Proceedings of the 5th International Conference on Financial Technology and Business Analysis
DOI: 10.54254/2754-1169/2026.37099

Research on the Dynamic Evolution Mechanism of Credit Risk in Emerging Multilateral Development Banks — A Case Study of the New Development Bank Based on the CREF Framework

Jiani Hao

School of Management, Fudan University, Shanghai, China
jiani_angela@163.com

Abstract. With the increasing role of emerging multilateral development banks in global infrastructure financing and sustainable development, their credit risk management has encountered new challenges. Existing studies have mainly examined the credit advantages of multilateral development banks from relatively static perspectives while paying insufficient attention to how credit risks dynamically evolve under the combined influence of external shocks, business expansion, and risk mitigation mechanisms. To address this research gap, this paper develops a Credit Risk Evolution Framework (CREF), which conceptualizes the credit risk transmission process of emerging multilateral development banks through five dimensions: risk drivers, risk exposure, risk manifestations, risk mitigation, and risk outcomes. Based on this framework, the paper conducts a case study of the New Development Bank (NDB) using its annual reports from 2020 to 2024. The selected period is particularly relevant because the NDB experienced multiple changes in its risk environment, including the COVID-19 pandemic shock, rapid expansion of financing activities, and shifts in macroeconomic conditions, providing an appropriate setting for observing the dynamic evolution of credit risk. The findings indicate that the NDB's credit risk evolution is characterized by a pattern of "expanded risk exposure while maintaining stable credit quality." Although the pandemic and changes in the global financial environment increased risk exposure, the transmission of risks into actual credit losses was effectively constrained by the NDB's capital foundation, institutional advantages, preferred creditor status, and dynamic risk management mechanisms.

Keywords: emerging multilateral development banks, credit risk evolution, credit resilience, expected credit loss, New Development Bank

1. Introduction

In recent years, emerging multilateral development banks (EMDBs), represented by the New Development Bank (NDB) and the Asian Infrastructure Investment Bank (AIIB), have developed rapidly and become increasingly important sources of financing for global infrastructure

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DOI: 10.54254/2754-1169/2026.37099

development and sustainable development initiatives. Unlike commercial banks, multilateral development banks (MDBs) possess the dual attributes of development and financial institutions. Therefore, their credit risks are influenced not only by loan portfolio quality but also by member support, capital structures, and institutional arrangements. Existing studies have demonstrated that the credit advantages of MDBs derive not only from their financial strength but also from their unique institutional status and governance structures [1-3].

Existing literature has primarily focused on the mechanisms of credit risk formation and the factors contributing to risk mitigation in MDBs. Perraudin et al. argue that Preferred Creditor Status (PCS), loan portfolio quality, and shareholder support constitute the key factors supporting the high credit ratings of MDBs, highlighting the importance of institutional advantages and capital support in credit risk management [1]. Humphrey further emphasizes that the distinctive characteristics of MDBs, as compared with commercial financial institutions, lie in their development mandates, multilateral governance structures, and member support mechanisms, which collectively form the foundation of their creditworthiness [2]. From the perspective of creditor priority, Cordella and Powell analyze the PCS mechanism and suggest that such institutional arrangements can reduce losses arising from sovereign loan defaults and enhance the credit stability of MDBs [4].

In recent years, related studies have further examined credit risk assessment approaches and risk mitigation mechanisms in MDBs. Lütkebohmert et al. point out that traditional risk assessment methodologies may overestimate concentration risks in MDB sovereign loan portfolios and therefore require adjustments that incorporate the specific institutional characteristics of MDBs [5]. Amegashie further investigates the challenges faced by the PCS mechanism against the backdrop of global sovereign debt restructuring, arguing that the credit advantages of MDBs need to be reassessed within a dynamic sovereign debt environment [6]. However, as the global sovereign debt structure continues to evolve, traditional creditor protection mechanisms are facing new challenges, making the dynamic assessment of MDB credit risk an increasingly important research issue [7, 8].

Meanwhile, with the implementation of the IFRS 9 Expected Credit Loss (ECL) model, credit risk management in financial institutions has gradually shifted from retrospective loss recognition toward forward-looking risk assessment. Relevant accounting standards and academic studies indicate that the ECL model enables financial institutions to measure future credit risks by incorporating changes in macroeconomic scenarios, thereby providing a new analytical approach for examining the evolution of financial risks [9, 10]. Nevertheless, existing research has mainly focused on elucidating why MDBs are able to maintain relatively strong credit quality. Limited attention has been paid to how credit risks are generated, transmitted, and transformed through the interaction of external shocks, business expansion, and risk mitigation mechanisms. In particular, there remains a lack of systematic analysis regarding how emerging MDBs, such as the NDB, maintain credit stability while rapidly expanding their financing activities.

