -1.18$ ($p = .236$), providing no evidence of residual cross-sectional dependence in that specification. These diagnostics do not establish

Table 5 evaluates H_3 across alternative model forms, timing assumptions and a demand-side Findex measure.

model validity on their own, but they reduce concern that the principal results are driven by severe multicollinearity or unmodelled common residual shocks.

4.4 Robustness of the Financial-Cushioning Hypothesis

Table 5. Robustness of the financial-access cushioning hypothesis

Specification	Interaction	Coef.	SE	p	Interpretation
Baseline TWFE	Conflict $\times$ finance	- 0.004	0.024	.863	No evidence of cushioning
Distributed-lag TWFE	Current conflict $\times$ finance	0.055	0.027	.042	Positive but specification-sensitive
Distributed-lag TWFE	Lagged conflict $\times$ finance	- 0.010	0.033	.770	No lagged cushioning
Country trends	Current conflict $\times$ finance	0.020	0.029	.478	No evidence of cushioning
Country trends	Lagged conflict $\times$ finance	0.036	0.034	.295	No evidence of cushioning
Predetermined finance	Lagged conflict $\times$ lagged finance	0.021	0.027	.442	No evidence of cushioning
First differences	Δ conflict $\times$ finance	- 0.002	0.006	.745	No evidence of cushioning
PPML count model	Conflict $\times$ finance	- 0.156	0.072	.031	Negative; opposite to H_3

Findex validation	Lagged conflict × account ownership	0.037	0.049	.450	No evidence of cushioning
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Note. The PPML coefficient is on a log-count scale and is not directly comparable in magnitude with the linear-model coefficients.

The evidence in Table 5 does not support H₃. The only positive and statistically significant interaction occurs in the distributed-lag specification, but the coefficient becomes insignificant once country-specific trends are included, when finance is predetermined, and in first differences. The demand-side Global Findex measure also fails to moderate prior-year conflict. The PPML count model produces a significant negative interaction, which is opposite to the hypothesised cushioning direction. Taken together, the estimates do not show that ordinary financial access consistently weakens the adverse business-creation consequences of conflict. This result qualifies the resilience argument: although financial services can support firm productivity and transactions (Konte & Tetteh, 2023), access

infrastructure alone may be insufficient during security disruptions that affect institutions, mobility and market functioning simultaneously.

Alternative conflict measures produce the same broad conclusion. A binary conflict indicator yields an insignificant finance interaction, while winsorising extreme conflict intensity also produces an interaction close to zero. The null result is therefore not explained solely by the most extreme fatality observations.

4.5 Additional Sensitivity and Institutional Decomposition

Table 6 reports additional sensitivity checks for the institutional-security fragility coefficient and the conflict-by-finance interaction.

Table 6. Additional sensitivity of institutional-security fragility and the financial-cushion interaction

Specification	N	Economies	Fragility coef.	SE	p	Conflict × finance	p
Baseline TWFE	371	45	-0.183	0.074	.014	-0.004	.863
Exclude panels <5 years	359	40	-0.196	0.077	.011	0.034	.130
Add trade openness	345	42	-0.200	0.076	.009	-0.001	.974
Exclude Nigeria	363	44	-0.194	0.075	.010	-0.001	.968
Inflation ≤ 50%	366	44	-0.178	0.074	.017	-0.004	.873
Winsorised inflation	371	45	-0.187	0.075	.012	-0.005	.835

Note. All linear models use $\ln(1 + \text{new-business density})$, country and year fixed effects, country-clustered standard errors and the baseline macroeconomic controls.

As Table 6 shows, the composite institutional-security fragility coefficient remains negative and statistically significant after excluding thin panels, adding trade openness, excluding Nigeria, restricting very high inflation and winsorising inflation. The conflict-by-finance interaction remains statistically insignificant in all of these added linear specifications. Leave-

one-country-out estimation further shows that the fragility coefficient remains negative and significant in each re-estimation, indicating that the result is not driven by a single economy.

