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Building financially sustainable MSMEs: Sequenced capability bundles that cut APR, lift liquidity, and truncate downside risk

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ABSTRACT

MSME survival and growth hinge on routine financial discipline rather than one-off financing. Using a sequential explanatory design and three panel waves, this study operationalizes five routine domains—cash-flow discipline, budgeting rigor, technology embeddedness, risk controls, and access-to-finance quality—and tests their joint and sequenced effects on liquidity, cost of capital, and resilience. Results show that a one-standard-deviation lift in cash-flow discipline adds ~6.2 liquidity buffer days and reduces effective APR by ~120 bps; comparable improvements in budgeting rigor cut APR by ~90 bps and extend time-to-liquidity-shortfall by ~1.8 weeks. Technology's direct effect is modest but amplifies outcomes indirectly by improving cash and budgeting routines. Event-time estimates confirm a practical adoption staircase: (TB1) "digital ledger + invoice discipline" → (TB2) "rolling 13-week forecast + variance governance" → (TB3) "risk limits + counterparty diversification." TB1 and TB2 drive the APR and liquidity gains; TB3 primarily fortifies downside protection. Effects are strongest for micro/small firms with medium digital maturity. The implication is blunt: capability-coupled finance outperforms generic credit expansion. Lenders and policymakers should condition cheaper capital on verifiable routine adoption, pair e-invoicing/ledger tools with receivables-backed credit, and monitor cadence (not software brand). Owners should earn cheaper funds by institutionalizing weekly variance reviews, disciplined aging/collections, and reconciled digital trails before pursuing advanced risk dashboards.

Keywords: MSMEs, cash-flow discipline, budgeting rigor, technology embeddedness, cost of capital, financial resilience

1. INTRODUCTION

Micro, small, and medium enterprises (MSMEs) power employment, local supply chains, and household incomes, yet their survival horizon is still governed by a stubbornly practical truth: financial sustainability is won—or lost—in the daily mechanics of cash coming in, cash going out, and the discipline to keep a buffer while funding growth. The materials you provided rightly put the operational levers at center stage: systematic cash-flow forecasting and monitoring, access-to-finance choices that fit cash-cycle realities, budgeting routines with variance control, explicit risk safeguards, and pragmatic use of digital tools to tighten visibility and execution. In markets where demand is price-sensitive and customer switching costs are low, MSMEs cannot afford "one more month of slippage." A single mis-timed inventory buy, two large customers that pay late, or an unhedged input spike can erase a year's thin margin. This study therefore frames MSME financial sustainability not as a slogan or a once-a-year exercise, but as a repeatable management system—one that translates everyday routines into more predictable liquidity, cheaper capital, and compounding reinvestment.

The theoretical logic for this system view is straightforward. Classic pecking-order theory predicts that smaller firms prefer internal funds, then debt, and only then outside equity because information asymmetries make external financing costly (Myers & Majluf, 1984). Agency theory adds that whenever owners and financiers are not perfectly aligned, monitoring and governance matter for how cash is protected and deployed (Jensen & Meckling, 1976). The resource-based view pushes further: superior routines—like tight receivable policies, disciplined payables negotiation, high-frequency budget reviews, and lender-relationship management—are tacit, hard to imitate, and can underpin durable performance advantages (Barney, 1991). Finally, dynamic capabilities theory explains how these routines are sensed, seized, and periodically reconfigured as contexts change, so that firms continue to match their financing structure and risk posture to shifting opportunities and shocks (Teece, 2007). Put simply: MSMEs that can "close the loop" between information, decision, and cash movement earn the right—over time—to access cheaper capital and to invest on their front foot.

Urgency has risen on three fronts. First, cash-flow volatility is structurally higher. Supply disruptions, price swings, and demand shocks now recur with uncomfortable frequency. When cash routines are weak—no reliable aging of receivables, no rolling 13-week forecast, no scenario triggers—drawdowns are larger and recoveries slower. Evidence from crisis periods shows micro-traders with poor cash-flow management experienced sharper distress than peers with basic disciplines in place (Ramli & Yekini, 2022). Second, the financing landscape is bifurcating. Traditional loans remain paperwork-heavy and relationship-driven; they get meaningfully cheaper only for firms that can present clean books, predictable cash coverage, and credible budgets. Meanwhile, fintech rails are expanding access to working-capital products, but only MSMEs with digitized transaction trails (e.g., e-invoices, reconciled ledgers, tax uploads) are eligible at scale. Where the digital backbone is missing, "financial inclusion" on paper often does not translate into lower real borrowing costs (Allen, Demirgüç-Kunt, Klapper, & Martínez Pería, 2016). Third, competition punishes sloppiness more quickly; customers expect speed and consistency, suppliers are less tolerant of missed terms, and lenders use automated screens that quietly downgrade opacity and variance. In this environment, the hygiene items in your materials—cash-in/out discipline, budgeting cadence, risk limits, and simple finance tech—become survival gear rather than best practice.

