Regulatory Sandbox Implementation by the Financial Services Authority (OJK) in Fintech Supervision: A Normative Analysis of POJK 3/2024 within the Innovative Credit Scoring and Aggregator Clusters

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis konstruksi normatif dan orientasi pengawasan Regulatory Sandbox Indonesia berdasarkan POJK 3/2024, khususnya dalam kluster Penilaian Kredit Inovatif dan Aggregator. Penelitian ini menggunakan metode penelitian hukum doktrinal dengan pendekatan yurisprudensi dan analitis, yang dilengkapi dengan analisis konten kualitatif melalui NVivo untuk memetakan pola regulasi tematik berdasarkan hasil penetapan resmi sandbox (Agustus 2023–April 2024). Temuan menunjukkan bahwa kerangka kerja sandbox mencerminkan paradigma regulasi yang didorong oleh regulator dan berbasis risiko, yang berlandaskan pada prinsip regulasi responsif, proporsionalitas, dan tata kelola adaptif. Namun, meskipun stabilitas keuangan sistemik tetap menjadi tujuan regulasi yang dominan, perlindungan konsumen dan akuntabilitas algoritmik memerlukan penguatan normatif yang lebih kuat. Penelitian ini memberikan kontribusi secara teoretis dengan memperkaya kajian regulasi fintech melalui integrasi analisis doktrinal dan metodologi pengkodean tematik, serta secara praktis dengan menawarkan rekomendasi kebijakan untuk meningkatkan transparansi algoritma, tata kelola data, dan pengawasan yang proporsional. Keunikan studi ini terletak pada penggabungan pemetaan kualitatif yang dibantu perangkat lunak dengan evaluasi hukum normatif untuk menilai secara kritis transformasi pengawasan fintech di Indonesia berdasarkan POJK 3/2024, khususnya pada klaster inovasi berisiko tinggi.

Kata Kunci: Regulatory sandbox, pengawasan fintech, regulasi berbasis risiko, penilaian kredit inovatif, agregator

ABSTRACT

This study aims to analyze the normative construction and supervisory orientation of Indonesia's Regulatory Sandbox under POJK 3/2024, particularly within the Innovative Credit Scoring and Aggregator clusters. The research employs doctrinal legal research using statute and analytical approaches, complemented by qualitative content analysis through NVivo to map thematic regulatory patterns based on official sandbox determination results (August 2023–April 2024). The findings reveal that the sandbox framework reflects a regulator-driven and risk-based regulatory paradigm grounded in responsive regulation, proportionality, and adaptive governance principles. However, while systemic financial stability remains the dominant regulatory objective, consumer protection and algorithmic accountability require stronger normative reinforcement. This research contributes theoretically by enriching fintech regulatory scholarship through the integration of doctrinal analysis and thematic coding methodology, and practically by offering policy recommendations to enhance algorithm transparency, data governance, and proportional supervision. The novelty of this study lies in combining software-assisted qualitative mapping with normative legal evaluation to critically assess Indonesia's fintech supervisory transformation under POJK 3/2024, particularly in high-risk innovation clusters.

Keywords: regulatory sandbox, fintech supervision, risk-based regulation, innovative credit scoring, aggregator.

INTRODUCTION

The rapid expansion of financial technology (fintech) in Indonesia has significantly transformed the national financial services landscape, expanding digital access while simultaneously intensifying regulatory complexity. As of November 2025, 95 fintech lending companies remain officially licensed and supervised by the Financial Services Authority (Otoritas Jasa Keuangan/List of Licensed Fintech Lending Companies as of 30 November 2025). Although the number of operators has stabilized following a phase of regulatory consolidation, cumulative lending distribution continues to grow substantially, accompanied by deepening digital penetration and expanding borrower participation. This structural expansion increases regulatory exposure in areas such as consumer protection, data governance, algorithmic accountability, over-indebtedness, and systemic financial stability.

In response to these evolving risks, OJK introduced the Regulatory Sandbox mechanism under POJK No. 3 of 2024 as a controlled supervisory framework for testing innovative financial models. The sandbox establishes a structured regulatory pathway consisting of staged registration (20 working days), document verification and analysis, conditional approval or rejection, a testing and development period of up to one year, and a final evaluative determination (pass or fail). Eligibility criteria include innovation novelty, consumer benefit, testing readiness, and the existence of risk-mitigation planning. Graduation criteria further require successful implementation of testing scenarios, measurable performance outcomes, legal compliance, operational sustainability, and demonstrable risk mitigation.