Table 7 decomposes the institutional-security index and reports the Global Findex validation results.

Table 7. Institutional-component and Global Findex validation

Variable	Model	Coef.	SE	p
Government effectiveness	Direct component	0.142	0.095	.132
Conflict × government effectiveness	Interaction	-0.052	0.033	.114
Political stability	Direct component	0.102	0.041	.013
Conflict × political stability	Interaction	-0.017	0.016	.304
Lagged conflict (Findex sample)	Findex validation	0.033	0.035	.340
Adult account ownership	Findex validation	0.031	0.070	.662
Institutional-security fragility	Findex validation	-0.181	0.080	.023
Lagged conflict × account ownership	Findex validation	0.037	0.049	.450

Note. Institutional-component models substitute one WGI component for the composite index. Findex $N = 87$ observations from 37 economies in 2017, 2021 and 2024; lagged conflict refers to the immediately preceding calendar year.

Table 7 indicates that political stability is the clearer component-level correlate of formal entry, while government effectiveness is positive but statistically imprecise. Neither component significantly moderates conflict. This finding qualifies H₂: the composite fragility result is stable, but the decomposition suggests that its strongest standalone signal comes from political stability rather than administrative effectiveness. Because the WGI political-

stability measure includes absence of violence and terrorism, the composite should be interpreted as a broader institutional-security environment rather than as clean evidence that administrative capacity alone determines formal entry.

The Findex validation reinforces the conclusion on H₃. Account ownership has no significant direct association with formal entry in the wave sample and does not significantly moderate

prior-year conflict, while institutional-security fragility remains negative and significant. The absence of a robust financial cushion is therefore not merely an artefact of using ATM and bank-branch density.

4.6 Hypothesis Testing and Discussion

Table 8 consolidates the hypothesis decisions using the baseline and robustness evidence discussed in Sections 4.2-4.5.

Table 8. Hypothesis testing summary

Hypothesis	Expected relationship	Evidence	Decision
H ₁	Conflict lowers formal business creation	Conflict is insignificant in baseline, dynamic, trend, first-difference and PPML specifications	Not supported
H ₂	Institutional-security fragility lowers formal business creation	Composite coefficient is negative across principal and sensitivity models; component analysis shows the clearer standalone signal is political stability	Supported for the composite, with component qualification
H ₃	Financial access cushions conflict shocks	Baseline, lagged, trend, predetermined, first-difference and Findex interactions are insignificant; PPML interaction is negative	Not supported
H ₄	Institutional-security fragility amplifies the conflict penalty	Conflict × composite fragility is unstable; component interactions are insignificant	Not supported

Note. Hypotheses are evaluated at the 5% significance level and with reference to the expected coefficient sign.

The hypothesis results in Table 8 produce a coherent substantive conclusion. The evidence supports the direct institutional argument but not the two moderation mechanisms. H₂ is consistent with Institutional Theory: formal entry appears more sensitive to the quality of the institutional-security environment than to annual changes in conflict fatalities alone. The result also aligns with Audretsch et al. (2024) and Acs et al. (2018), who emphasise that entrepreneurial activity is embedded in institutional structures. The component analysis,

however, requires a cautious interpretation because political stability carries the clearer signal and partly overlaps conceptually with violence and security.

The failure to support H₁ is consistent with the heterogeneous conflict literature rather than with a simple claim that conflict has no entrepreneurial consequences. Salvi et al. (2025) and Rugina and Klyver (2025) show that violent settings can redirect entrepreneurship toward informal, necessity or community-based forms. Since the dependent variable records formal

new-business density, entrepreneurial responses that take place outside the registration system will not necessarily appear in the observed entry series.

H₃ is not supported. The theoretical case for a financial cushion rests on the idea that access to finance can help preserve payments and liquidity during disruption, but the estimates do not show a stable moderating effect. A useful distinction is between routine financial access and finance that is specifically resilient to crisis conditions. Branches, ATMs and account ownership say little about whether a business can obtain emergency working capital, keep digital transactions running, access a guarantee or share risk during a severe disruption. The result can therefore coexist with the complementarities reported by Konte and Tetteh (2023) while still showing that ordinary access is not, in itself, a form of insurance against conflict.