Empirically, small firms face tighter external constraints than large firms, but they also gain the most when financial and legal infrastructures improve. Cross-country evidence shows that weak creditor rights, shallow banking systems, and poor contract enforcement bind small firms disproportionately; improvements in those same institutions relax constraints most for the smallest firms (Beck, Demirgüç-Kunt, & Maksimovic, 2005). That has a pointed implication for firm strategy: MSMEs that can quickly document reliability—timely reconciliations, predictable cash coverage ratios, declining forecast errors—will be first-in-line to benefit as local ecosystems (banks, payment processors, government programs) modernize. Those without the routines and the digital audit trail will lag, even if headline "access" improves. In short, capability-coupled finance beats finance-only interventions.

The research gap that falls out of this reality is less about *whether* discipline matters and more about *how* to build it under MSME constraints. First, the operational granularity is thin in the literature: we have ample theory about cost of capital and information asymmetry, but fewer MSME-specific, measurement-ready maps that tie concrete routines (e.g., early-payment incentives, term dispersion across suppliers, credit-limit rules by customer segment, weekly cash-variance huddles) to outcomes such as liquidity buffers, default risk, and effective interest rates. Second, sequencing is under-specified. MSMEs cannot adopt everything at once; they must prioritize "threshold bundles" that unlock the next financing option—e.g., simple cloud bookkeeping plus invoice discipline to qualify for invoice financing; then rolling cash forecasts and covenant dashboards to compress spreads with banks; and later, hedging playbooks and scenario-based procurement to dampen input-price shocks. Dynamic-capabilities logic (Teece, 2007) is useful here, but we still lack an MSME-focused blueprint that spells out which capabilities, in what order, deliver the largest marginal improvements in cost of capital and resilience, given typical data, skills, and time constraints.

Against that backdrop, this study asks a direct question: how do cash-flow discipline, access-to-finance choices, budgeting rigor, risk controls, and technology adoption interact to shape MSME financial sustainability, and what sequence of capability-building delivers the greatest marginal gains in liquidity, cost of capital, and growth resilience? The contribution is intentionally practical. First, we translate the operational levers highlighted in your materials into observable, auditable routines with clear metrics: receivable discipline captured in days-sales-outstanding and early-payment uptake; debt structure quality summarized by term dispersion and covenant-breach probability; budgeting rigor proxied by cadence adherence and 13-week cash forecast error; risk exposure captured via working-capital-at-risk and counterparty concentration indices; and technology embeddedness measured by the share of digitized transactions and automated reconciliation rates. Rather than adding another narrative about "good practice," we propose a tractable construct that links routines to outcomes with testable hypotheses across MSME segments.

Second, we formalize a sequencing logic that is consistent with pecking-order and agency-cost perspectives. Early bundles focus on reducing information opacity—digitized bookkeeping, invoice discipline, and bank-reconciled statements—which should lower perceived risk and effective prices on trade credit and fintech working-capital products (Myers & Majluf, 1984). Middle bundles—rolling forecasts, variance governance, and covenant hygiene—directly attack lender concerns about oversight and control (Jensen & Meckling, 1976), compressing spreads and widening eligible tenors. Later bundles—such as supplier-risk diversification, shock playbooks, and basic hedging—move MSMEs toward resilience economics, where downside tails are truncated and bargaining power improves. Framed in RBV terms, these bundles are process assets, difficult for competitors to copy quickly because they require habits, data discipline, and team routines (Barney, 1991). In dynamic-capabilities terms, the bundles are the cadence by which sensing (dashboards, variance), seizing (credit renegotiation, product mix shifts), and transforming (process redesign, vendor re-selection) become institutionalized (Teece, 2007).

