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RESEARCH & PUBLISHING

Journal of Financial Literacy

Volume 1
Issue 2 July, 2026

Article 2

17-07-2026

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To cite this article: Dahlan, S. P. (2026). Credit alone will not save *warung* economics: Financial literacy as the binding constraint on Indonesian MSME growth. *Journal of Financial Literacy, 1*(2), 9–16. https://doi.org/10.55942/jfl.v1i2.2115

To link to this article: https://doi.org/10.55942/jfl.v1i2.2115



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Journal of Financial Literacy
E-ISSN 3164-404X
https://doi.org/10.55942/jfl.v1i2.2115

Volume 1
Issue 2
July Edition 2026

Credit alone will not save *warung* economics: Financial literacy as the binding constraint on Indonesian MSME growth

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Received 27 April 2026
Revised 25 May 2026
Accepted 16 June 2026

ABSTRACT

Indonesian policy toward micro, small, and medium enterprises (MSMEs) has long been dominated by a single diagnosis: small firms are starved of capital, and the state's task is to supply that capital. Subsidized credit schemes, mandated bank-lending targets, and an exuberant fintech lending sector all embody this supply side conviction. This commentary argues that the diagnosis is incomplete and, in its current form, is increasingly counterproductive. Drawing on Indonesian and international evidence, I contend that owner-managers' financial literacy may now be a binding constraint on MSME growth, alongside access to finance. Access to finance and financial literacy are complements: capital translates into performance only when owners can plan, price, separate accounts and manage debt. Recent Indonesian studies show that literacy drives both access to finance and the productive use of financial technology, while credit injected into low-literacy firms yields little or no measurable growth. Experimental evidence further shows that simple, rule-of-thumb training changes behavior where conventional accounting instruction fails, and that digitalization raises, rather than lowers, the literacy threshold. I argue for rebalancing Indonesian MSME policy toward demand-side capability building by embedding simplified financial training in credit programs, targeting the least-educated owners, and evaluating literacy interventions with the same rigor applied to lending. Credit without capability is not a development policy; it is a deferred disappointment.

Keywords: financial literacy; MSMEs; access to finance; Indonesia; fintech

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1. INTRODUCTION

Walk through any Indonesian city or village and the *warung*—the family run kiosk selling everything from cooking oil to phone credit—announces the structure of the national economy. Micro, small, and medium enterprises constitute the overwhelming majority of Indonesian firms and absorb most of the workforce. In a real sense, their fortunes are those of Indonesian households. Therefore, it is unsurprising that successive governments have made MSME development a headline commitment and that the dominant policy instrument has been credit: subsidized loan schemes, directed lending quotas for banks, and, more recently, an enthusiastic embrace of peer-to-peer and fintech lending as a technological shortcut to financial inclusion.

The intellectual foundation of this approach is respectable and well-grounded. Cross-country evidence has long established that small firms face disproportionately severe financing obstacles and that these obstacles constrain their growth more than that of large firms, implying that financial development yields outsized benefits for the small (Beck & Demirguc-Kunt, 2006). If access is a constraint, supplying access is the remedy. Indonesian policy has internalized this logic almost entirely.

My argument in this commentary is that this logic has curdled into a bias. The supply side diagnosis was formulated for a world in which formal credit was genuinely scarce; it says much less about what happens once credit becomes abundant, but the capacity to deploy it does not. A growing body of evidence, much of it Indonesian, suggests that financial literacy among owner-managers is the factor that determines whether capital converts into performance at all. Literacy and access are not substitutes competing for policy attention; they are complements, and the scarcer complement is now bound. Financial literacy shapes whether owners seek appropriate finance, whether they qualify for it, whether they price, record, and separate accounts well enough to use it, and whether digital financial tools amplify or endanger their businesses.

The remainder of this commentary is organized as follows. Section 2 diagnoses the supply side bias of Indonesian MSME finance policy and explains why its foundational logic is no longer sufficient. Section 3 assembles the evidence that literacy converts capital into performance in Indonesia and beyond. Section 4 asks what kind of literacy intervention actually works, arguing for simple, targeted training rather than curriculum-heavy instruction. Section 5 argues that digitalization raises, rather than lowers, the literacy stakes. Section 6 discusses the implications for policy and research, and Section 7 concludes the study.

2. THE SUPPLY-SIDE BIAS OF MSME FINANCE POLICY

Indonesian MSME policy exhibits what might be called a hydraulic theory of enterprise development: firms are vessels, capital is fluid, and growth follows from pouring capital into firms. The instruments differ—interest subsidies, credit guarantees, lending mandates, and fintech licensing—but the underlying model is constant. The more credit in, the more growth out.

