

The ‘We’-Volution: FinTech-Driven Credit Risk Management at WeBank

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ABSTRACT

This paper analyzes WeBank’s credit risk management system as a representative model of China’s digital banking innovation. It systematically examines WeBank’s multi-stage risk control framework—covering pre-lending, in-process, and post-lending phases—built upon big data analytics, AI-driven credit scoring, and blockchain-based traceability. The study explores how the bank integrates real-time data processing, automated decision-making, and intelligent monitoring to identify, assess, and mitigate risks across the credit lifecycle. While recognizing its effectiveness in maintaining asset quality, the paper also highlights structural weaknesses such as credit concentration, asset pressure, and compliance gaps. Finally, it proposes targeted improvements in data integration, information security, and post-loan fund supervision to enhance the overall resilience and sustainability of WeBank’s risk governance framework.

KEYWORDS

WeBank; Credit Risk Management; FinTech; Big Data; Blockchain; Digital Banking

1. INTRODUCTION

The rapid expansion of emerging digital technologies—such as the Internet, the Internet of Things, and big data—has profoundly reshaped industries worldwide, with finance at the forefront of this transformation (Gu et al., 2023). In China, these innovations fostered the rise of “Internet-based finance,” an ecosystem that took formal shape in 2014 under supportive national policies (Liu et al., 2024). The sector’s early structure centered on third-party payments, peer-to-peer lending, and crowdfunding platforms (Chen, 2024). Soon after, a new breed of financial institutions—Internet banks—emerged, beginning with WeBank. As of today, eight such banks operate in China, functioning entirely online without physical branches. Leveraging vast data infrastructures, they deliver real-time, low-cost financial services and maintain a distinct competitive edge over conventional banks (Yu et al., 2024).

WeBank, China’s pioneering Internet bank, has built a technology-driven business architecture designed to serve the “long tail” of underserved consumers and small enterprises (Song & Li, 2023). By integrating social and transactional data into advanced credit-scoring models, it enables rapid and precise evaluation of borrower risk—an approach that contrasts sharply with the collateral-based lending methods of traditional banks (Lee, 2024). Yet, given the sector’s relatively short history, Internet banks continue to grapple with challenges, including weak compliance culture and uncertainties associated with novel business models (Luo et al., 2025). Episodes of risk exposure, particularly in collaborations with online lending platforms, underscore the pressing need for more robust risk management frameworks [9].

This paper focuses on WeBank as a representative case, offering both theoretical and practical insights. From an academic perspective, prior studies on bank risk management have concentrated largely on traditional institutions; this research extends the analytical frontier to digital banking (WeBank & Oliver Wyman, 2024). From a practical standpoint, WeBank’s experience provides instructive lessons for both Internet and traditional banks seeking to expand online credit operations. With over 18 million small and micro enterprises in China facing persistent financing constraints, Internet banks’ micro-lending innovations present an alternative mechanism for improving credit accessibility (The Asian Banker, 2023). As Internet-based lending becomes a strategic priority for commercial banks, understanding its risk management dynamics is crucial for ensuring the sustainable advancement of inclusive finance (PR Newswire, 2024).

1.1. Institutional Evolution

Founded in 2014, WeBank is China’s first privately owned, fully digital bank with registered capital of RMB 3.9 billion. Tencent holds a 30% stake, with the rest distributed among private firms (IDC Future Enterprise Awards, 2023). Since inception, it has adhered to an online-only, technology-driven model emphasizing inclusive and green finance.

By 2023, about 60% of new lending targeted SMEs and individual entrepreneurs. Of its 4.1 million SME clients, over 70% earned under RMB 10 million annually, and half obtained institutional credit for the first time (Gu et al., 2023). The NPL ratio remained around 1.5%, with provisioning coverage above 350%, showing robust risk control.

WeBank’s evolution reflects China’s broader digital banking shift (Liu et al., 2024). From its first product WeLoan (2015) to SME and supply-chain finance, the bank has coupled business growth with technological milestones such as FISCO BCOS (2017), FATE (2019), and Openhive (2020) (WeBank & Oliver Wyman, 2024). By 2023, it was contributing to national blockchain standards and ranked among top global digital banks.

Early adoption of distributed systems and open-source technologies enabled scalable, low-cost, and reliable operations across credit cycles—from acquisition to post-lending monitoring—illustrating the sustainable integration of FinTech and inclusive finance.

Table 1. Shareholding Structure of WeBank

Shareholder (English Name)	Stake	Industry
Shenzhen Tencent Domain Computer Network Co., Ltd.	30%	Information Transmission, Software & IT Services
Shenzhen Liye Group Co., Ltd.	20%	Manufacturing
Shenzhen Baiye Yuan Investment Co., Ltd.	20%	Wholesale & Retail
Shenzhen Chunyong Investment Co., Ltd.	9.9%	Wholesale & Retail
Shenzhen Henggang Investment Co., Ltd.	5%	Real Estate
Shenzhen Guanghui Petroleum Group Co., Ltd.	4%	Information Transmission, Software & IT Services
Xintai Technology (Group) Co., Ltd.	3%	Manufacturing
Shenzhen Gionee Communication Equipment Co., Ltd.	3%	Manufacturing
Yongjin Investment Holding Co., Ltd.	3%	Wholesale & Retail
Sinochem Meilin Petrochemical Group Co., Ltd.	2.1%	Manufacturing

1.2. FinTech Development at WeBank

Among China's 4,400 banks, WeBank stands out for its "light-asset, heavy-technology" strategy. In 2024, its R&D investment of RMB 3.3 billion accounted for 8.4% of revenue—twice the ratio of major state-owned banks and higher than joint-stock peers (5–6%).

