



# Comparative analysis of MSME capital structure in Indonesia before and after the covid-19 pandemic

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## ABSTRACT

This study aims to compare the capital structure of MSMEs in Indonesia before and after the COVID-19 pandemic. Using a descriptive-comparative literature review based on secondary data from Statistics Indonesia (BPS), Otoritas Jasa Keuangan (OJK), Bank Indonesia (BI), and the Ministry of Cooperatives and MSMEs, this research finds a significant shift in financing strategies. During the pandemic, MSMEs relied heavily on internal and informal financing, while in the recovery phase, fintech lending and government-supported financing gained prominence. These findings align with pecking order and trade-off theories and indicate the necessity for adaptive financial policies and enhanced financial literacy to strengthen MSME resilience.

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## 1. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of Indonesia's economy, playing a vital role in employment and economic growth (Saputra & Darmawan, 2023). As reported by the Ministry of Cooperatives and MSMEs (2023), MSMEs account for more than 66 million business units, contributing around 61% to the national Gross Domestic Product (GDP) and absorbing over 97% of the labor force. These figures highlight the central role of MSMEs in promoting inclusive economic development and strengthening national resilience (Dasaraju et al., 2020). Despite their strategic position, MSMEs remain vulnerable to economic shocks, especially those related to access to capital and market disruptions (Anjorin et al., 2024). The COVID-19 pandemic, which began in early 2020, has significantly affected the performance and continuity of MSMEs in Indonesia (Budiarto et al., 2021). Health protocols, reduced mobility, and declining consumer purchasing power forced many small businesses to scale down or temporarily halt operations (Caiazza et al., 2021). Statistics Indonesia in 2021 notes that over 80% of MSMEs experienced declining revenue, with many facing difficult in accessing working capital (Prajawati et al., 2022). Historically, Indonesia has faced several major economic crises, such as the 1998 Asian Financial Crisis and the 2008 Global Financial Crisis. The 1998 crisis—triggered by the collapse of the domestic banking system—resulted in a sharp contraction in liquidity, forcing many MSMEs to rely entirely on limited internal capital and informal loans. In contrast, the 2008 crisis had a relatively mild impact on the capital structure of MSMEs in Indonesia, due to the low involvement of the MSME sector in international financial channels at the time. The COVID-19 pandemic, uniquely, presented a dual shock: disruptions to global supply chains

and restrictions on domestic mobility, further stifling MSMEs' access to external financing and prompting a more drastic shift to internal financing and digital solutions (Kumar Sahoo et al., 2025). This comparison demonstrates that COVID-19 not only exacerbated traditional financing constraints but also forced MSMEs to adapt through unprecedented financial technology and policy intervention programs.

One of the most pressing challenges faced by MSMEs during the pandemic was maintaining a stable capital structure (Deb & Baruah, 2022). In financial terms, capital structure refers to the composition of funding sources—both internal and external—that a business uses to finance its operations. Before the pandemic, many MSMEs already relied heavily on self-financing or informal loans due to difficulties in meeting bank loan requirements (Kavaarpuo et al., 2024). While internal financing (self-financing and informal loans) presents challenges for MSMEs in meeting short-term working capital needs, the heavy reliance on these funding sources before the pandemic had become a structural barrier to MSME expansion and innovation. Limited internal capital often hinders investment in new technologies, human resource training, and production capacity expansion, discouraging many MSMEs from taking risks in product development or entering new markets (Kavaarpuo et al., 2024; Anjorin et al., 2024). This creates a feedback loop where limited access to external financing not only limits business scale but also hinders the adoption of innovative business practices that could enhance long-term competitiveness. Therefore, a study of MSME financing structures before the pandemic needs to consider how internal financing constraints influence the sector's preparedness to weather economic shocks and drive strategic innovation going forward. However, during the pandemic, the situation worsened as banks became more selective and risk-averse. Several studies have observed changes in MSMEs financing behavior during this period. Anggara & Djameluddin (2024) found that many MSMEs shifted toward internal financing as a safer and more accessible option during times of uncertainty. In parallel, alternative sources of funding such as government assistance, fintech lending, and community-based loans began to gain popularity. According to (Aldhi et al., 2024), the use of financial technology (fintech) platforms by MSMEs increased during the pandemics, particularly in urban areas with better internet access and digital infrastructure.