The hydraulic theory draws legitimacy from the canonical finding that small and medium-size enterprises report higher financing obstacles than large firms and that these obstacles translate into slower growth, with financial and institutional development disproportionately relaxing the constraint for the smallest firms (Beck & Demirguc-Kunt, 2006). This research agenda was transformative, and nothing here disputes it. However, it is a diagnosis of *obstacles to access*, not a theory of *use*. This indicates that firms that cannot obtain finance grow more slowly; it does not indicate that any firm handed finance will grow faster. The same literature explicitly states that specific lending technologies and competitive financial systems matter for how access is delivered (Beck & Demirguc-Kunt, 2006)—an early hint that the mechanism connecting capital to growth is conditional, not automatic.

Two further problems afflict the supply side program in Indonesia. The first is a demand-side puzzle that Indonesian data revealed more than a decade ago. In household surveys in Indonesia and India, financial literacy has emerged as a strong predictor of the demand for financial services. Strikingly, a field experiment in Indonesia found that financial education raised demand for bank accounts only

modestly—and mainly among those with low initial education—while small price subsidies produced much larger immediate effects on account openings (Cole et al., 2011). Advocates of the supply side view sometimes read this as vindication: subsidize, do not educate. This reading confuses opening an account with using capital productively. Getting a *warung* owner to accept a subsidized loan is cheap; the question that matters for growth is what happens next, and on that question, the strong association between literacy and financial engagement is the more telling result (Cole et al., 2011).

The second problem is conceptual in nature. Foundational work in the economics of financial literacy treats it as a form of human capital—costly to acquire, unevenly distributed, and pervasively scarce across both rich and poor countries—that governs the quality of saving, investment, and debt decisions (Lusardi & Mitchell, 2014). If literacy is human capital, then a policy that expands the supply of financial products without expanding the capability to use them is analogous to distributing sophisticated machinery to workers who have never been trained to operate it for free. Some machines will be used well, many will sit idle, and a few will cause injuries. Over-indebtedness among micro-borrowers, loan diversion to consumption, and default cascades in digital lending are the enterprise finance equivalents of industrial accidents—predictable consequences of pairing abundant instruments with scarce understanding.

None of these counsels abandoning credit policies. It counsels recognizing that Indonesia has largely built the supply side over two decades. The marginal rupiah now spent on widening the credit pipe buys less growth than the same rupiah spent on the capability of the people standing at its end.

3. LITERACY IS WHAT CONVERTS CAPITAL INTO PERFORMANCE

If the supply side theory were sufficient, firm performance in Indonesia would track credit access with a minimal residual role for owner capability. The empirical record says otherwise, and it does so with increasing precision.

First, consider the most direct recent evidence. A study of 469 Indonesian SMEs using serial mediation analysis found that financial literacy enhances both access to finance and the adoption of financial technology, and that access to finance is the crucial mediating channel through which these translate into business performance and sustainability. Notably, fintech adoption alone has a minimal direct impact on access (Kurniasari et al., 2025). The architecture of this result deserves emphasis. Literacy sits upstream: it enables firms to obtain finance and make technology adoption meaningful. Technology without literacy does not reliably deliver access, let alone performance. The policy community's habit of treating fintech as a substitute for capability—an app that thinks so the owner need not—is directly contradicted by this mediation structure,

This pattern recurs across Indonesian organizational forms. Among the 220 village-owned enterprises in East Java—institutions created precisely to channel development resources into rural economies—managers' financial literacy significantly improved profitability and return on investment in analyses using a two-stage estimation strategy to address the endogeneity of literacy itself (Nugroho et al., 2023). The same study is instructive about where literacy comes from: it rises with education, incentives, firm size, and training, and falls with manager age and distance to the provincial capital, with performance effects being stronger in non-agricultural enterprises (Nugroho et al., 2023). In other words, capability is produced by identifiable, policy-amenable inputs, and its deficits are concentrated among precisely the older, more remote managers whom credit-first programs reach last and help least.

Moreover, the effect is not confined to profitability. Among 232 SME managers in East Java, financial literacy (alongside digital literacy) raised productivity and marketing intensity, with marketing intensity partially mediating the literacy–productivity link (Sakti et al., 2025). Literacy does not merely improve bookkeeping; it changes the intensity with which firms compete in the market. Similarly, in Yogyakarta's creative industries, a sector often romanticized as running on artistic passion rather than spreadsheets, financial literacy positively affected entrepreneurial performance among 375 entrepreneurs, alongside artistic and entrepreneurial orientation, and is best understood as a strategic resource in its

own right (Purnomo, 2019). Even when the product is batik or performance art, the firm is still a financial object, and the owner's ability to manage it shapes outcomes.