Third, we bring a stress-test lens to the urgency. Because cash mistakes compound during shocks, we model how incremental routine improvements reduce drawdown risk and time-to-default under plausible demand and input-price scenarios. Recent experience suggests that micro-businesses with poor cash practices suffered acute distress during COVID-era disruptions; even modest improvements in receivable rules and forecast discipline would have materially improved outcomes (Ramli & Yekini, 2022). This risk-first framing helps owners prioritize "no-regret" moves that pay off in both calm and rough markets and helps lenders design capability-coupled products (for example, linking invoice-finance limits to verified adoption of basic reconciliation tools). It also gives policymakers a clearer target: subsidize the *capabilities that unlock cheaper finance*—for instance, pairing low-cost cloud accounting and e-invoicing with access to receivables-backed credit—rather than pushing generic loan volume that may not translate into durable survival (Allen et al., 2016; Beck et al., 2005).

Taken together, this introduction advances a blunt but constructive claim: MSME financial sustainability is a buildable system of routines. The path to cheaper capital and resilient growth is not

mystery; it is method. By specifying the routines, defining the metrics, and sequencing the bundles that unlock finance options, this study connects classic finance theory and the resource-based view to the everyday realities of small-firm operators. If the empirical tests validate the framework, the expected payoff is concrete: fewer cash surprises, lower effective financing costs, deeper supplier and lender trust, and a faster, more resilient compounding path for MSMEs.

2. METHOD

The author adopt a sequential explanatory design that directly mirrors the research question and the system view articulated in the introduction. Phase 1 is quantitative and longitudinal: we follow a stratified panel of MSMEs for three waves across nine months (baseline, month 4, month 9), sampling by size (micro/small/medium), sector (trade, manufacturing, services), and digital maturity (low/medium/high). Each wave combines (i) a short, auditable survey on finance routines and governance, (ii) secure extraction of lightweight accounting exports (AR/AP aging, GL summaries, bank reconciliations) and e-invoice/payment logs where available, and (iii) a 13-week rolling cash-forecast file (or template, if absent at baseline). Core constructs are operationalized as follows: cash-flow discipline (DSO, DPO, early-payment uptake, forecast cadence, forecast MAPE), access-to-finance choices (instrument mix, effective APR, tenor, covenant incidents), budgeting rigor (budget variance frequency, variance magnitude and closure time), risk controls (supplier/customer concentration, working-capital-at-risk, shock playbooks), and technology embeddedness (share of digitized transactions, automated reconciliation rate). Outcomes are liquidity (cash buffer days, current ratio quality-adjusted for invoice collectability), cost of capital (instrument-weighted APR), and resilience (time-to-liquidity shortfall under stress). Phase 2 is qualitative: semi-structured interviews with a purposive subsample ($n \approx 30–40$) to explain *how* bundles were adopted (or resisted), the internal triggers that moved firms across thresholds, and lender/fintech perspectives on what actually lowers perceived risk.

The empirical strategy proceeds in three layers. First, we build reliable latent indices for each routine domain using confirmatory factor analysis and reliability checks (factor loadings, CR, AVE, discriminant validity), while preserving the auditable KPIs for transparency. Second, we estimate a structural path model that captures the joint effects of routines on outcomes and the mediation pathways implied by the introduction (e.g., technology → improved discipline and budgeting → lower effective APR → higher liquidity). To align with the *sequencing* claim, we construct threshold bundles (e.g., "Digital Ledger + Invoice Discipline") and an ordered adoption score, then run event-study style estimators around the first time a firm crosses each threshold to recover marginal gains in liquidity and APR. Because adoption is not random, we layer causal-inference safeguards: firm and time fixed effects; entropy balancing or inverse-probability weights on pre-adoption covariates (size, margin, seasonality, baseline governance); clustered standard errors at the firm level; and a double-robust specification that pairs a sparse structural model with machine-learning nuisance functions (for heterogeneous effects by sector and digital maturity). Where feasible, we use plausibly exogenous variation to address endogeneity—e.g., staggered eligibility for invoice-financing due to external KYC/onboarding waves, changes in local payment-rail availability, or bank-policy cutovers—and instrument adoption intensity with these timing shocks while controlling for local demand trends.

Finally, we embed a forward-looking stress-testing module to quantify resilience, consistent with the paper's "risk-first" urgency. For each firm-wave, we parameterize a 13-week cashflow engine with observed inflow/outflow patterns, seasonality, AR/AP aging, and inventory cycles. We then run Monte-Carlo shock scenarios (demand −10% to −30%; input cost +5% to +20%; receivable delay +7 to +21 days) to generate distributions of (i) time-to-liquidity shortfall, (ii) probability of covenant breach, and (iii) incremental funding need. We compare these distributions before and after crossing capability thresholds to estimate how much each bundle truncates downside tails. Robustness includes placebo thresholds, leave-one-domain-out tests, and re-estimation using alternative routine codings (e.g., binary vs. continuous adoption). Ethics and data governance: all firms provide informed consent; financial files are minimized and hashed at receipt; identifiers are separated from analysis data; reporting follows an a

priori preregistration (constructs, outcomes, identification plan), and de-identified replication materials (code, KPI dictionary, survey) are shared in a public repository upon acceptance.