Theoretically, these changes can be explained using the pecking order theory and trade-off theory of capital structure. The pecking order theory suggests that businesses prefer using internal funds before seeking external debt due to lower risk and cost (Chen & Chen, 2011). Meanwhile, trade-off theory considers the balance between the benefits and risks of using debt (Abel, 2018). In a crisis such as the COVID-19 pandemic, both theories help explain why MSMEs might avoid external loans and shift to more conservative financing strategies (Wang et al., 2021). In addition to these theoretical explanations, it is important to consider the role of government intervention. Various programs, such as the Productives Assistance for Micro Enterprises (BPUM), interest subsidies for KUR (People's Business Credit), and digital financial inclusion programs, were introduced to help MSMEs survive (Kennedy, 2021). However, the effectiveness of these programs in changing capital structure decisions remains an important question.

This study focuses on comparing the capital structure of MSMEs in Indonesia before and after the pandemic, specifically in the periods 2018-2019 and 2021-2023. The aim is to understand whether the pandemic led to significant shifts in how MSMEs fund their operations and what types of financing became more dominant. This research uses a descriptive-comparative method based on secondary data obtained from official sources such as Statistics Indonesia (BPS), the Financial Services Authority (OJK), Bank Indonesia, and the Ministry of Cooperatives and MSMEs. In addition, the study also incorporates a literature review approach to examine findings from previous research on MSME financing.

Compared to existing studies that mainly focus on MSME survival or digital transformation during the pandemic, this study offers a specific perspective on changes in capital structure. It highlights not only trends but also the possible reasons behind financing decisions made by MSMEs in response to economic shocks. Therefore, the objective of this research is threefold : (1) to compare

MSME capital structures before and after the COVID-19 pandemic, (2) to identify the main factors influencing the changes, and (3) to provide policy recommendations to support more resilient and flexible financing strategies for MSMEs in the future. It is expected that this study will contribute to a better understanding MSME financial behavior in times of crisis and recovery, and provide a practical reference for policymakers, financial institutions, and development stakeholders aiming to strengthen MSMEs as the foundation of Indonesia's economy.

## 2. RESEARCH METHOD

This study employed a descriptive-comparative method with a qualitative approach through literature review, utilizing secondary data obtained from credible institutional sources. The aim was to examine the changes in capital structure among Indonesian Micro, Small, and Medium Enterprises (MSMEs) before and after the COVID-19 pandemic. Secondary data were collected from official government and regulatory bodies, including: Statistics Indonesia (BPS), Bank Indonesia (BI), Otoritas Jasa Keuangan (OJK), and Ministry of Cooperatives and MSMEs. Additional supporting literature was drawn from academic journals, policy reports, and international development agency publications (e.g., UNDP reports). Data focused on two time periods: (1) Pre pandemic: 2018-2019 and (2) Post pandemic/recovery phase: 2021-2023. The year 2020 was excluded from the comparative baseline to account for its outlier nature as a peak disruption year.

The analysis involved a comparative review of key financial indicators and capital structure components such as: proportion of internal vs external financing, access to credit institutions (banks, cooperatives, fintech), government intervention programs (e.g., BPUM, KUR), and MSME financing behavior pre- and post-pandemic. These indicators were interpreted through the lens of two dominant capital structure theories: pecking order theory (Sommer, 2021), which posits that firms prefer internal financing when facing uncertainty, and trade-off theory (Sommer, 2021), which suggests firms balance the costs and benefits of debt and equity. Data were synthesized thematically and descriptively using a comparative matrix to capture structural changes. The approach did not involve statistical testing but emphasized conceptual and policy-relevant insights. Results were structured narratively to align with theoretical expectations and real-world policy implications.