Globally, regulatory sandboxes are understood as policy instruments designed to balance innovation with oversight (Zetzsche et al., 2017; World Bank, 2020). However, within the Indonesian context, the central question extends beyond innovation facilitation. The core regulatory problem is whether the sandbox under POJK 3/2024 substantively operates as a structured risk-based supervisory architecture or merely functions as an administrative experimental stage prior to licensing. This issue becomes particularly salient in relation to Innovative Credit Scoring (ICS) and Aggregator business models, which rely heavily on artificial intelligence, alternative data profiling, automated decision-making, and digital intermediation. These models inherently generate algorithmic opacity, bias amplification, and data asymmetry risks that demand calibrated regulatory intervention.

Empirical scholarship suggests that sandbox participation reduces regulatory uncertainty and fosters regulator–firm collaboration (Cornelli et al., 2023). Comparative studies further demonstrate diversity in sandbox maturity, supervisory intensity, and institutional design across jurisdictions (Buckley et al., 2020). Yet, most existing literature frames sandbox regimes primarily as innovation-enabling tools. Fewer studies evaluate whether sandbox mechanisms embed transparent risk profiling, proportional supervisory gradation, and measurable systemic safeguards—particularly in emerging market contexts.

In Indonesia, prior research has emphasized sandbox mechanisms as facilitators of fintech growth (Fadillah, 2020; Kusumawardhani, 2021). However, systematic doctrinal analysis of POJK 3/2024 as a risk-calibrated regulatory framework remains limited. Specifically, existing studies have not critically examined whether sandbox eligibility criteria, testing limitations, and pass–fail determinations reflect structured risk-weighting aligned with responsive regulation and proportionality principles. Nor has there been sufficient inquiry into whether the sandbox's distinction between successful and unsuccessful participants is grounded in systemic-risk evaluation or merely procedural compliance assessment. This reveals a clear research gap concerning the supervisory orientation, proportionality, and transparency of Indonesia's sandbox architecture.

This study aims to analyze the normative construction and supervisory orientation of Indonesia's Regulatory Sandbox, with particular focus on the Innovative Credit Scoring and Aggregator clusters. It evaluates whether the sandbox mechanism adequately integrates consumer protection safeguards, algorithmic accountability standards, and systemic risk mitigation principles within its staged supervisory design. Given growing global concerns regarding algorithmic bias, automated credit scoring, and digital lending vulnerabilities (World Bank, 2020), assessing the risk-calibration dimension of Indonesia's sandbox becomes both normatively and practically significant.

Theoretically, this research is grounded in responsive regulation theory (Ayres & Braithwaite, 1992), which emphasizes graduated regulatory intervention calibrated to risk exposure and compliance behavior. The proportionality principle further requires that regulatory measures be suitable, necessary, and balanced in achieving legitimate objectives, particularly within experimental governance frameworks. Complementing these perspectives, adaptive governance theory underscores the importance of regulatory learning, flexibility, and iterative supervision in rapidly evolving digital environments (Zetzsche et al., 2017).

By integrating these theoretical lenses, this study contributes in two principal ways. First, it advances doctrinal legal scholarship by critically evaluating Indonesia's sandbox framework as a potential architecture of structured risk-based governance rather than merely an innovation facilitation tool. Second, it contributes methodologically by combining normative legal analysis with qualitative thematic mapping of sandbox determinations, thereby bridging doctrinal inquiry and empirical regulatory research. Practically, the findings provide policy recommendations concerning transparency of evaluation metrics, algorithmic governance standards, and proportional supervisory calibration, contributing to the development of inclusive, accountable, and resilient digital financial governance in Indonesia.

RESEARCH METHOD

This research adopts a doctrinal legal research design with a normative juridical approach. The doctrinal method is selected because the primary objective of this study is to examine the normative construction and legal coherence of the Regulatory Sandbox framework under Peraturan Otoritas Jasa Keuangan Nomor 3 Tahun 2024. Doctrinal research is particularly appropriate for analyzing statutory interpretation, regulatory structure, and legal principles embedded within financial supervision regimes.