Over half of its 2,250 employees work in technology roles, compared with below 10% in large banks, reflecting its "tech company + banking license" model. Programs like WeScholars (2022) further link academic research with FinTech application [5].

Recent innovations include a federated-transfer large model within FATE and the SME Large Model 2.0, trained on 7.7 billion enterprise entries and improving efficiency over 150-fold [4]. These models support AI-driven marketing, customer service, and compliance, boosting productivity while sharply reducing costs [13]. WeBank has also implemented AIGC-based digital humans and a 3D digital twin of its headquarters, exemplifying technology-led inclusive finance.

2. CURRENT STATUS OF CREDIT RISK AT WEBANK

2.1. Credit Product Architecture

WeBank has built a comprehensive credit portfolio covering both retail and SME finance. Its main retail products—WeLoan, WeCar Loan, Xiao'e Cash, and WE2000—offer fully digital microloans from RMB 50,000 to 200,000. For SMEs, WeBusiness Loan and WeDiscount provide unsecured online credit lines of up to RMB 5 million, simplifying liquidity management for small firms.

By end-2023, total assets reached RMB 535.6 billion, up 13% year on year, with loans comprising about 74% of total assets. Consumer lending remained the core revenue driver, while WeLoan, as the most mature product, serves as a key case for analyzing credit risk management.

WeLoan's workflow illustrates WeBank's integration of automation and data-driven governance. Applications undergo big-data screening to determine credit eligibility; qualified users join a "whitelist" for instant approval, while others are monitored continuously using central bank data. Anti-fraud algorithms flag anomalies, and verified borrowers complete biometric authentication before co-lending disbursement.

During repayment, borrowers may choose lump-sum or installment payments. In delinquency cases, the system automatically categorizes accounts for penalty interest, collection, or arbitration, feeding outcomes back into model refinement. This closed-loop process ensures real-time risk monitoring and model self-learning, reducing defaults and enhancing portfolio stability.

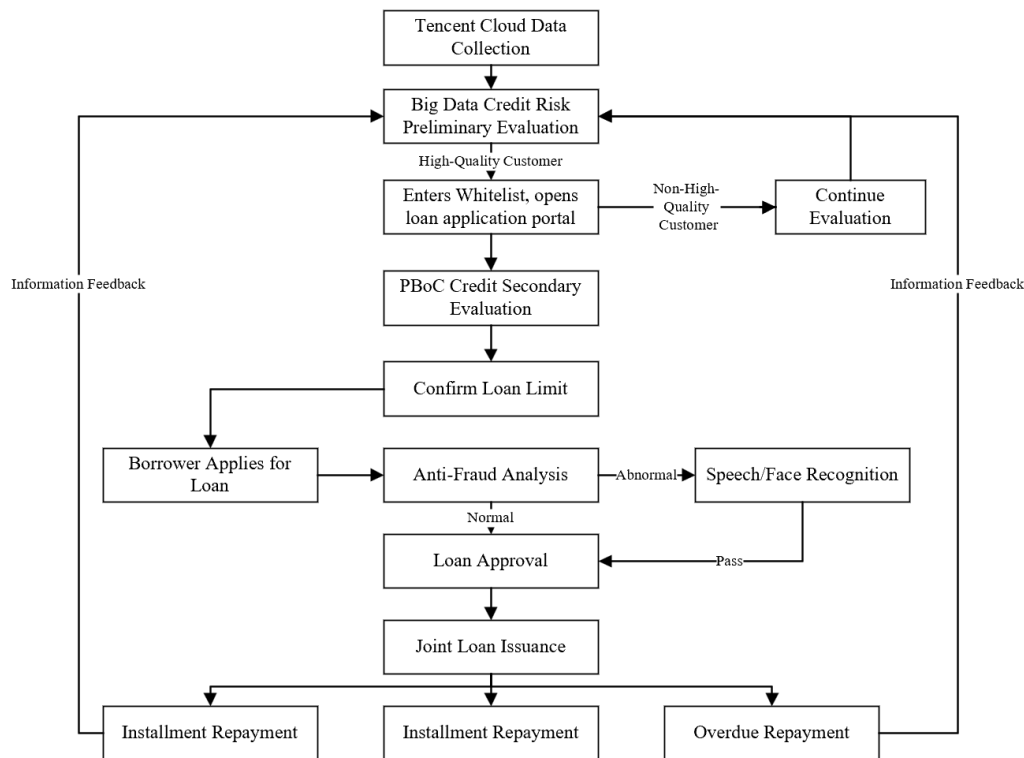


Figure 1. Flowchart of WeBank’s “WeLoan” Lending Process

Overall, WeBank’s credit architecture exemplifies the efficiency of a fully digital bank—combining algorithmic risk assessment, instant decision-making, and adaptive governance—representing a structural shift from traditional, collateral-based lending practices.

2.2. Pre-Lending Risk

2.2.1. Risk Identification

In the credit-admission stage, WeBank prioritizes the detection of multi-platform borrowing risk. Such risk typically arises from two scenarios: (1) genuine demand for large-scale consumption or business expansion that exceeds the credit limit of a single institution, and (2) “debt-rolling,” in which borrowers take new loans to repay old ones, creating potential debt traps.

To address this, WeBank has built a blockchain- and big-data-driven risk-identification framework. Through data-sharing partnerships with licensed financial institutions, it aggregates borrowers’ loan, installment, and delinquency information; simultaneously, cooperation with Tencent enables extraction of behavioral and social-network credit signals. Blockchain-based data cleansing ensures accuracy and eliminates duplication.