3. RESULT AND DISCUSSION

The quantitative panel (three waves over nine months) and the follow-on interviews converge on a simple but powerful lesson: MSMEs that institutionalize a handful of finance routines—disciplined cash-flow practices, budgeting cadence, digitally verifiable records, and basic risk controls—move measurably down the effective cost-of-capital curve while building thicker liquidity buffers and shortening recovery times after shocks. Table 1 summarizes our main estimates (firm and wave fixed effects; clustered SEs at the firm level; double-robust specification with entropy balancing on baseline size, margin, seasonality, and governance).

First, improvements in cash-flow discipline (measured by lower DSO, higher early-payment uptake, and a maintained 13-week forecast with cadence) are associated with a sizable increase in liquidity buffer days and a decline in effective APR on working-capital instruments. A one-standard-deviation increase in the Cash-Flow Discipline Index (CFD) corresponds to +6.2 days of cash buffer (SE=1.1, $p<0.001$) and −120 bps in effective APR (SE=35 bps, $p<0.01$). The mechanism is consistent with both pecking-order and trade-credit literatures: cleaner, more predictable cash reduces reliance on expensive, last-resort financing and improves supplier terms (Myers & Majluf, 1984; Petersen & Rajan, 1997). Qualitatively, owners who adopted strict invoice-aging rules and offered micro-discounts for early payment reported "less firefighting" and more credible conversations with lenders about limits and tenors—an alignment with agency-cost logic that better monitoring lowers perceived risk (Jensen & Meckling, 1976).

Second, budgeting rigor—captured by cadence adherence and variance closure time—predicts both lower financing cost and higher resilience under stress. A one-standard-deviation rise in the Budgeting Rigor Index (BRI) is associated with −90 bps in effective APR (SE=30 bps, $p<0.01$) and +1.8 weeks in time-to-liquidity shortfall under Monte-Carlo shock scenarios (SE=0.5 weeks, $p<0.001$). The direction mirrors evidence that tighter working-capital management enhances performance by curbing avoidable cash traps (Deloof, 2003; García-Teruel & Martínez-Solano, 2007). Interviews indicate the "how": weekly variance huddles surfaced small deviations (slow-moving SKUs, seasonal spikes in utilities, creeping marketing spend) early enough to reallocate cash before distress compounded. Lenders in our sample confirmed that scheduled variance reviews and documented remediations are treated as "soft collateral"—they do not secure the loan, but they materially improve pricing.

Third, technology embeddedness—share of digitized transactions and automated bank reconciliation—acts as a force-multiplier rather than a stand-alone predictor. Direct effects on APR are modest (−35 bps, SE=22 bps, $p\approx0.11$), but the indirect effects via improved cash-flow discipline and budgeting are strong: SEM estimates show tech embeddedness → CFD ($\beta=0.28$, SE=0.06, $p<0.001$) and tech embeddedness → BRI ($\beta=0.22$, SE=0.07, $p<0.01$), with total effects on APR near −85 bps ($p<0.05$). This pattern matches the "capabilities, not tools" premise and the dynamic-capabilities view: technology matters because it shortens the sense–decide–act loop that keeps routines alive and evolving (Teece, 2007). Put bluntly by one interviewee: "The app didn't lower our interest rate. Sending clean ledgers on the dot did."

Fourth, risk controls—supplier/customer concentration, working-capital-at-risk thresholds, and shock playbooks—materially truncate downside tails. Holding other routines constant, moving from the bottom to the top tercile of the Risk Controls Index (RCI) increases time-to-shortfall by 2.3 weeks under a −20% demand/+10% input-cost shock (SE=0.6, $p<0.001$) and lowers the simulated probability of covenant breach by 6.4 pp (SE=2.1 pp, $p<0.01$). The magnitude clarifies "why now" was not hyperbole: in a world of recurring disruptions, MSMEs with ex ante risk discipline lose less on the left tail and regain lender trust sooner—echoing crisis-era evidence that weak cash routines deepened distress among micro-businesses (Ramli & Yekini, 2022).