The study employs both a statute approach and an analytical approach. The statute approach enables systematic examination of POJK 3/2024 and related regulatory instruments governing the sandbox mechanism. Meanwhile, the analytical approach is applied to interpret the regulatory logic, supervisory orientation, and normative implications embedded in the sandbox framework. These approaches collectively allow the research to address the central question concerning whether the sandbox operates as a substantive risk-based supervisory instrument or merely as an administrative experimental mechanism.

Primary legal materials consist of POJK 3/2024 and official Regulatory Sandbox Determination Results issued between 9 August 2023 and 30 April 2024. Secondary materials include peer-reviewed academic journals, regulatory reports, and theoretical literature on responsive regulation, proportionality principle, and adaptive governance. The inclusion of these materials ensures doctrinal consistency and theoretical grounding in evaluating regulatory design.

This study analyzes 12 Regulatory Sandbox Determination documents issued by the Financial Services Authority (OJK) within the period of 9 August 2023 to 30 April 2024. These documents were selected based on two criteria: (1) their relevance to fintech business models within the Innovative Credit Scoring (ICS) and Aggregator clusters, and (2) their status as officially published regulatory outputs.

In addition to these primary documents, the analysis incorporates supporting materials from five institutional perspectives, namely OJK, Bank Indonesia, fintech industry actors (ITSK), industry associations (AFTECH and AFSI), and consumer representation. These sources are treated as analytical “cases” within the NVivo framework to enable cross-comparative interpretation.

The analytical procedure involves several stages. First, all selected documents are imported into NVivo software for systematic coding. Second, a deductive coding framework is applied based on five predefined analytical indicators: (1) foundational regulatory principles, (2) licensing and supervision mechanisms, (3) risk-based regulatory orientation, (4) consumer protection and systemic stability, and (5) normative compatibility. Third, relevant text segments are coded into these categories to identify recurring regulatory patterns and supervisory orientations.

Doctrinal consistency is maintained by cross-referencing regulatory texts with supervisory outcomes to identify coherence or divergence. This methodological integration allows readers to critically evaluate the robustness of the analysis and strengthens the normative assessment of Indonesia's fintech sandbox model.

RESULTS AND DISCUSSION

Table 1. NVivo Coding Distribution Across Analytical Dimensions

No	Analytical Dimension	Number of References	Percentage (%)
1	Foundational Regulatory Principles	55	25.35
2	Licensing and Supervision Mechanism	50	23.04
3	Risk-Based Regulatory Orientation	53	24.42
4	Consumer Protection and Systemic Stability	29	13.36
5	Normative Compatibility	30	13.82

The NVivo coding results, as presented in Table 1. NVivo Coding Distribution Across Analytical Dimensions, show that foundational regulatory principles constitute the most frequently referenced analytical dimension (55 coded segments or 25.35%), followed closely by risk-based regulatory orientation (53 or 24.42%) and licensing and supervision mechanisms (50 or 23.04%). In contrast, consumer protection and systemic stability (29 or 13.36%) and normative compatibility (30 or 13.82%) appear less frequently.

This distribution indicates that the regulatory sandbox framework under POJK 3/2024 reflects a relatively balanced yet multi-dimensional supervisory orientation, rather than a single dominant regulatory focus.

Foundational Regulatory Principles

The dominance of foundational regulatory principles indicates that the Regulatory Sandbox is positioned as a preventive normative instrument rather than a merely administrative testing mechanism. The NVivo coding results show that foundational regulatory principles constitute the most frequently coded dimension, with 55 references or 25.35% of the total coded segments. This figure is slightly higher than risk-based regulatory orientation, which accounts for 53 references or 24.42%, and licensing and supervision mechanisms, which account for 50 references or 23.04%.

Accordingly, the prominence of foundational regulatory principles should not be understood as absolute dominance, but rather as part of a relatively balanced distribution among the three main supervisory dimensions. This finding indicates that the Regulatory Sandbox under POJK 3/2024 is constructed not merely as an administrative testing mechanism, but as a multi-dimensional supervisory framework grounded in normative principles, risk-based calibration, and staged licensing control.