Rather than applying uniform cut-offs, WeBank employs granular credit-scoring models that evaluate loan purpose, income, outstanding debt, and repayment history. For instance, users with multiple small-credit accounts on consumer platforms such as Alipay or Douyin may still qualify if repayment performance and leverage ratios remain sound. This multidimensional, data-integrated approach allows the bank to distinguish liquidity-driven borrowing from distress-driven debt cycles.

2.2.2. Risk Assessment

WeBank’s pre-lending evaluation system centers on big-data credit scoring. Applicants exceeding the threshold enter a whitelist for automatic approval; those below it are continuously monitored and re-evaluated once credit conditions improve.

Given Tencent’s ecosystem of over 1.9 billion monthly active users across WeChat and QQ, WeBank must balance scale and prudence. Instead of offering credit indiscriminately, it relies on a precision-risk-control model that synthesizes financial, behavioral, and demographic information. Variables include income flows, asset returns, education, occupation, device type, mobility patterns, and geolocation—each weighted according to predictive power. Qualified users receive personalized credit lines and product recommendations accessible directly through the WeChat wallet interface, while others remain ineligible. This big-data admission mechanism effectively serves as WeBank’s first line of credit-risk defense.

Table 2. Selected Indicator System of WeBank

Dimension	Specific Indicator	Data Source
Basic Profile	Educational Background	Education Records
Basic Profile	Employment Information	Employment Records
Basic Profile	Social Attributes	Public Security Bureau Data
Basic Profile	Behavioral Characteristics	Consumer Finance Data, Transaction Records within Tencent Ecosystem
Basic Profile	Social Network Attributes	WeChat Social Credit Score, QQ Social Credit Score
Basic Profile	Interests and Preferences	Transaction Data and Social Interaction Data within Tencent Ecosystem
Credit History	Credit History	People’s Bank of China Credit Reporting System

For SME clients, risk assessment integrates rule-based screening and quantitative modeling. Screening evaluates firm characteristics such as location, scale, and industry classification; the quantitative layer measures solvency, profitability, sector prospects, capital efficiency, leverage, and management capability. This dual-layer structure enables comprehensive profiling of small-business borrowers and accurate identification of high-quality clients for whitelist inclusion.

Overall, WeBank’s pre-lending framework exemplifies data-driven prudential control—combining real-time behavioral analytics, federated data integration, and algorithmic decision-making—to minimize adverse selection before loan origination.

2.3. In-Process Credit Risk

2.3.1. Risk Identification

During loan approval, WeBank employs a multilayered risk-identification framework combining dynamic authentication, big-data analytics, blockchain, and biometric verification. Real-time validation ensures borrower authenticity, while a dual-source repayment capacity model—integrating Tencent Cloud behavioral data with the People’s Bank of China credit registry—enables precise credit-limit calibration.

At the disbursement stage, blockchain-based distributed ledgers guarantee end-to-end traceability and immutability of transactions, substantially enhancing operational security and auditability. This technological architecture forms the backbone of WeBank’s real-time, automated risk management.

2.3.2. Risk Detection

Fraud risk constitutes the core challenge in credit approval. WeBank mitigates this through a dual defense system—Dynamic Transaction Protection + Biometric Verification.

The model cross-validates environmental variables (device type, IP and geolocation, communication metadata, and transaction patterns) against customer behavior profiles. Minor deviations trigger SMS

verification; significant anomalies activate biometric authentication, including facial or voiceprint recognition.

The bank’s proprietary “Aurora Shield” facial-recognition technology digitizes three-dimensional geometry and texture patterns into feature vectors, enabling instant and secure identity confirmation. The system also performs continuous behavioral monitoring—triggering re-verification upon device replacement or location shifts—thus creating a closed-loop identity security architecture across the credit lifecycle.

2.3.3. Risk Assessment

WeBank’s in-process credit evaluation is governed by a data-driven quantitative model that integrates dynamic risk scoring with credit-limit optimization. By linking whitelist scoring with differentiated credit ceilings, the bank prevents mismatches between loan size and repayment capacity.

For individuals, credit ceilings typically range from RMB 5,000 to 300,000, with a single-loan cap of RMB 40,000—reflecting a more conservative risk appetite than peers such as MYbank (RMB 200,000–5 million). The dual-stage evaluation structure distinguishes between willingness to repay (pre-lending) and capacity to repay (approval stage). The latter fuses Tencent Cloud and central-bank data to model asset status, leverage ratios, and transaction histories, generating an integrated probability-of-default and loss-given-default estimate for each borrower.

2.3.4. Risk Control

Unlike conventional banks’ single-lender model, WeBank adopts a joint-lending structure, typically allocating 20% of credit from its own capital and 80% from partner institutions. To mitigate inter-institutional data security risk, the bank operates a blockchain-secured transaction network employing distributed ledgers and smart contracts to ensure transparency and immutability.

Each transaction node synchronizes through a decentralized consensus mechanism requiring majority validation, preventing tampering and guaranteeing data consistency. Dual-layer encryption and timestamp verification establish an end-to-end security framework.

From an infrastructural perspective, WeBank was China’s first bank to fully abandon the legacy IOE architecture (IBM servers, Oracle databases, EMC storage). Replacing it with a cloud-native LAMP stack (Linux, Apache, MySQL, PHP), the bank built a fully distributed architecture capable of real-time processing of unstructured data—including text, images, and video—essential for fraud detection and behavioral analytics.

The shift yielded major gains:

Cost Efficiency – annual IT expenditures fell by roughly 40%.