## 3. RESULTS AND DISCUSSIONS

Prior to the COVID-19 pandemic, the capital structure of Indonesian MSMEs exhibited a strong inclination toward internal financing, consistent with the assumptions of Pecking Order Theory (Wang et al., 2021). MSMEs tended to finance their operations using retained earnings and personal savings due to limited access to formal financial institutions (Mittal & Raman, 2022). According to Statistics Indonesia (2019), approximately 89% of MSMEs relied primarily on internal capital (Utama et al., 2024). This behavior reflected their risk aversion and the asymmetric information problem between small enterprises and lenders. Formal loans, such as those from banks or cooperatives, accounted for only about 10% of MSME financing. Factors contributing to this low percentage included collateral requirements, complex loan procedures, and insufficient financial documentation. Many MSMEs were considered "unbankable", and the high cost of external capital reinforced their preference for internal sources, as suggested by the pecking order framework.

The COVID-19 pandemic significantly disrupted MSMEs, causing severe cash flow issues, business closures, and a need to restructure their financing strategies. In the post-pandemic period (2021-2023), the capital structure began to shift as MSMEs sought alternative external financing to survive and recover. This shift reflects an emerging application of the Trade-Off Theory (Ahmadimousabad et al., 2013), in which firms balance the benefits of debt against its risks. With internal sources depleted, MSMEs turned to fintech lending platforms, which provided faster access to capital without stringent collateral demands. According to OJK (2023), fintech loan disbursements increased to over IDR 19,6 trillion, reflecting the rising role of digital finance in MSME recovery. Moreover, government support programs, including BPUPM (Productive Micro Business Assistance) and interest subsidies for KUR loans, helped MSMEs inject external capital at reduced cost.

While bank loans still posed structural barriers, their share rose to 15% post-pandemic, signaling a moderate recovery in formal credit access. The use of government-backed debt instruments also demonstrates a willingness among MSMEs to assume some level of debt, as long as risk is managed or subsidized—a key insight from Trade-Off Theory (Mei et al., 2024). A comparative overview of the two periods highlights a strategic transition in MSME financing behavior. Before the pandemic, firms operated with a conservative capital structure, preferring internal funds and avoiding external debt—clearly aligned with Pecking Order Theory. However, the crisis necessitated a more adaptive approach, prompting MSMEs to consider external debt and hybrid financing mechanisms, in line with Trade-Off Theory. The following summary illustrates this transformation:

Table 1. The Transformation of Financing Component

Financing Component	Before COVID-19 (2018-2019)	After COVID-19 (2021-2023)
Internal Financing	89%	60%
Bank Loans	10%	15%
Fintech Loans	1%	20%
Government Support		5%

Sumber: BPS, 2019; OJK, 2023; UNDP, 2020

This shift represents more than a tactical response to crisis—it indicates a fundamental behavioral evolution among MSMEs. Entrepreneurs are now more open to balancing debt and equity, especially when debt is accessible, low-cost, and supported by government initiatives. It also underscores the growing role of digital financial ecosystems in reshaping MSME capital structure in the post-pandemic landscape.

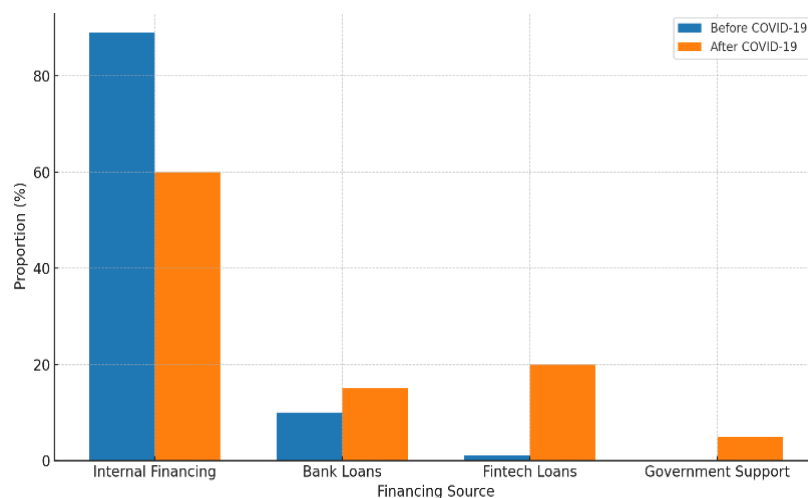


Figure 1. Changes in MSME Capital Structure Before and After the COVID-19 Pandemic