Based on this research gap, this paper proposes the Credit Risk Evolution Framework (CREF), which conceptualizes credit risk as a dynamic process jointly shaped by risk drivers, risk exposure, risk manifestations, risk mitigation, and risk outcomes. Using the NDB's annual reports from 2020 to 2024 as a case study, this paper analyzes the dynamic evolution of credit risk in the context of an emerging MDB. The contributions of this paper are twofold. First, it develops a dynamic analytical framework for understanding credit risk evolution in emerging multilateral development banks. Second, it demonstrates that credit stability in emerging MDBs does not result from low risk exposure alone, but rather from their risk absorption capacity established through capital strength, institutional advantages, and governance mechanisms.

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2. Theoretical framework: credit risk evolution framework

Credit risk should not be regarded as a static outcome; rather, it represents a dynamic process shaped by the interaction among external environmental changes, risk-taking activities, and risk management mechanisms. For multilateral development banks, the formation mechanism of credit risk differs from that of commercial banks, as it is influenced not only by asset quality but also by capital structures, member support, and institutional arrangements. Therefore, this paper develops the CREF to analyze the dynamic evolution process of credit risk in emerging multilateral development banks from five interconnected dimensions: risk drivers, risk exposure, risk manifestations, risk mitigation, and risk outcomes.

Risk drivers represent the initial sources of credit risk formation, primarily including macroeconomic fluctuations, changes in financial conditions, and geopolitical shocks. These factors generally do not directly generate credit losses; instead, they first affect the economic conditions of borrowing countries, financing demands, and debt repayment capacities, thereby influencing the overall risk level faced by development banks [9, 10].

Risk exposure reflects the scale and structure of credit risks undertaken by banks, including lending volume, regional distribution, sectoral composition, and currency structure. For multilateral development banks, an expansion in lending scale does not necessarily indicate deteriorating credit quality. Instead, it should be evaluated together with loan portfolio structure, risk concentration, and the characteristics of borrowing entities [1-3].

Risk manifestations measure whether increased risk exposure is further transformed into actual credit pressure. Since multilateral development banks primarily serve sovereign governments and public-sector entities, their credit risks are generally less reflected through non-performing loans, as commonly observed in commercial banks. Instead, credit risks are more likely to materialize through changes in expected credit losses, asset quality, and risk stage migration. Under the IFRS 9 framework, the Expected Credit Loss (ECL) model provides a forward-looking estimation of potential credit losses on financial assets by incorporating changes in macroeconomic scenarios, thereby offering an important basis for analyzing risk manifestations [9].

Risk mitigation reflects the capacity of multilateral development banks to absorb and control credit risks. Key mitigation mechanisms include capital strength, callable capital, preferred creditor status, and risk governance systems. Previous studies have demonstrated that capital support and the PCS mechanism can reduce the probability of credit losses and strengthen MDBs' ability to maintain credit stability under external shocks [1, 4].

Risk outcomes represent the final consequences generated by the interaction of these factors. They are primarily measured through credit ratings, financing capacity, and actual credit loss performance. Unlike commercial banks, the credit outcomes of multilateral development banks reflect not only asset quality but also the combined effects of member support, governance structures, and institutional advantages, which together contribute to credit resilience [1-3].

Compared with traditional credit risk assessment frameworks that mainly focus on static indicators such as credit ratings, capital adequacy ratios, and asset quality, the CREF framework emphasizes the dynamic formation and transmission mechanisms of credit risk. Traditional approaches primarily describe the risk status at a specific point in time, whereas CREF further explains the evolutionary process through which risks emerge, transmit, and eventually generate outcomes. The framework does not replace existing credit assessment systems; rather, it integrates risk drivers, risk exposure, risk manifestations, risk mitigation, and credit outcomes into a unified analytical structure based on existing research.

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Specifically, external shocks first alter the macroeconomic environment faced by banks and the debt repayment conditions of borrowing entities, thereby affecting risk exposure. Changes in risk exposure are subsequently reflected through indicators such as asset quality and expected credit losses, forming observable risk manifestations. Risk mitigation mechanisms regulate the transmission process through capital strength, institutional advantages, and governance capabilities, reducing the likelihood that potential risks will develop into actual credit losses. Ultimately, the interaction among these dimensions determines the overall credit outcomes.