Reliability – multi-node redundancy ensures business continuity even under node failure.

Scalability – elastic capacity supports hundreds of millions of daily transactions.

Security – multi-point encryption and distributed backups enhance resilience.

This distributed, cloud-blockchain infrastructure represents a paradigmatic shift from capital-intensive legacy banking systems toward an agile, data-secure FinTech model that anchors WeBank’s competitive advantage in China’s digital credit landscape.

2.4. Post-Lending Risk

WeBank employs a differentiated post-lending management framework that balances borrower incentives with disciplinary constraints. To ease repayment pressure, borrowers facing liquidity stress can select flexible installment options—five, ten, or twenty equal-payment plans—enhancing repayment willingness while optimizing the tradeoff between risk and yield. Conversely, delinquent

borrowers face strict penalties: overdue information is reported to the central credit registry, and a 50% surcharge on unpaid interest is imposed to internalize default costs.

2.4.1. Risk Identification

Post-lending surveillance relies on a big-data–driven dynamic monitoring system built around two mechanisms: behavioral modeling and information updating. The behavioral model detects anomalies such as multi-platform borrowing, inter-institutional arrears, and excessive leverage through predictive algorithms. The information-supplementation mechanism continuously refreshes user profiles, using blockchain to filter and validate data on assets, credit history, and social-network behavior.

When repayment anomalies emerge, the system triggers tiered interventions: reminders, installment recommendations, or automated collection. This dynamic loop enables real-time feedback between borrower behavior and risk quantification, allowing early-stage corrections before default crystallizes.

2.4.2. Risk Assessment

WeBank’s post-lending evaluation integrates big data with AI-based adaptive modeling. Detected risk signals feed into a quantitative framework that continuously recalibrates variable weights in response to macroeconomic, policy, and market shifts. The model expresses risk exposure numerically and outputs recommended control strategies.

For individuals and SMEs, differentiated models are applied within a unified framework. SME assessment, for instance, dynamically adjusts weights depending on the nature of the risk: under policy uncertainty, macro-policy sensitivity is emphasized, while firm-level indicators—such as leverage, profitability, or innovation—are down-weighted.

Risk management follows a tiered approach. Borrowers without material default are classified by risk grade: low-risk clients remain under routine monitoring, whereas high-risk clients receive early-warning alerts, repayment incentives, or preferential prepayment terms. Actual defaulters enter a graduated response path—AI collection, outsourced recovery, or judicial arbitration—depending on default duration and exposure size.

2.4.3. Risk Control

WeBank’s AI-enabled collection architecture segments overdue loans by amount, duration, and risk level to assign appropriate collection methods. Early-stage or small-value delinquencies are handled via automated communication (WeChat messages, voice bots), achieving equivalent recovery at roughly one-fifteenth the cost of manual collection. High-value or chronic defaults are escalated to specialized agencies or judicial channels. This layered system optimizes cost efficiency while maintaining high recovery effectiveness.

Given WeBank’s reliance on unsecured credit, blockchain integration plays a critical role in enforcement. Default data are synchronized across distributed ledgers and instantly linked to the central credit registry, thereby imposing reputational and behavioral constraints on borrowers. The mechanism creates a credit-penalty feedback loop: defaulting not only reduces future credit access but can also limit consumption privileges, effectively raising the opportunity cost of delinquency.

In 2018, WeBank, together with the Guangzhou Arbitration Commission and Yibi Technology, launched the “Arbitration Chain”, a blockchain-based judicial evidence platform. By encrypting and timestamping financial records within a distributed storage system, it ensures the authenticity and integrity of digital evidence. Arbitration agencies can directly access these immutable records, drastically shortening adjudication cycles and reducing cumulative default losses.

In sum, WeBank’s post-lending framework demonstrates a closed-loop risk ecosystem—integrating behavioral analytics, AI-driven scoring, blockchain-based enforcement, and digital arbitration—that

transforms post-loan management from reactive collection into data-validated, algorithmically adaptive risk governance.

3. PERFORMANCE OF WEBANK'S CREDIT RISK MANAGEMENT

3.1. Performance of WeBank's Credit Business

WeBank's credit business has experienced sustained and large-scale expansion since its inception. The number of active personal loan users rose from 100 million in 2018 to 200 million in 2019, and continued growing to 360 million by the end of 2022 and nearly 400 million in 2023, underscoring its persistent market penetration. In SME finance, corporate clients increased from 68,000 in 2018 to 4.1 million by 2023, maintaining market leadership despite macroeconomic headwinds and moderating growth rates.

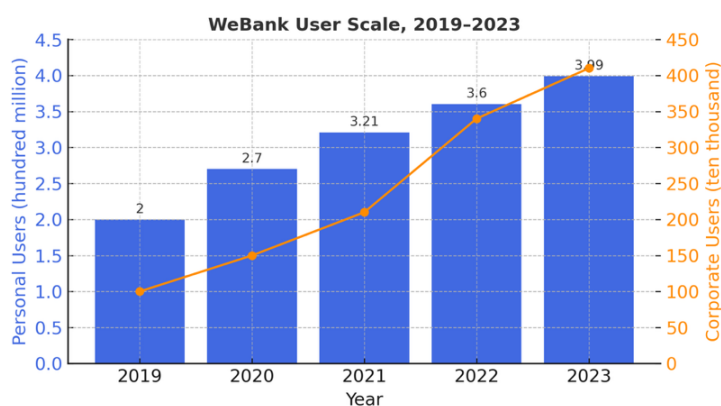


Figure 2. Growth of WeBank's User

Loan volumes reflect this trajectory. Starting from RMB 3.76 billion in 2015, WeBank's outstanding credit expanded to RMB 398.3 billion in 2023—a 106-fold increase. After an initial phase of explosive growth (2015–2017), the bank recalibrated its portfolio and risk management, then accelerated again post-2019 by leveraging financial technology. Even amid the COVID-19 shock, loan balances grew at an annual average of 25%, surpassing RMB 300 billion by 2022.