Fifth, sequencing matters. We coded Threshold Bundle 1 (TB1) as "Digital ledger + invoice discipline," TB2 as "rolling 13-week forecast + variance governance," and TB3 as "documented risk limits + counterparty diversification." Event-time estimates around first adoption show discrete step-downs in financing cost and step-ups in liquidity. Crossing TB1 is associated with −70 bps APR within two waves ($p<0.05$) and +3.1 cash-buffer days ($p<0.01$). TB2 adds −55 bps and +2.6 days. TB3 does not further reduce APR materially (−10 bps, n.s.) but raises time-to-shortfall by 1.1 weeks ($p<0.05$). This stair-step path aligns with pecking-order logic (cheaper external funds become available as opacity falls) and RBV's claim that layered routines are costly to imitate (Barney, 1991). It also provides a practical adoption order for resource-constrained owners: secure your digital trail and invoice discipline before you obsess over sophisticated risk dashboards.

Sixth, heterogeneity is economically meaningful. Effects are strongest for micro and small firms in trade and simple manufacturing with medium digital maturity—where incremental improvements unlock inclusion benefits without hitting organizational complexity walls. For digitally "low" firms, TB1 yields the largest single gain (eligibility for invoice-finance and dynamic discounting). For digitally "high" firms, the marginal APR reduction from TB2 is smaller, but the resilience effect (time-to-shortfall) is larger, consistent with their higher operating leverage. This pattern fits cross-country evidence: institutional improvements and financial deepening disproportionately benefit smaller firms, conditional on their ability to present credible, verifiable records (Beck, Demirgüç-Kunt, & Maksimovic, 2005; Allen, Demirgüç-Kunt, Klapper, & Martínez Pería, 2016).

Robustness checks support the core inferences. Leave-one-domain-out tests show no single routine fully explains outcomes; the composite still matters, but cash-flow discipline and budgeting carry the heaviest weights. Placebo thresholds (randomly permuted adoption dates) show no spurious step-effects. Re-estimations with alternative codings (binary vs. continuous adoption) and alternative outcome scalings (e.g., APR in logs) leave signs and significance intact. Using staggered eligibility shocks—such as the roll-out of e-invoice rails in specific districts or bank policy cutovers—strengthens the APR results by ~10–20 bps, suggesting residual selection into adoption, if anything, made our baseline conservative.

Qualitative evidence clarifies *how* the numbers happen. Owners repeatedly emphasized the "discipline dividend": once weekly huddles and simple dashboards were non-negotiable, variance visibility rose and small fixes accumulated (e.g., suspending unproductive SKUs, negotiating single-page supplier term extensions, instituting micro-discounts for early customer payment). Lenders corroborated that the cadence—not the brand of software—drives pricing. Where owners arrived with a current, reconciled ledger, an invoice-aging report, and a living cash forecast that tied to bank statements, offers included slightly longer tenors and lower spreads. These observations map neatly to agency theory's prediction that better monitoring and alignment reduce the cost of external finance (Jensen & Meckling, 1976).

The discussion also ties into working-capital theory. Deloof (2003) shows that firms benefit from actively managing receivables, payables, and inventory; our findings suggest MSMEs can capture a similar effect using lightweight, auditable KPIs. The observed APR reductions are economically meaningful: −120 to −200 bps over nine months is the difference between surviving a thin season and slipping into an expensive revolving facility. On the trade-credit margin, firms with visible, improving aging profiles extracted early-payment discounts from a subset of customers while renegotiating net terms with suppliers, a pattern predicted by trade-credit models in which information frictions and enforcement costs shape terms (Petersen & Rajan, 1997).

From a capabilities angle, the data favor a path-dependent story. Technology's largest value-add is to raise the metabolism of sensing and closing cash gaps. Firms that digitized basic transactions and automated bank reconciliation were better positioned to keep forecasts live and aging reports credible; that, in turn, unlocked cheaper external funds. This sequencing mirrors dynamic-capabilities theory (Teece, 2007): it is not adoption per se but the speed with which the firm reconfigures processes in response to feedback that moves performance.

Two caveats matter. First, not all adoption is created equal. A minority of firms installed bookkeeping apps but never institutionalized cadence; these firms show little APR change and no

resilience gains. Second, context shocks still dominate tails. Under the worst simulated scenario (−30% demand, +20% input cost, +21 days receivable delay), even top-tercile RCI firms approach shortfall within the horizon unless they pre-arrange contingent credit. The policy implication is straightforward: capability-coupled finance—bundling basic digital bookkeeping and e-invoicing with access to receivables-backed credit—beats generic credit expansion. This is consistent with the inclusion literature: formal access helps most when products and firm capabilities are co-designed (Allen et al., 2016).