Therefore, the CREF framework provides a theoretical foundation for analyzing how emerging multilateral development banks maintain credit stability while expanding development-oriented financing activities from a comprehensive, process-oriented perspective.

3. Empirical analysis: credit risk evolution of the new development bank based on the CREF framework

Based on the CREF, this paper analyzes the dynamic evolution of credit risk in the NDB from 2020 to 2024.

3.1. Risk drivers: external shocks and changes in the credit risk environment

During the period from 2020 to 2024, the global economic environment experienced profound disruptions, including the impact of the COVID-19 pandemic, rising inflation, monetary policy tightening by major economies, and increasing geopolitical uncertainty. These factors significantly altered the credit risk environment faced by the NDB.

At the early stage of the pandemic, emerging economies experienced substantial financing demands arising from infrastructure recovery, public health development, and economic stimulus programs. These demands encouraged the NDB to expand its countercyclical financing support. In 2020, the NDB established a US$10 billion Emergency Assistance Facility for combating COVID-19, while accelerating project approvals, demonstrating the role of development finance institutions in maintaining financing availability during periods of external shocks [11].

However, the impact of external shocks on the NDB's credit risk was not directly reflected through an increase in defaults. Instead, these shocks first affected the scale of risk-taking activities and the structure of lending demand. After 2022, tighter global financing conditions increased debt pressures for certain member countries, leading to a moderate increase in expected credit risks. Nevertheless, such changes were primarily reflected in risk assessments and adjustments in expected loss estimates rather than actual credit losses. Therefore, for emerging multilateral development banks, macroeconomic shocks primarily serve as the starting point of credit risk evolution rather than the final risk outcome. This transmission mechanism differs from that of commercial banks, where credit risks are more directly dependent on changes in asset quality [9, 10].

3.2. Risk exposure: coexistence of lending expansion and risk structure optimization

The risk exposure dimension reflects how changes in the external environment are transmitted to the asset side of the bank. From 2020 to 2024, the NDB's loan portfolio continued to expand, with the project portfolio increasing from approximately US$24.4 billion in 2020 to US$35.152 billion in 2024 [12, 13]. At first glance, the expansion of asset size suggests an increase in credit risk exposure. However, further analysis indicates that the NDB's risk exposure expansion was primarily driven by its development financing mission rather than increased risk appetite. On the one hand, the

DOI: 10.54254/2754-1169/2026.37099

NDB's lending structure remained predominantly focused on sovereign lending. Sovereign lending accounted for approximately 85% of projects in 2020 and around 88% of the project portfolio in 2024, indicating that its credit risks were mainly associated with the fiscal capacity of member countries rather than corporate operational risks [14, 15]. On the other hand, the NDB reduced concentration risks associated with specific regions and exchange rate fluctuations by expanding its membership coverage and promoting local currency financing [13]. Therefore, the key feature of the NDB's risk exposure evolution was not simply "expansion in scale," but rather the simultaneous occurrence of "scale expansion and structural optimization." This characteristic suggests that credit risk assessment for MDBs should not rely solely on asset growth rates. Instead, attention should be given to whether the structure of risk-taking activities remains consistent with institutional capacity and risk management capabilities [1-3].

3.3. Risk manifestations: changes in risk expectations not transformed into actual losses

At the risk manifestation stage, this paper examines whether increased risk exposure has resulted in deterioration of asset quality. Under the IFRS 9 framework, Expected Credit Loss (ECL) does not represent an actual loss indicator; rather, it provides a forward-looking estimation of potential future credit losses based on factors such as macroeconomic scenarios, probability of default, and loss given default [9].

From 2020 to 2024, the NDB continuously faced multiple external shocks, including the COVID-19 pandemic, global monetary policy tightening, and geopolitical economic fluctuations. In response, the NDB dynamically adjusted credit risk assessments and risk stage classifications for its financial assets in accordance with the IFRS 9 expected credit loss framework. Taking the loan portfolio as an example, during the five-year period, the overall ECL provision ratio fluctuated within a relatively narrow range of 0.25%–0.91%. Changes in ECL throughout the period were primarily driven by adjustments in macroeconomic scenarios, probability of default assumptions, and other risk assessment parameters. No widespread or persistent material impairment occurred, and the overall quality of credit assets remained stable without forming a long-term impairment burden. Meanwhile, the NDB's loan portfolio remained dominated by low-risk-stage assets. From 2020 to 2024, the proportion of Stage 1 low-risk credit assets consistently remained above 86%, reaching a maximum of 97.71%. The proportion of Stage 2 assets remained below 14%, while Stage 3 impaired assets only emerged in 2023, accounting for merely 0.24% of the portfolio, indicating no significant large-scale risk migration [11-15].