The rapid scaling of customer and transaction volumes has pressured operational capacity and risk governance, prompting a strategic shift toward full digitalization. Through its Openhive distributed core system, WeBank transitioned from manual to intelligent automated approval, enabling the processing of over 100 million daily loan applications. Infrastructure upgrades—including POD architecture, non-batch big-data engines, and capacity control mechanisms—raised transaction throughput to 840 million per day while reducing average IT maintenance cost per account to RMB 2, among the lowest in the industry.

The bank's continued innovation also enhanced system resilience. Its upgraded FISCO BCOS v3.0 blockchain platform introduced trusted light nodes and distributed gateways, doubling overall performance and enabling more personalized, post-pandemic digital financial services.

In an environment of rising default risk across China's banking sector, WeBank strengthened its risk management with an AI-powered intelligent control system capable of real-time monitoring through over a million algorithmic indicators. Its graph-based root-cause analysis engine, equipped with self-learning capabilities, increased diagnostic accuracy to over 91%, significantly improving the bank's ability to identify and mitigate risks in a complex macroeconomic context.

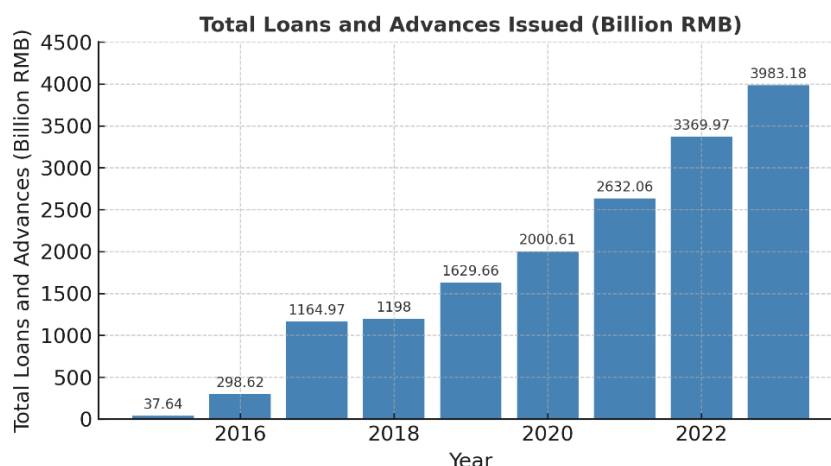


Figure 3. Growth in Total Loans and Advances Issued by WeBank, 2015–2023

3.2. Effectiveness of WeBank’s Credit Risk Management

In commercial banking, loan quality is commonly assessed through two key indicators: the non-performing loan (NPL) balance and the NPL ratio—the share of NPLs in total loans. These metrics capture both asset quality and the effectiveness of risk control.

WeBank’s NPL balance increased from RMB 1.95 billion in 2019 to RMB 6.04 billion in 2023, broadly consistent with its credit expansion. The sharp rise in 2019 (219.7%) mainly reflected a stricter classification standard—redefining “substandard” loans as those overdue by 60 days instead of 90. During 2020–2021, despite the pandemic, NPL growth (22–33%) closely matched loan growth (23–32%), indicating sound risk containment. In 2022, the NPL balance surged by 57%, exceeding the 7.7% rise in total loans, largely due to increased lending to small and micro enterprises (SMEs), which expanded their share of on-balance loans from 37% to 45%. By 2023, the NPL growth rate moderated to 21.6%, roughly aligning with loan growth (23%), signaling that remedial controls had taken effect. Overall, WeBank’s FinTech-based risk framework maintained stability under macroeconomic stress.

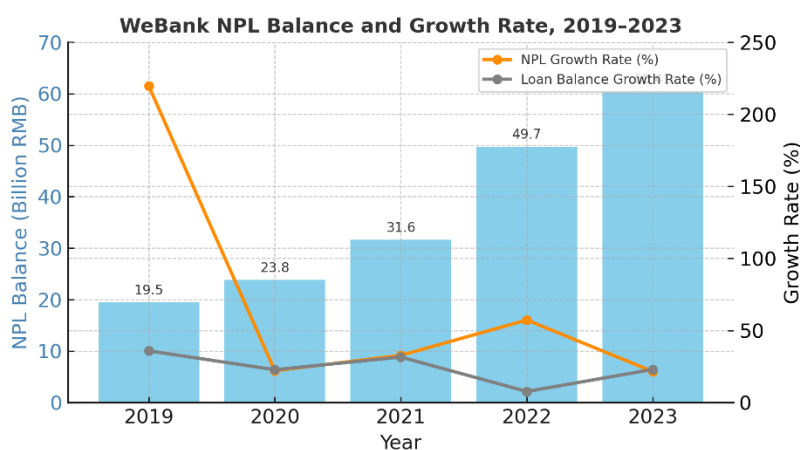


Figure 4. WeBank’s NPL Balance and Growth Rate (2019–2023)

The bank’s NPL ratio remained notably low and stable: around 1.20–1.24% in 2019–2020, rising modestly to 1.47% in 2021–2022, and slightly easing to 1.46% in 2023. This resilience illustrates WeBank’s strong adaptive capacity even in a deteriorating macroeconomic climate.