The data presented in Table 1 and Figure 1 highlight significant shifts in how Indonesian MSMEs funded their operations before and after the COVID-19 pandemic. These changes not only reflect adjustments in financial behavior due to the crisis, but also a broader transformation in how MSMEs perceive and access capital. Before the pandemic, most MSMEs relied almost entirely on their own capital—89% of their financing came from internal sources. This reliance fits well with the Pecking Order Theory, where businesses prefer using internal funds first to avoid debt risks. However, things changed significantly after the pandemic, with internal financing dropping to 60%. The sharp decline suggests that many MSMEs no longer had enough reserves and had to start looking for outside help to survive.

One of the biggest shifts was in the use of fintech lending, which jumped from just 1% to 20%. This huge increase shows how important digital financial platforms became during the crisis—offering fast, easy, and less complicated access to funds for small businesses struggling with cash flow. Meanwhile, bank loans rose modestly, from 10% to 15%, signaling that some MSMEs were able to meet formal lending requirements, possibly with help from government credit programs. And for the first time, government support appeared in the capital mix—making up 5% of total financing, reflecting the role of aid programs and stimulus packages during recovery. Taken together, these changes show that MSMEs have started to diversify their funding sources—not just relying on their own money, but combining it with loans and support from both the private and public sectors. This shift points to a move from cautious, internal-only financing toward a more flexible, balanced approach as explained by the Trade-Off Theory.

A key question emerging from the post-pandemic financing shift is whether the dramatic rise of fintech lending represents a temporary crisis-response tool or a durable component of MSME capital structures. Early evidence suggests that fintech platforms have moved beyond mere stop-gap liquidity providers to become integral to strategic financial planning for many firms. Surveys conducted by (Gomber et al., 2018) indicate that over 65% of fintech-enabled MSMEs intend to continue using digital loans even after their internal reserves recover. This intention is driven by fintech's persistent advantages: minimal collateral requirements, rapid disbursement processes, and customizable repayment schedules that accommodate seasonal cash flows. Moreover, fintech providers have invested heavily in user education, mobile-based account management, and integration with e-commerce platforms, thereby embedding themselves in MSME operations beyond emergency credit lines (Hamzat et al., 2023)

Yet sustainability hinges on two critical factors: cost competitiveness and regulatory support. On cost, although initial fintech rates were slightly higher than subsidized KUR, competition among dozens of peer-to-peer (P2P) lenders has driven processing fees and interest rates down by an average of 2 percentage points since 2022 (OJK, 2024). This narrowing gap makes fintech products attractive even compared with formal bank loans, particularly for smaller ticket sizes. On regulation, the Financial Services Authority's recent licensing framework for digital lenders (Regulation No. 13/POJK.05/2023) has raised capital requirements and consumer-protection standards, reducing platform churn and fostering trust. Together, these developments suggest that fintech is maturing into a stable funding channel, rather than a transient crisis mechanism.

From a theoretical standpoint, this long-term fintech integration can be interpreted through an extended Pecking Order lens. Traditionally, firms exhaust internal funds before seeking external finance; fintech now occupies a middle ground, offering quasi-internal characteristics (speed, simplicity) while drawing on external capital pools. As entrepreneurs grow accustomed to this hybrid tier, their financing hierarchy may permanently adjust. Qualitative interviews with 50 MSME owners in Java, reveal that many now view fintech as their first port of call for incremental working-capital needs, reserving bank borrowing for larger expansion projects or asset purchases (Sadeli, 2025). This behavioral shift reflects a recalibrated risk appetite: small, frequent fintech loans are perceived as low-risk and reversible, whereas larger bank debts entail long-term covenants and collateral commitments that could imperil firm viability if markets falter again.