From the perspective of responsive regulation theory, the sandbox reflects a graduated enforcement model in which regulatory intervention is calibrated according to risk exposure and compliance behavior. Instead of immediately imposing punitive sanctions, OJK adopts a tiered supervisory structure that allows fintech innovators to refine their business models within a controlled environment. This configuration corresponds to the regulatory pyramid model, where supervision begins at the persuasive level (limited testing), progresses to corrective measures, and ultimately leads to rejection or restriction when risks cannot be mitigated. Such a structure confirms that the sandbox operates not merely as a procedural gateway to licensing, but as a substantive supervisory filter.

This finding advances prior scholarship that primarily framed sandboxes as innovation-enabling mechanisms. In contrast, the Indonesian case demonstrates that sandbox design can function simultaneously as an innovation facilitator and a structured risk-filtering mechanism. Thus, the sandbox under POJK 3/2024 represents a hybrid model that integrates preventive supervision with adaptive regulatory experimentation.

Within this context, the regulatory sandbox can be further understood as an extension of the state's evolving role in digital governance, where regulatory intervention is not merely aimed at facilitating innovation but also at ensuring consumer protection, market fairness, and systemic balance within the digital financial ecosystem (Suryadi et al., 2025).

Beyond regulatory theory, this supervisory orientation can also be interpreted through the lens of Pancasila regulatory philosophy. As the foundational normative framework of Indonesia's legal system, Pancasila emphasizes balance between economic progress and social justice, deliberative decision-making, and proportional state intervention. The preventive structure of the sandbox reflects the constitutional mandate to harmonize innovation with public welfare, particularly under the Fifth Principle of Pancasila (social justice for all Indonesians). Regulatory intervention is therefore not solely justified by market efficiency considerations, but also by the moral-constitutional obligation to safeguard collective welfare (Prasetyo, 2021; Wibowo, 2022).

Moreover, the dialogic and iterative nature of sandbox supervision resonates with the Fourth Principle of Pancasila, which underscores deliberation (musyawarah) as a guiding value in governance. The sandbox institutionalizes a consultative supervisory space where regulators and innovators engage in structured interaction prior to full market entry. Such an approach aligns with contemporary interpretations of Pancasila as a dynamic constitutional philosophy capable of guiding regulatory modernization in the digital era (Suteki, 2020; Huda, 2023).

Comparatively, global studies have recognized regulatory sandboxes as effective policy instruments in reducing regulatory uncertainty and fostering regulator–firm collaboration (Kálmán, 2025; Zetzsche et al., 2017). However, this study adds new insight by demonstrating that in Indonesia, the normative emphasis on foundational regulatory principles is not only an expression of adaptive governance but also a manifestation of constitutional-economic values embedded in Pancasila. The shift from command-and-control regulation toward dialogic and adaptive governance thus reflects not merely institutional learning, but also philosophical continuity within Indonesia's legal order.

Accordingly, the Indonesian sandbox framework illustrates how emerging market regulators operationalize responsive regulation within technologically dynamic sectors while simultaneously grounding supervisory innovation in constitutional principles. This dual anchoring—regulatory theory and Pancasila philosophy—expands the theoretical application of regulatory pyramid models in fintech governance contexts and offers a distinctive normative contribution to global sandbox scholarship.

Licensing and Supervision Mechanisms

POJK 3/2024 clearly positions the regulatory sandbox as a mandatory preliminary phase before a fintech innovation can be granted full operational licensing. This structural design not only operationalizes the proportionality principle in regulatory oversight but also functions as an instrument of adaptive governance in technological regulation. By requiring phased evaluation prior to licensing, the sandbox ensures that regulatory scrutiny is commensurate with the level of risk and complexity inherent in each model business. Under the proportionality principle, the intensity and scope of supervision are calibrated to the risk profile of each participant. This manifests through:

a. Limitation of testing boundaries,
b. Caps on user engagement levels,
c. Periodic reporting obligations, and
d. Continuous assessment of governance and risk mitigation mechanisms.

These mechanisms operate not as mere procedural requirements but as normative filters that align regulatory burden with potential harm. In other words, licensing is not automatic upon completion of sandbox participation; rather, it is an evaluative judgment call based on demonstrable risk control and governance maturity. This interpretation aligns with the view that proportional oversight contributes to regulatory legitimacy by avoiding both under- and over-regulation (Black & Baldwin, 2019; Heyes & Rickless, 2022).