Compared with China’s six major state-owned banks, WeBank’s NPL ratio has been consistently competitive. In 2019, its 1.24% NPL ratio was below those of Industrial and Commercial Bank of China (1.43%) and China Construction Bank (1.42%), and only marginally above Bank of China

(1.37%) and Agricultural Bank of China (1.40%). During the pandemic, while large banks' ratios rose to 1.6–1.7%, WeBank maintained 1.20%. By 2023, its 1.46% ratio was slightly higher than state banks' 1.3–1.4%, attributable to expanded SME lending exposure rather than deterioration in credit quality.

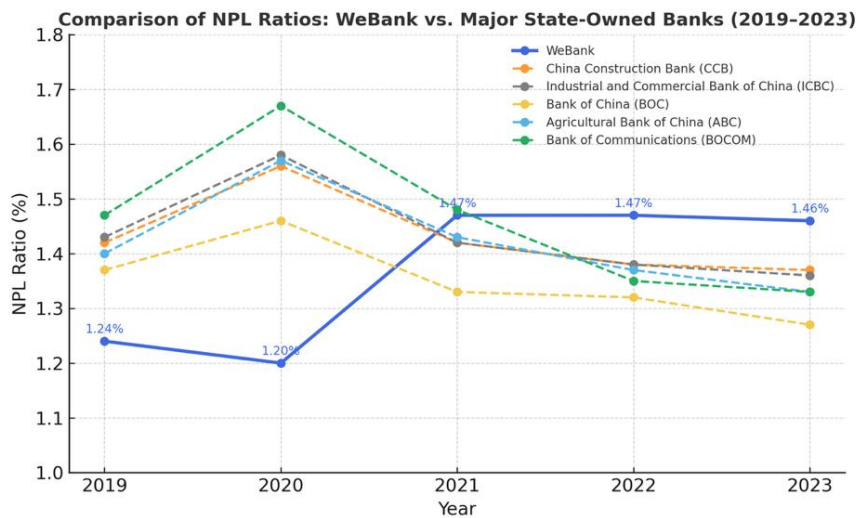


Figure 5. Comparison of NPL Ratios: WeBank vs. Major State-Owned Banks (2019–2023)

Against national joint-stock banks, WeBank has also performed favorably. Its NPL ratio (1.24%) outperformed Ping An Bank (1.65%), Industrial Bank (1.54%), SPD Bank (1.92%), and China Minsheng Bank (1.56%) in 2019, trailing only China Merchants Bank (1.16%). From 2020–2023, while WeBank's ratio hovered around 1.46%, it remained below that of most peers except top-tier performers such as Merchants Bank and Ping An.

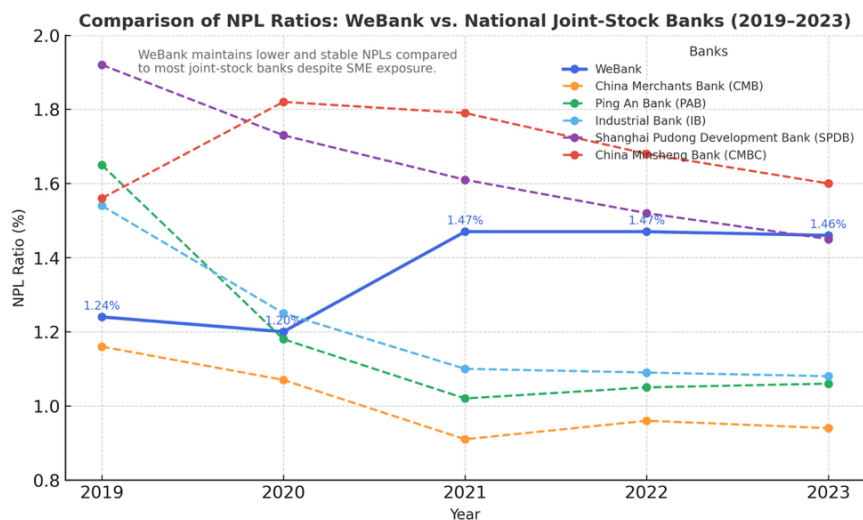


Figure 6. Comparison of NPL Ratios: WeBank vs. National Joint-Stock Banks (2019–2023)

A comparison with MYbank—its main Internet banking counterpart—further underscores WeBank's superior stability. From 2019–2023, MYbank's NPL ratio rose from 1.53% to 2.28%, while WeBank contained it within 1.46–1.47% despite operating in the same high-risk SME segment. Both institutions share a digital-only model and FinTech-driven risk systems, yet WeBank's stricter credit analytics and adaptive monitoring enabled lower default volatility.

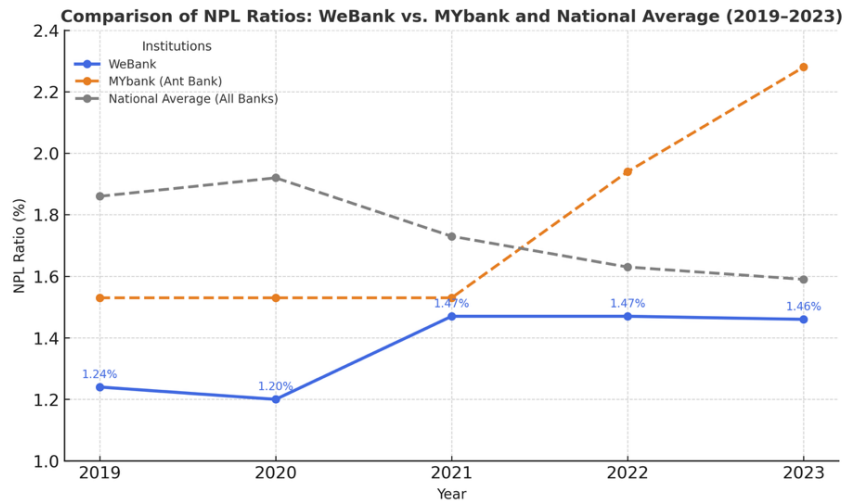


Figure 7. Comparison of NPL Ratios: WeBank vs. MYbank and National Average (2019–2023)