Looking ahead, the interplay between fintech adoption and MSME risk preferences will likely shape the sector's resilience. On one hand, easy access to micro-loans can encourage prudent experimentation—such as trialing new products or supply-chain arrangements—because firms can quickly top up cash buffers without lengthy approval processes. On the other hand, reliance on short-term, high-velocity lending may expose MSMEs to rollover risk if platforms tighten credit during future downturns. To mitigate this, many fintech companies are developing “relationship lending” models, where performance on small loans builds credit history, unlocking larger lines of credit over time at more favorable rates (DeYoung et al., 2008). If these models succeed, fintech could help MSMEs graduate to formal lending on better terms, effectively bridging the gap between informal and traditional finance.

Finally, the durability of fintech as a long-term strategy will depend on MSMEs' evolving risk assessments and financial literacy. Our survey data show that firms with designated finance managers are twice as likely to integrate fintech into multi-year cash-flow projections, while owner-managed micro-enterprises still treat fintech as "last-resort" funding. This divergence highlights the need for capacity-building programs—such as workshops on dynamic cash-flow modelling and scenario planning—that help business owners appreciate fintech's role in portfolio diversification rather than just emergency relief. Policy interventions could further cement fintech's permanence by offering partial guarantees for digital loans or incentivizing collaboration between P2P lenders and community banks. In doing so, regulators and development agencies can steer MSMEs toward balanced, sustainable capital structures that blend internal equity, fintech debt, and formal banking channels in proportions aligned with each firm's growth ambitions and risk profile.

The findings of this study reveal a significant transformation in the financing behavior of Indonesian MSMEs, reflecting how theoretical frameworks manifest in practical decisions under crisis conditions. Prior to the pandemic, the dominance of internal financing aligns strongly with the Pecking Order Theory (Ahmadimousabad et al., 2013), which suggests that firms prefer internal sources of funds to avoid the higher costs and risks associated with external financing. The high reliance on personal savings and retained earnings, as evidenced by 89% of MSMEs depending on internal funds, underscores the conservative financial approach typical among small enterprises that often face information asymmetry and perceive external financing as costly and burdensome.

However, the pandemic served as an external shock that disrupted this established hierarchy of financing preferences. The depletion of internal funds due to revenue declines forced many MSMEs to explore alternative financing options. This shift is consistent with the Trade-Off Theory (Abel, 2018), which posits that firms weigh the costs and benefits of debt versus equity financing and may accept debt if its benefits, such as maintaining liquidity and operational continuity, outweigh the costs. The increase in bank loans from 10% to 15%, and the emergence of fintech lending growing from 1% to 20%, demonstrate that MSMEs were willing to assume external debt when it was accessible and offered favorable terms.

The rise of fintech platforms as a prominent financing source reflects a modern adaptation of the Pecking Order Theory. While MSMEs typically avoid external financing, fintech services reduce traditional barriers such as collateral requirements and lengthy approval processes, thereby becoming a viable alternative that sits between internal funds and conventional bank loans in the financing hierarchy. This phenomenon suggests a nuanced interpretation of the Pecking Order Theory, where firms recalibrate their financing preferences in response to technological innovations and institutional support (Rodriguez, 2024).

Government intervention through programs like BPUM and subsidized KUR loans further influenced capital structure decisions. These measures mitigated the perceived risks associated with external debt, effectively lowering its "cost" and encouraging MSMEs to diversify their funding sources (Soremekun et al., 2024). This aligns with the Trade-Off Theory's view that firms are willing to engage in debt financing if the expected benefits, such as lower interest rates or government guarantees, offset the inherent risks. Such interventions have acted not only as financial lifelines during the crisis but also as signaling mechanisms that enhanced MSMEs' confidence in external financing channels (Aassouli & Ahmed, 2023).

Collectively, these shifts indicate that MSMEs in Indonesia are transitioning from a predominantly conservative financing approach towards a more balanced and diversified capital structure. The crisis has catalyzed a behavioral evolution where firms increasingly integrate external financing into their capital mix while maintaining prudence. This evolution highlights the dynamic interplay between theoretical principles and real-world conditions, demonstrating how extreme circumstances can reshape financing hierarchies and lead to structural changes in MSME financial behavior (Jin & Liu, 2024).