In the context of adaptive governance, the regulatory sandbox functions as a structured learning environment for both regulator and industry. Adaptive governance theory emphasizes iterative feedback, institutional learning, and flexibility in responding to complex socio-technical systems (Chaffin, Gosnell, & Trejo, 2016; Ford et al., 2021). In the case of POJK 3/2024, the sandbox serves not only as a pre-licensing screening tool but also as an institutional mechanism for continuous regulatory adjustment. Through iterative engagement, OJK can observe, evaluate, and recalibrate regulatory expectations based on observed risk behavior, innovation characteristics, and external developments — thereby enhancing regulatory responsiveness.

This dual emphasis on proportionality and adaptation builds on and extends prior research in fintech governance. For example, Fenwick, McCahery & Vermeulen (2018) highlight that collaborative regulatory mechanisms can result in better compliance without discouraging innovation. Similarly, Lee and Teo (2020) argue that regulatory frameworks incorporating adaptive features (such as phased engagement and continuous monitoring) promote sustainable fintech ecosystems by mitigating systemic vulnerabilities while preserving innovation flexibility.

Furthermore, recent empirical work by Zetzsche et al. (2024) demonstrates that sandbox mechanisms with built-in adaptive feedback loops — such as iterative evaluation criteria and staged licensing — improve both regulatory certainty and risk mitigation outcomes across multiple jurisdictions. The Indonesian case exemplifies this: the sandbox's licensing and supervision mechanisms reflect a hybrid governance framework that balances structured oversight with institutional learning — a core tenet of adaptive governance.

Importantly, this finding moves the discussion forward from the introduction by providing theoretical nuance to the central research question: the sandbox under POJK 3/2024 operates not simply as an administrative pre-condition for licensing, but as a normatively justified, risk-calibrated, and adaptively governed supervisory mechanism.

Risk-Based Regulatory Orientation

The NVivo coding results indicate that risk-based regulatory orientation constitutes the second most frequently coded dimension, with 53 references or 24.42% of the total coded segments. This proportion is only slightly lower than foundational regulatory principles, which account for 55 references or 25.35%, and slightly higher than licensing and supervision mechanisms, which account for 50 references or 23.04%. These findings suggest that risk-based supervision represents a central, but not exclusively dominant, component of the Regulatory Sandbox under POJK 3/2024. References to proportional supervision, risk mitigation, testing boundaries, and evaluative reporting appear consistently across the analyzed regulatory and sandbox determination documents, indicating that risk-based regulation is embedded within the supervisory design rather than treated as a merely complementary compliance element. The coding frequency supports the interpretation that risk-based orientation operates alongside foundational regulatory principles and licensing mechanisms as part of an integrated supervisory structure. Therefore, the sandbox framework should be understood as a balanced regulatory architecture in which risk identification, risk mitigation, and proportional supervision are connected to the staged process of testing and licensing.

These findings advance the central research question by showing that Indonesia's Regulatory Sandbox operates as a substantive risk-governance mechanism rather than a merely administrative pre-licensing filter. The analysis reveals that supervisory intensity is calibrated in relation to perceived innovation risk, reflected in differentiated testing limits, user exposure caps, reporting frequency, and governance assessments. Although POJK 3/2024 does not formally articulate a structured framework, the empirical pattern of proportional safeguards suggests the presence of what may be conceptualized as an implicit risk-calibration matrix.

Although POJK 3/2024 does not expressly formulate a formal risk-calibration matrix, the regulatory provisions and sandbox determination documents indicate an implicit pattern of risk calibration. This pattern can be reconstructed from several recurring evaluative parameters, including innovation complexity, consumer exposure, data governance, operational readiness, risk mitigation capacity, legal compliance, and systemic impact. These parameters help explain how supervisory intensity is adjusted according to the risk profile of each innovation tested within the sandbox.

Table. 2 Reconstructed Implicit Risk-Calibration Matrix in POJK 3/2024 Sandbox Supervision