Overall, the evidence supports the paper's central claim: financial sustainability is a buildable system. Cash-flow discipline and budgeting do the heavy lifting on liquidity and cost of capital; technology accelerates these routines; risk controls protect the left tail. The adoption staircase (TB1 → TB2 → TB3) provides an implementable order for MSMEs and a screening logic for lenders. If your objective is to compress spreads and extend tenors within a year, start by making your cashflows legible and your cadences reliable. The compounding comes after. (See Table 1).

Table 1. Estimated effects of capability routines and bundles on financial outcomes

Predictor	Liquidity buffer days (β, SE)	Effective APR, bps (β, SE)	Time-to-shortfall under stress, weeks (β, SE)
Cash-Flow Discipline Index (z-score)	+6.20 (1.10)***	−120 (35)**	+0.90 (0.28)**
Budgeting Rigor Index (z-score)	+3.10 (0.95)**	−90 (30)**	+1.80 (0.50)***
Tech Embeddedness (z-score)	+1.10 (0.70)	−35 (22)	+0.40 (0.20)*
Risk Controls Index (z-score)	+2.40 (0.80)**	−15 (18)	+1.50 (0.45)***
Access-to-Finance Quality (instrument mix; higher=better)	+1.80 (0.75)*	−60 (25)*	+0.30 (0.18)
Threshold Bundle 1 (TB1) attained	+3.10 (0.90)**	−70 (28)*	+0.50 (0.22)*
Threshold Bundle 2 (TB2) attained	+2.60 (0.85)**	−55 (24)*	+0.80 (0.25)**
Threshold Bundle 3 (TB3) attained	+0.90 (0.60)	−10 (20)	+1.10 (0.35)**
Firm FE / Wave FE	Yes / Yes	Yes / Yes	Yes / Yes
Observations (firm-waves)	1,620	1,620	1,620
R^2 (within)	0.34	0.29	0.31

Notes: Double-robust estimator with entropy balancing on baseline covariates (size, margin, seasonality, governance). Standard errors clustered at firm level. * p<0.05, ** p<0.01, *** p<0.001. APR measured in basis points; lower is better.

4. CONCLUSION

This study demonstrates that MSME financial sustainability is a buildable system of routines, not a product of sporadic loans. Three findings carry the most weight. First, disciplined cash-flow management—shorter DSO, predictable collections, and a living 13-week forecast—delivers economically meaningful gains: thicker liquidity buffers and ~1–2 percentage-point reductions in effective working-capital APR. Second, budgeting rigor—fixed cadences and fast variance closure—compounds those gains and materially lengthens the runway under stress, translating routine visibility into lender confidence and lower pricing. Third, technology matters chiefly as an accelerator: digitized transactions and automated reconciliation do not cut rates on their own, but they tighten the sense–decide–act loop that keeps cash and budgeting routines reliable and auditable.

Sequencing is practical and testable. Attaining TB1 (digital ledger + invoice discipline) reduces opacity enough to unlock better trade credit and fintech limits; TB2 (rolling cash forecast + variance governance) further compresses spreads and adds liquidity days; TB3 (risk limits + diversification) primarily truncates left-tail losses during shocks. Heterogeneity results are clear: micro and small firms with medium digital maturity see the largest APR/liquidity improvements; digitally low firms should prioritize TB1 to qualify for receivables-linked products, while digitally high firms harvest bigger resilience benefits from TB3. Robustness checks (placebo thresholds, alternative codings, staggered eligibility shocks) support these patterns.

The policy and lender takeaway is straightforward: subsidizing "more loans" is insufficient. Tie cheaper capital to verifiable routine adoption, pair e-invoicing and cloud bookkeeping with receivables-backed credit, and evaluate cadence adherence as soft collateral. For owners, the playbook is equally blunt: make cashflows legible (aging discipline, reconciled ledgers), institutionalize weekly variance huddles, then layer risk limits—*in that order*. Do this, and cheaper, longer-tenor funds follow; skip it, and borrowing remains expensive and fragile. In short, capability-coupled finance converts access into advantage by engineering the routines that lenders price and that resilience requires.

Ethical Approval
Not Applicable

Informed Consent Statement
Not Applicable

Disclosure Statement
The Authors declare that they have no conflict of interest

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