The theoretical key to these findings—and to my central claim—comes from the evidence on the *interaction* between literacy and access. Among 201 SMEs in Ghana, framed in resource-based terms, financial literacy positively moderated the relationship between access to finance and firm growth: access was converted into growth substantially more effectively at higher levels of literacy (Adomako et al., 2016). This is a complementary result. Access and literacy are not rival explanations of growth to be adjudicated; they are joint inputs whose products matter. The standard implication of complementarity is that policy should invest in the scarcer input. In Indonesia, where subsidized credit is a standing budget line and fintech lenders proliferate, but where the human capital of financial decision-making remains, as globally, pervasively low (Lusardi & Mitchell, 2014), the scarcer input is not in doubt.

Comparative evidence supports this mechanism. Among 291 Sri Lankan SME chief financial officers, financial literacy directly affects enterprise sustainability and through two channels—access to finance and financial risk attitude—each of which partially mediates the relationship (Ye & Kulathunga, 2019). Thus, literacy operates twice: it opens the door to finance and disciplines the risk appetite with which finance is used. A credit program that ignores literacy forfeits both channels; worse, it may recruit precisely those borrowers whose risk attitudes are least tempered by their understanding.

4. WHAT WORKS: SIMPLICITY AND TARGETING, NOT CURRICULUM

Skeptics of the literacy-first position have a serious objection: financial education programs often disappoint people. The Indonesian field experiment cited earlier found only modest effects of financial education on the demand for banking services (Cole et al., 2011), and a fragmented international literature offers ammunition to both sides (Graña-Alvarez et al., 2024). If training does not work, the argument goes, it is better to keep subsidizing credit, which at least demonstrably moves money.

The objection mistakes the failure of pedagogy for the failure of a policy objective. The most illuminating evidence is experimental. In a randomized trial with microentrepreneurs in the Dominican Republic, standard accounting training—the double-entry, principles-based curriculum beloved of program designers—produced no significant improvement in outcomes, while a stripped-down "rule-of-thumb" training focused on simple heuristics measurably improved financial practices, including separating business from personal accounts and keeping records, and increased revenues, with the largest gains among less-skilled owners (Drexler et al., 2014). The lesson is not that literacy training fails; it is that literacy training fails when it is designed for accountants rather than *warung* owners. Heuristics that fit the cognitive and time budgets of a micro-entrepreneur—pay yourself a fixed salary, keep two drawers of cash, write down what leaves the till—change behavior where conceptual instruction does not.

Two design principles are followed. The first is simplicity: Indonesian MSME training, frequently delivered as classroom instruction in formal accounting, should be rebuilt around rules of thumb that survive contact with a fourteen-hour retail day (Drexler et al., 2014). The second is targeting. Both the Dominican experiment, where less-skilled owners gained the most (Drexler et al., 2014), and the Indonesian evidence that education effects are concentrated among low-education groups (Cole et al., 2011) point in the same direction: returns to literacy intervention are highest at the bottom of the capability distribution. Similarly, the East Java finding shows that literacy deficits concentrate among older managers and those distant from administrative centers (Nugroho et al., 2023). Blanket programs that enroll whoever shows up will be dominated by the already capable; effective programs must go looking for the aging kiosk owner in the peripheral *kabupaten*.

A systematic review of SME financial literacy confirms the broader framing: owner-manager literacy is shaped by educational, cultural, and context-specific factors, and it influences financial attitudes, behaviors, organizational capabilities, and ultimately performance—but the field remains fragmented, with inconsistent constructs and measures (Graña-Alvarez et al., 2024). Fragmentation is an argument for better research design, not policy abstention. We do not respond to heterogeneous drug

trial results by abandoning medicine; we respond by identifying which formulation works for which patient. The same discipline is owed to the literacy policy.

5. DIGITALIZATION RAISES THE STAKES

It is tempting to believe that technology dissolves the literacy problem: apps automate bookkeeping, algorithms score credit, and dashboards visualize cash flow. However, Indonesian evidence points in the opposite direction. Digitalization raises the literacy threshold because every digital tool is both an instrument and a hazard, and distinguishing the two is itself a literacy task.

Start with adoption. Among 2,222 Indonesian micro and small enterprises, the adoption of digital technologies was explained by business factors, firm characteristics, and owner attributes, with higher-income firms and firms selling during the pandemic period being the most likely to adopt (Trinugroho et al., 2022). Digital tools, left to market diffusion, flow to the already advantaged. The owner attributes that predict adoption are closely related to the attributes that predict financial literacy. Therefore, a digitalization strategy without a capability strategy widens, rather than narrows, the gap between sophisticated small firms and struggling micro ones.

Then consider use. The serial mediation evidence discussed earlier found that fintech adoption had minimal direct impact on access to finance; adoption mattered only within a chain that began with financial literacy (Kurniasari et al., 2025). Downloading a payment app is not financial inclusion, just as owning a textbook is not education. Meanwhile, the productivity gains from digital literacy operate differently from those of financial literacy—digital literacy raises SME productivity without the marketing-intensity mediation that characterizes financial literacy (Sakti et al., 2025)—suggesting that the two capabilities are distinct and both are required, not interchangeable.