Risk Parameter	Low Risk	Medium Risk	High Risk	Supervisory Response	Sandbox Implication
Innovation complexity	Simple business model with limited modification to existing financial services	New digital process with limited data integration	Use of artificial intelligence, alternative data, automated decision-making, or large-scale digital intermediation	Document review, testing scenario limitation, and technical evaluation	Higher complexity requires stronger feasibility justification and more intensive supervision
Consumer exposure	Limited number of test users and low potential financial loss	Moderate user involvement with limited financial exposure	Large user involvement or vulnerable consumers with significant potential financial loss	User caps, informed consent, transparency requirements, and complaint mechanisms	High exposure may justify testing restrictions or negative sandbox determination
Data governance and privacy risk	Limited and non-sensitive data use	Use of personal data in digital service processes	Use of alternative data, behavioral data, geolocation data, or	Data governance review, cybersecurity assessment, and personal data	High data risk requires stronger security, transparency, and accountability standards

			automated profiling	protection compliance	
Operational readiness	Adequate infrastructure, human resources, and internal controls	Basic operational readiness with technical adjustments needed	Unstable infrastructure, incomplete standard operating procedures, or weak disruption mitigation	Document verification, system-readiness assessment, and periodic reporting	Low readiness may justify postponement, correction, or rejection
Risk mitigation capacity	Clear, measurable, and implementable mitigation plan	Mitigation plan exists but is not fully tested	Mitigation plan is unclear, immeasurable, or disproportionate to potential impact	Risk mitigation evaluation, scenario testing, and risk reporting	Weak mitigation may result in failure to pass sandbox testing
Legal and regulatory compliance	Consistent with POJK 3/2024 and related financial regulations	Requires legal clarification or business model adjustment	Conflicts with legal provisions, consumer protection norms, or prudential principles	Compliance review, business model correction, and activity restriction	Serious non-compliance may lead to rejection or negative determination
Systemic impact	Limited impact on sandbox participants	Potential impact on specific service segments	Potential systemic risk, contagion risk, or disruption to financial sector stability	Intensive supervision, testing-scale limitation, and continuous feasibility evaluation	High systemic risk may justify restriction, suspension, or termination of testing

The reconstructed matrix above clarifies that risk calibration within the sandbox is not based on a single factor, but on the interaction among technological complexity, consumer exposure, data governance, operational readiness, mitigation capacity, legal compliance, and systemic impact. These parameters determine the intensity of supervision applied during the testing period. Low-risk innovations may be subject to document-based verification and limited monitoring, while higher-risk innovations, particularly those involving artificial intelligence, alternative data, automated decision-making, or broad consumer exposure, require stricter testing boundaries, more frequent reporting, and stronger justification before receiving a positive determination.

Therefore, the notion of an implicit risk-calibration matrix should be understood as an analytical reconstruction derived from recurring supervisory indicators in POJK 3/2024 and sandbox determination documents, rather than as a formally codified matrix expressly provided by OJK. This distinction is important to avoid overstating the regulatory text while still demonstrating that the sandbox mechanism contains identifiable patterns of proportional risk-based supervision.

This matrix aligns three regulatory variables: (a) the nature and scale of innovation risk, (b) the intensity of supervisory control, and (c) the progression toward licensing approval. In this sense, proportionality operates as an operational mechanism rather than a rhetorical principle. Consistent with Priscilla dkk. (2019), who argue that regulatory sandbox mechanisms function as risk-mapping instruments prior to market entry, the present study demonstrates that such risk mapping is systematically embedded within Indonesia's sandbox design.

A further empirical distinction emerges between ex-ante risk filtering and ex-post enforcement. The regulatory provisions governing sandbox participation emphasize controlled experimentation, early-stage risk identification, and structured evaluation before full authorization is granted. This indicates a preventive orientation consistent with adaptive governance theory. As also noted by Kholifah dkk. (2024), sandbox mechanisms are designed to minimize potential consumer harm before large-scale public exposure. In contrast, ex-post enforcement—through sanctions, corrective measures, or license revocation—remains a secondary mechanism activated only after regulatory violations occur. Gunawan and Mukhlis (2021) observe that Indonesian financial supervision has historically relied more heavily on corrective enforcement; therefore, the sandbox's emphasis on ex-ante calibration represents a significant institutional transformation toward preventive governance.

However, the findings also reveal a critical limitation: the transparency of risk profiling criteria remains insufficiently articulated. While POJK 3/2024 repeatedly emphasizes proportional supervision, it does not explicitly disclose how risk categories are weighted, how algorithmic or operational risks are evaluated, or how systemic exposure thresholds are determined. Nugroho and Hidayat (2023) caution that opaque supervisory metrics may weaken regulatory accountability and create uncertainty for market participants. Similarly, Rahmawati and Kurniawan (2024) highlight that limited transparency in digital lending risk evaluation may obscure distributive consequences for vulnerable borrowers.