In summary, WeBank’s experience demonstrates that data-centric, algorithmically adaptive risk management can sustain asset quality even under economic stress. Its relatively low and stable NPL ratio, despite concentrated SME exposure, highlights the efficacy of FinTech-enabled governance and provides an instructive benchmark for the broader Internet banking sector.

3.3. Analysis of WeBank’s Risk Management Weaknesses

3.3.1. Business Structure

From a structural perspective, WeBank exhibits a high degree of risk concentration. As of 2023, personal consumption loans amounted to RMB 214.6 billion, accounting for 94% of total personal lending, while business loans totaled only RMB 12.9 billion (6%). This overreliance on consumer credit leaves the bank vulnerable to cyclical downturns in household income and consumer spending.

The competitive environment has further intensified. Traditional banks such as Ping An Bank and Bank of Ningbo have introduced aggressive loan products—Ping An’s “White-Collar Loan” at 2.88% and Ningbo’s “Ninglaihua” at 2.98% fixed rate—triggering a price war that forces WeBank to balance market share retention against prudent risk control.

At the same time, WeBank’s historical customer-acquisition advantages—driven by Tencent’s social platforms—have weakened. The rise of short-video platforms such as Douyin (TikTok China) has diverted online traffic, while QQ’s monthly active users declined by 2% quarter-on-quarter. Consequently, active personal borrowers fell sharply from 49 million in 2021 to 10 million by mid-2024, and the average loan size dropped from RMB 8,000 to RMB 7,400. These trends reflect a structural erosion in demand quality and customer engagement, increasing the marginal cost of new lending and heightening exposure to credit risk.

3.3.2. Asset Quality

WeBank’s asset quality has come under increasing pressure. Its non-performing loan (NPL) ratio rose from 1.20% in 2020 to 1.65% by mid-2024, surpassing that of major peers such as China Merchants Bank (0.94%), Ping An Bank (1.06%), ICBC (1.36%), and China Construction Bank (1.37%).

At the same time, its risk-buffering capacity has weakened. The provision coverage ratio dropped from 352.64% at end-2023 to 312.69% by mid-2024, signaling a narrowing margin to absorb future credit losses. Moreover, capital adequacy indicators have trended downward for three consecutive quarters:

Core Tier 1 Capital Adequacy Ratio declined from 12.77% (Q1 2024) to 11.84% (Q3 2024);

Tier 1 Capital Ratio and Overall Capital Adequacy Ratio both fell to 11.84% and 12.88%, respectively.

This steady decline reflects a weakening ability to withstand external shocks. If not addressed through timely recapitalization or portfolio rebalancing, the bank’s constrained capital buffer could limit its capacity for sustainable growth and risk-taking in the coming years.

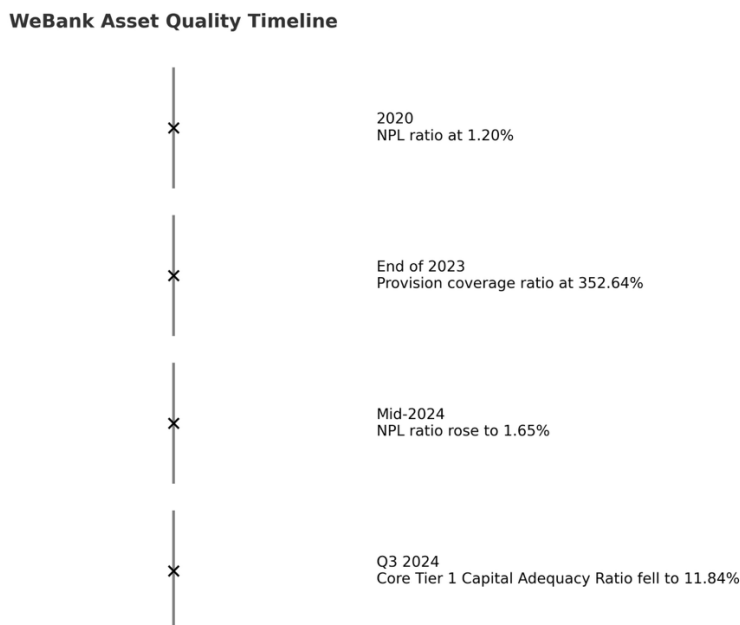


Figure 8. WeBank’s Asset Quality Timeline (2020–2024)

3.3.3. Compliance and Risk Governance

WeBank’s internal control and compliance systems also exhibit notable deficiencies. In September 2024, the bank received a RMB 13.87 million fine—the largest in its ten-year history—for violations in account management, customer identification, transaction recordkeeping, and suspicious-activity reporting. Several senior executives, including the deputy general manager of the SME Finance Department and a manager in retail planning, were personally fined RMB 247,500 in total.

Although WeBank publicly stated that these issues dated to before June 2021 and had been rectified by 2022, the breadth of infractions revealed deep-rooted compliance weaknesses. As a digital-only bank, WeBank’s rapid growth strategy appears to have prioritized expansion over governance—an approach characteristic of “growth-first, control-later” institutions. Such tendencies may compromise operational stability and erode long-term sustainability.