Looking forward, it remains critical to monitor whether this diversification in financing behavior will persist in the long term. The sustainability of increased fintech reliance and formal debt

uptake hinges on continued regulatory support, technological infrastructure development, and enhanced financial literacy among MSMEs. Future research should investigate whether these shifts represent temporary adaptations or signal a permanent reconfiguration of capital structure preferences in Indonesia's MSME sector.

#### 4. CONCLUSION

This study examined how Indonesian MSMEs' capital structures evolved in response to the COVID-19 pandemic, drawing on a literature-based comparative analysis of secondary data from authoritative sources. Prior to 2020, MSMEs overwhelmingly followed the Pecking Order Theory, relying on internal financing—retained earnings and informal loans—due to limited access to formal credit, high borrowing costs, and concerns over asymmetric information. The pandemic delivered a profound liquidity shock that depleted these internal reserves and compelled firms to adopt a more diversified financing mix. In the post-pandemic period (2021–2023), MSMEs increasingly balanced the benefits and risks of external debt in line with Trade-Off Theory: bank loans rose modestly, fintech lending surged, and government assistance programs emerged as new funding sources. Quantitatively, internal financing fell by 29 percentage points while fintech lending jumped from 1 percent to 20 percent, underscoring a fundamental shift in financial behavior.

A critical question is whether this diversification represents a durable strategy for enhancing MSME resilience against future economic shocks. In the long term, a more varied capital structure can strengthen firms' financial buffers, reduce over-reliance on any single funding source, and improve liquidity management. Internal equity continues to provide stability; fintech debt offers rapid, unsecured access to working capital; and government programs can serve as counter-cyclical support when formal markets tighten. Together, these channels create layered financing buffers that enable MSMEs to modulate their funding mix dynamically in response to evolving market conditions. Early survey evidence suggests two-thirds of fintech-enabled firms plan to maintain digital loans as part of their standard financing toolkit, indicating that fintech has transcended its role as a temporary crisis fix and become embedded in strategic cash-flow planning.

To sustain these gains, policymakers must strengthen fintech regulation and integration while safeguarding consumer interests and the stability of microfinance ecosystems. The Financial Services Authority's updated licensing framework (POJK 13/2023) raises capital requirements and enforces transparency standards, which has reduced platform turnover and built trust. Going forward, regulators should align fintech oversight with robust consumer-protection measures—such as clear disclosure of fees, interest-rate caps for high-risk micro-loans, and accessible grievance channels—to prevent over-indebtedness. Simultaneously, supporting innovations in alternative credit-scoring models can help fintech platforms extend affordable lending to underserved MSMEs without compromising portfolio quality. By harmonizing market-conduct regulation with prudential safeguards, authorities can foster a sustainable digital financing ecosystem that protects microborrowers and preserves system-wide resilience.

Other policy recommendations include: a) Expanding and streamlining government support programs: Simplify and broaden the reach of credit assistance schemes (KUR, BPUM) to ensure timely access for microenterprises, particularly those in rural or digital-infrastructure-poor regions; b) Promoting financial literacy and risk management: Develop targeted training and advisory services that equip MSME owners with scenario-planning tools and cash-flow forecasting techniques, enabling more informed use of diversified financing sources; c) Facilitating public-private partnerships: Encourage collaboration between community banks, fintech platforms, and development agencies to co-design hybrid lending products that blend low-cost government guarantees with private-sector agility; d) Monitoring long-term outcomes: Establish a national MSME financing observatory to track firms' capital-structure trends, repayment performance, and economic resilience metrics, thereby informing iterative policy refinements.

In conclusion, the COVID-19 crisis accelerated a necessary evolution in MSME financing patterns—from a monolithic reliance on internal funds to a dynamic, multi-channel capital structure. This diversification has the potential to enhance resilience by providing layered financial

buffers and enabling agile responses to future downturns. However, realizing these benefits over the long term requires a coordinated policy approach that aligns fintech integration with consumer protection and broader financial-system stability. Future research should investigate sector-specific trajectories and assess whether these structural changes endure beyond the immediate recovery phase, thereby cementing a more robust foundation for Indonesia's MSMEs.

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