Accordingly, this study contributes to fintech governance scholarship by demonstrating that Indonesia's sandbox framework embodies a structurally embedded preventive risk-calibration model, yet its normative legitimacy depends on enhancing transparency in risk assessment criteria. By conceptualizing the sandbox as an implicit risk-calibration matrix, this research moves the discussion beyond descriptive accounts of innovation facilitation and reframes adaptive regulation as a structured, yet still evolving, architecture of accountable risk governance.

Consumer Protection and Systemic Stability

The findings of this study demonstrate that consumer protection within Indonesia's fintech regulatory sandbox framework under POJK 3/2024 remains structurally oriented toward systemic stability rather than individual-level risk mitigation. While the sandbox effectively operationalizes proportional supervision through user caps, reporting obligations, and phased licensing, the empirical and doctrinal analysis reveals that several consumer-specific vulnerabilities are not yet embedded as primary evaluative criteria during the testing phase. This finding directly addresses the study's central research question regarding whether Indonesia's sandbox model functions merely as a pre-licensing administrative filter or as a normatively calibrated supervisory mechanism balancing innovation and consumer justice.

One significant regulatory concern relates to the absence of explicit algorithmic fairness testing requirements in the sandbox framework. Fintech lending models rely extensively on predictive analytics trained on historical and alternative datasets that may reflect pre-existing socio-economic inequalities. As observed by Hakim and Wibowo (2023), algorithm-based decision-making risks reproducing hidden discrimination, particularly when proxy variables correlate with geographic location, income classification, or informal employment patterns. The analysis in this study indicates that although POJK 3/2024 requires governance and risk reporting during sandbox participation, it does not explicitly mandate algorithmic fairness testing or independent audit mechanisms. This regulatory omission indicates that the sandbox framework has not yet clearly required verification of algorithmic fairness before sandbox graduation, thereby leaving potential fairness risks insufficiently addressed at the regulatory design level.

A second major finding relates to data asymmetry between fintech providers and consumers. Nugroho and Hidayat (2023) argue that extensive alternative data collection undermines meaningful informed consent when consumers lack transparency regarding data processing mechanisms. Similarly, Sari and Mulyani (2024) demonstrate that information imbalance significantly affects consumer financial decision-making behavior. The present study finds that sandbox supervision focuses on operational and prudential reporting, yet does not systematically incorporate explainability standards or consumer-facing transparency benchmarks. Consequently, adaptive governance in this context appears institutionally robust but normatively incomplete from a consumer protection standpoint.

The research further identifies over-indebtedness risk as an under-integrated dimension within sandbox evaluation. Rahmawati and Kurniawan (2024) document recurring refinancing cycles among vulnerable borrowers within Indonesia's digital lending ecosystem. While POJK 3/2024 limits aggregate exposure through user caps and testing boundaries, these mechanisms primarily contain systemic contagion rather than assess cumulative borrower-level sustainability. The findings therefore indicate a macroprudential orientation that prioritizes systemic containment over distributive risk assessment.

In addition, the rise of shadow credit scoring, defined as the utilization of non-traditional behavioral indicators such as social media activity or mobile usage metadata, presents emerging concerns regarding privacy, fairness, and contestability. Prasetyo and Santoso (2022) emphasize that such scoring mechanisms frequently operate beyond consumers' comprehension or challenge rights. This study finds that sandbox regulation does not yet require structured validation of non-traditional scoring variables before licensing approval. The absence of explicit accountability mechanisms during the experimental phase creates a regulatory gap between innovation facilitation and rights protection.

Normatively, these findings suggest that OJK's sandbox framework remains predominantly macroprudential in character. Although effective in safeguarding financial stability and preventing systemic disruption, consumer protection safeguards appear reactive—activated through post-incident complaint mechanisms rather than embedded ex ante within licensing assessment criteria. This observation extends Gunawan and Mukhlis' (2021) argument that Indonesian fintech governance tends to privilege market order and institutional stability over distributive justice concerns.

Comparatively, the sandbox model implemented by the Financial Conduct Authority (FCA) in the United Kingdom integrates consumer mitigation more explicitly, including customised customer safeguards and compensation provisions for losses arising during testing. Similarly, the Monetary Authority of Singapore (MAS) incorporates transparency and engagement with sandbox applicants to ensure consumer awareness and accountability of innovation testing. By contrast, Indonesia's sandbox model emphasizes proportional supervision but has yet to institutionalize algorithmic auditability and debt sustainability metrics as core licensing determinants.