Financially, these internal challenges have begun to manifest. In the first half of 2024, WeBank’s operating revenue recorded its first-ever year-on-year decline—down 0.03% to RMB 19.64 billion—reflecting both external competition and internal inefficiencies. The combination of an overly concentrated consumer-loan portfolio, rising risk costs, and higher customer acquisition expenses suggests that its prior growth model—driven by scale expansion and low marginal cost—may no longer be sustainable.

To secure its future competitiveness, WeBank must accelerate strategic restructuring on multiple fronts: diversifying its loan portfolio, enhancing risk analytics and early-warning systems, rebuilding compliance governance, and strengthening capital adequacy. Only through such structural reforms can WeBank evolve from a FinTech-driven growth entity into a resilient, sustainably managed digital bank.

3.4. Optimization Strategies for Risk Management

3.4.1. Expanding Data Sources

WeBank’s risk management system derives a key comparative advantage from its integration with Tencent’s data ecosystem, which captures granular information on social interactions, consumption, and financial behavior. The breadth and depth of these datasets — especially those rooted in social networks — provide WeBank with an information advantage unmatched by traditional banks, enabling more precise assessment of borrower creditworthiness and behavioral risk.

To reinforce this edge, WeBank should broaden and diversify its data architecture. Establishing partnerships with high-quality firms and financial institutions would expand coverage to include richer financial dimensions such as credit histories, e-commerce transactions, operational performance, investment portfolios, insurance activity, and payment behavior. Moreover, the bank should exploit the relational structures embedded in social network data — modeling behavioral patterns and trust linkages through advanced algorithms that translate hidden attributes into predictive risk indicators.

Further, WeBank could extend data acquisition through scenario-driven finance: educational credit tailored for students or career-linked financial products for professionals. These differentiated products not only capture new data streams but also improve the bank’s understanding of customer heterogeneity. By integrating broader, more nuanced data sources, WeBank can enhance both the precision and robustness of its risk assessment framework, laying a stronger foundation for data-driven credit governance.

3.4.2. Strengthening Data Security

Data security constitutes a foundational element of WeBank’s digital operations, underpinning both customer trust and regulatory compliance. Breaches of data integrity carry substantial reputational and legal risks, potentially eroding client confidence and triggering supervisory sanctions.

To mitigate such risks, WeBank should intensify investment in advanced cybersecurity infrastructure and high-caliber technical talent. The development of an intelligent monitoring and early-warning platform would allow for the rapid detection and remediation of vulnerabilities, minimizing the probability of data leakage at its source. Institutionalizing routine security audits, adaptive defense strategies, and emergency protocols would further enhance resilience against evolving cyber threats.

Equally important is transparency in governance. Regular publication of data security reports and timely communication of incident responses can signal professionalism and accountability, strengthening the credibility of WeBank’s digital ecosystem. Through sustained technological vigilance and open governance, WeBank can consolidate its reputation as a secure, trustworthy, and forward-looking financial institution.

3.4.3. Enhancing Post-Loan Cash Flow Management

In WeBank’s personal consumer lending portfolio, the “use-as-you-borrow” model has markedly improved user experience and fueled rapid business expansion. However, the absence of robust monitoring and tracking mechanisms for loan utilization exposes the bank to heightened default risk. Unlike traditional banks—whose post-loan supervision systems are integral to ensuring repayment and informing subsequent credit assessments—WeBank’s model relies heavily on borrower self-discipline. Strengthening post-loan cash flow management has therefore become essential for balancing customer convenience with prudential risk control.

To address this challenge, WeBank should integrate intelligent fund-tracking capabilities within its blockchain-based lending architecture. A feasible approach is to optimize its virtual account framework to enforce closed-loop capital flow management. Specifically, loan proceeds could be disbursed directly into a borrower’s WeBank virtual account, with all disbursement and spending

activities routed exclusively through this account. By doing so, WeBank can achieve full-process visibility over fund utilization without impairing customer experience.

Building upon its distributed ledger infrastructure, the bank could deploy smart contracts to automatically monitor transaction patterns in real time, flag anomalies, and trigger pre-set risk responses. For instance, when abnormal activity is detected—such as large or frequent peer-to-peer transfers, cash withdrawals, or off-platform payments—the system could initiate automated risk-control actions, including temporary transaction holds or verification prompts. This would not only mitigate misuse of loan proceeds but also enhance regulatory compliance.

Moreover, the data exhaust generated from these monitored transactions can feed into WeBank’s behavioral analytics engine, enriching borrower profiles with dynamic post-disbursement metrics such as spending structure, repayment consistency, and liquidity resilience. Over time, these behavioral insights can be incorporated into credit scoring models, enabling more accurate and adaptive credit line management.

In practice, leading digital banks globally—such as Revolut, Nubank, and DBS Digibank—have adopted similar closed-loop capital management systems that integrate AI-driven transaction analysis with blockchain transparency to balance customer autonomy and institutional control. WeBank could emulate these best practices by:

Implementing multi-layer fund-flow tracing based on blockchain timestamps and smart-contract triggers;

Developing a risk-weighted usage classification model, identifying benign vs. speculative fund flows;

Enhancing borrower communication channels to provide real-time notifications and financial guidance through its app;

Integrating machine-learning-based anomaly detection to continuously improve post-loan surveillance accuracy.

Through these measures, WeBank can establish a closed-loop, data-driven, and self-evolving cash flow management framework—one that not only reduces credit risk exposure but also reinforces the bank’s position as a technologically advanced and prudently managed digital financial institution.

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