H₄ receives no stronger support. The estimated conflict-by-fragility effect changes across model specifications, and the interactions based on the separate institutional components are not statistically significant. The more defensible interpretation is that fragility describes the general environment in which formal entry takes place rather than a consistently measurable multiplier of the contemporaneous conflict effect. This distinction matters because it keeps the substantive claim within the range supported by the estimates.

5.0 Conclusion

The study examined whether armed conflict and institutional-security fragility are associated with formal business creation in Africa and whether financial inclusion cushions conflict-related shocks. The analysis used a 2015-2024 panel covering 45 African economies and

combined country and year fixed effects with dynamic specifications and a range of robustness tests.

The clearest result is the persistent adverse association between institutional-security fragility and formal new-business density. Conflict intensity, by comparison, has no stable contemporaneous or one-year-lagged association once fixed effects and macroeconomic controls are included. Financial-access infrastructure also fails to show a robust cushioning role, while institutional-security fragility does not consistently strengthen the conflict penalty. The institutional decomposition further shows that political stability carries the clearer component-level association, while government effectiveness alone is statistically imprecise.

The study therefore concludes that formal entrepreneurial resilience in Africa is more consistently associated with the broader institutional-security environment than with ordinary financial-access expansion alone. Financial inclusion remains important for enterprise development, but the evidence does not justify treating routine access infrastructure as a general insurance mechanism against conflict-related business-creation shocks.

6.0 Recommendations

1. African governments should pursue improvements in institutional predictability and security alongside enterprise-finance reform rather than treating finance as a replacement for the wider business environment. Because institutional-security fragility retains a negative association with formal entry, sustaining registered business formation also requires dependable registration procedures, enforceable contracts and a reasonably predictable setting in which exchange can take place.

2. Development-finance institutions should separate the general objective of financial inclusion from arrangements designed specifically to remain functional during conflict. In areas repeatedly exposed to insecurity, support may need to extend beyond ordinary access to include emergency working capital, interoperable digital payments, remote onboarding, guarantee facilities and channels that can continue operating when physical infrastructure or normal mobility is disrupted.

3. Assessments of entrepreneurial resilience should track formal registrations separately rather than relying only on aggregate self-employment or informal activity. Conflict can shift entrepreneurial activity between the formal and informal sectors without producing a corresponding change in the overall volume of entrepreneurial activity.

4. Institutional reform programmes should distinguish interventions aimed at political and security stabilisation from measures intended to strengthen administrative capability. The component analysis does not show that government effectiveness alone explains formal entry; programmes should therefore measure security conditions, administrative capability and registration-system performance separately.

5. Regional and national data systems should link geocoded business registrations more closely with conflict exposure, digital-payment continuity and enterprise-credit information. Better subnational data would make it possible to identify more precisely where conflict affects firm formation and which types of firms face the greatest disruption.

7.0 Limitations and Suggestions for Further Studies

The study has several limitations. Country-level averages obscure substantial differences in where violence is actually experienced within national borders, while counts of limited-liability-company registrations reveal little about how informal enterprises survive, adjust or exit. The financial indicators also capture only part of what resilience requires: branch and ATM density measure physical access, but not emergency liquidity, continuity of digital services or the terms on which credit remains available during disruption. A further limitation concerns the governance indicators, which are national and partly perception based. Political stability is especially important in this respect because its construction includes perceptions of violence and terrorism, creating conceptual proximity to the conflict measure. The interaction terms introduce moderate multicollinearity, and the observational panel cannot exclude time-varying omitted influences or policy endogeneity. Future research could improve on these limitations by linking geocoded firm registrations to the locations of conflict events and to information on payment-system continuity and credit records, preferably in designs that make use of plausibly exogenous shocks. It would also be useful to separate business entry from subsequent survival and growth and to test crisis-specific financial instruments independently of ordinary access infrastructure.

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