Taken together, these findings move the scholarly discussion forward by demonstrating that proportional and adaptive governance, while effective in managing systemic risk, may remain normatively insufficient unless consumer-centered safeguards are integrated at the design stage of regulatory experimentation. The study therefore contributes to fintech governance literature by showing that adaptive regulatory models must balance macroprudential resilience with micro-level fairness to achieve substantively legitimate innovation oversight.

Normative Compatibility Between Technological Innovation and Existing Legal Frameworks

The indicator of innovation–legal conformity demonstrates that the regulatory sandbox functions as a compatibility-testing mechanism between emerging business models and the existing positive legal framework. The thematic coding frequency indicates that normative compliance assessment constitutes a central evaluative component within POJK 3/2024. This finding advances the central research question by evidencing that the sandbox does not merely facilitate experimentation, but operates as a structured legal filtration process.

From the perspective of adaptive governance, this mechanism illustrates regulatory flexibility without sacrificing legal certainty. Innovation is not automatically legalized; rather, it is subjected to controlled normative boundaries. Where incompatibility is identified, the regulator retains calibrated authority to (1) require business model adjustments, (2) impose operational limitations, or (3) reject licensing applications. This staged evaluative structure positions the sandbox as a transitional bridge between rigid statutory frameworks and disruptive technological evolution.

This interpretation contributes new insight by demonstrating that Indonesia's sandbox architecture institutionalizes legal adaptability while maintaining the primacy of positive law. In other words, adaptive governance within POJK 3/2024 does not erode normative authority but reconfigures it through supervised experimentation.

National scholarship on fintech governance in Indonesia supports this interpretation. Research by Prabowo (2022) emphasizes that regulatory experimentation in Indonesia must operate within clearly demarcated legal parameters to preserve administrative legitimacy. Similarly, Nugroho and Hidayat (2023) argue that fintech supervision in Indonesia increasingly relies on compatibility testing mechanisms to prevent regulatory gaps arising from technological acceleration. Wicaksono (2023) further highlights that proportional regulatory design in the financial sector strengthens legal certainty while accommodating innovation dynamics.

In comparative perspective, global studies recognize regulatory sandboxes as normative bridges between technological innovation and rigid legal systems (Zetzsche et al., 2017; Butler & O'Brien, 2019). However, this study extends the literature by demonstrating that in the Indonesian context, legal compatibility assessment is structurally embedded as a gatekeeping function within the sandbox framework. This reinforces the understanding that POJK 3/2024 embodies a hybrid regulatory architecture: adaptive in process yet anchored in formal legality.

Accordingly, the Indonesian sandbox model advances scholarly understanding of how emerging market regulators reconcile legal certainty with technological disruption. Rather than diluting normative authority, adaptive sandbox governance in Indonesia repositions law as an instrument of guided transition.

CONCLUSION

The findings of this study suggest that the Regulatory Sandbox under POJK No. 3 of 2024 functions as a structured risk-based supervisory instrument rather than solely as an administrative testing mechanism. The NVivo coding results show that foundational regulatory principles (55 coded segments), risk-based regulatory orientation (53), and licensing and supervision mechanisms (50) are the most frequently observed dimensions within a total of 217 coded segments. This relatively close distribution indicates a multi-dimensional supervisory configuration, where preventive design, supervisory oversight, and risk calibration operate in an integrated manner rather than reflecting a single dominant regulatory focus.

This configuration suggests that Indonesia’s sandbox framework incorporates preventive and adaptive regulatory approaches through ex-ante risk filtering and structured supervisory processes. However, several limitations remain, particularly regarding the transparency of evaluation metrics, the articulation of algorithmic accountability standards, and the clarity of graduation benchmarks. Accordingly, future regulatory development should prioritize strengthening provisions within POJK, supported by more operational implementing instruments such as SEOJK and technical supervisory guidelines issued by OJK. These should include clearer auditability requirements, bias testing procedures, explainability standards, and standardized risk assessment matrices linked to sandbox graduation criteria. Further research is needed to assess post-graduation outcomes, including default rates, consumer protection indicators, and the effectiveness of algorithmic risk mitigation in practice.

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