Finally, risk should be considered. Fintech lending compresses the time between temptation and debt to a few taps on a screen. In a low-literacy population, this is not frictionless finance; it is a frictionless error. The foundational literature's warning that poor literacy correlates with costly debt behavior (Lusardi & Mitchell, 2014), combined with evidence that literacy disciplines financial risk attitudes (Ye & Kulathunga, 2019), implies that every efficiency gain in loan delivery mechanically increases the value of the borrower's capability. Indonesia's fintech boom does not make the literacy agenda optional or less urgent. It makes it urgent.

6. POLICY AND RESEARCH IMPLICATIONS

This study has four implications for Indonesian policymakers and two for researchers. First, rebalance the portfolio. The claim is not that credit programs should be dismantled; access-obstacle evidence remains valid (Beck & Demirguc-Kunt, 2006). Instead, the marginal public rupiah should migrate toward capabilities. Complementarity implies that literacy investment raises the return on every rupiah of credit already flowing (Adomako et al., 2016); it is a rare intervention that makes existing programs work better rather than competing with them. Second, it should be bundled rather than sequenced. Literacy training should be embedded within credit delivery—as a condition or companion of subsidized loans and fintech onboarding—so that capability arrives at the same time as capital. Mediation evidence indicates that literacy operates through simultaneous access and use (Kurniasari et al., 2025; Ye & Kulathunga, 2019), and bundling exploits both channels.

Third, keep it simple and target it for future research. Program design should adopt rule-of-thumb curricula with demonstrated behavioral effects (Drexler et al., 2014) and direct them toward the segments where deficits are concentrated: older owners, remote regions, and low-education groups (Cole et al., 2011; Nugroho et al., 2023). Delivery through village-owned enterprises and local business associations can reach managers who are not reachable by distance. Fourth, digital and financial literacy should be treated as joint requirements of the digitalization agenda. Fintech licensing and MSME digitalization targets should carry capability obligations because adoption without literacy delivers little

(Kurniasari et al., 2025; Trinugroho et al., 2022), and the two literacies contribute through different channels (Sakti et al., 2025).

The priorities for researchers are equally clear. The field needs harmonized constructs and measures of SME financial literacy—the fragmentation documented in systematic review work is a genuine obstacle to cumulative policy learning (Graña-Alvarez et al., 2024)—and it needs Indonesian randomized evaluations of simplified, targeted training at the scale and rigor that credit programs have long enjoyed. If the state can pilot a lending scheme across provinces, it can randomize a heuristic curriculum across them.

7. CONCLUSION

Indonesia's *warung* economy will not be saved by credit alone because credit was never the whole problem. The supply side program answered a real constraint and deserves credit—in both senses—for what it built. However, the evidence now available, much of it from Indonesia itself, describes an economy in which capital is increasingly reachable and capability is not, where financial literacy determines who obtains finance, who uses it productively, who adopts technology to advantage rather than peril, and whose firm converts a loan into growth rather than into debt. Access and literacy are complementary, and policy should invest where scarcity binds. This means simple, targeted, evaluated capability-building woven into the credit and digitalization programs Indonesia already runs. The *warung* owner does not need another lender on her phone. She needs human capital to make every lender, app, and rupiah work for her. Until policy supplies that, it is not financing growth; it is financing its appearance.

Ethical Approval

Ethical approval was not required for this article because it is a commentary and conceptual policy article based entirely on published academic literature, empirical studies, policy discussions, and publicly available secondary sources. This study did not involve human participants, interviews, surveys, experiments with individuals, clinical procedures, animal subjects, or the collection of identifiable personal data. All sources related to financial literacy, MSME growth, access to finance, fintech adoption, credit policy, digitalization, and Indonesian small business development were used responsibly and cited properly in accordance with academic research ethics.

Informed Consent Statement

Informed consent was not applicable because this study did not involve human participants or primary data collection. The discussion and analysis were based entirely on the previously published literature, empirical research findings, and secondary academic sources.

Authors' Contributions

SPD was solely responsible for the conceptualization of the article, development of the critical argument, literature review, analysis of financial literacy and MSME growth issues, interpretation of access-to-finance and fintech adoption evidence, formulation of policy implications, preparation of the original manuscript draft, manuscript revision, and approval of the final version for publication.

Disclosure Statement

The author declares that there are no competing interests or conflicts of interest related to this article. No financial, personal, professional, or institutional relationships influenced the analysis, interpretation, or argument presented in the manuscript.

Data Availability Statement

This article is based on publicly available academic literature, empirical studies, policy discussions, and the secondary sources cited in the manuscript. No primary dataset was collected or generated. Further information regarding the sources discussed in this article may be obtained from the cited references.

Funding

This research received no external funding.

Notes on Contributor

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