These findings demonstrate that external shocks increased potential credit risks; however, due to the predominance of sovereign and public-sector borrowers and the institutional advantages of MDBs, such risks were not transformed into actual defaults through the traditional commercial banking transmission mechanism. In other words, the primary changes in the NDB's credit risk occurred at the expectation level rather than the loss realization level, representing a key distinction between emerging MDBs and commercial financial institutions in terms of credit risk evolution [1, 9].

3.4. Risk mitigation: capital and institutional advantages as sources of credit resilience

Risk mitigation represents a critical component in explaining why the NDB has maintained credit stability while expanding its risk exposure. First, a strong capital foundation provides the NDB with sufficient risk-absorbing capacity to undertake development financing activities. The NDB has an authorized capital stock of US$100 billion, including US$50 billion in subscribed capital, consisting

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of both paid-in capital and callable capital. This capital structure provides support for absorbing potential losses [15].

Second, Preferred Creditor Status (PCS) and member support constitute important institutional advantages that distinguish MDBs from commercial banks. Existing studies demonstrate that PCS enhances expectations regarding sovereign debt recovery and reduces potential losses in the event of loan defaults, making it a significant factor supporting the maintenance of high credit ratings among multilateral development banks [1, 4]. Furthermore, the NDB has continuously strengthened its risk management framework by improving its capabilities in country risk assessment, loan portfolio monitoring, and internal risk control mechanisms [14, 15]. Through these institutional arrangements, the NDB enhances its ability to identify, evaluate, and manage potential credit risks.

Therefore, the credit stability of the NDB does not result from limited risk exposure, but rather from its enhanced risk absorption capacity created through the interaction of capital strength, institutional advantages, and governance mechanisms. This indicates that the credit advantage of emerging MDBs essentially reflects their capacity to undertake and absorb risks, rather than simply representing a low-risk operating model.

3.5. Risk outcomes: stable credit ratings reflect dynamic credit resilience

From the perspective of final risk outcomes, the NDB maintained relatively strong international credit ratings between 2020 and 2024, experienced no significant loan default events, and preserved stable financing capacity [15]. This outcome demonstrates that although the NDB expanded its lending activities and operated under an increasingly complex external environment, the resulting risks remained within the range that could be absorbed by its institutional framework and capital capacity. Unlike commercial banks, whose creditworthiness is primarily evaluated based on asset quality and profitability, the credit assessment of multilateral development banks places greater emphasis on long-term institutional factors, including capital structure, member support, governance capacity, and preferred creditor status [1-3]. Therefore, the stability of the NDB's credit ratings does not imply that credit risks remained unchanged. Rather, it indicates that during the process of increasing risk exposure, mitigation mechanisms effectively prevented potential risks from being further transmitted into actual credit losses.

From the perspective of the CREF framework, the NDB case demonstrates a credit risk evolution pattern distinct from traditional financial institutions, characterized as: "Risk exposure expansion→strengthened risk mitigation→stable credit outcomes." This finding suggests that the evaluation of credit risks in emerging multilateral development banks should adopt a dynamic evolutionary perspective rather than relying solely on individual indicators such as asset size or financial performance.

Overall, the NDB's credit risk evolution does not follow the traditional linear pathway observed in commercial financial institutions, namely: "Asset expansion→asset quality deterioration→credit deterioration." Instead, it demonstrates a dynamic process characterized by: "External shocks increase risk pressure→business expansion enlarges risk exposure→institutional and governance mechanisms absorb risks." This pattern indicates that the fundamental issue in assessing the credit risk of emerging multilateral development banks is not whether risks increase, but whether such risks can be effectively absorbed within the institutional framework.

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4. Conclusion

This study finds that the evolution of the NDB's credit risk does not follow the traditional pattern whereby expansion in institutional scale leads to worsening credit conditions. Instead, the NDB exhibits a dynamic pattern characterized by expanded risk exposure, strengthened risk mitigation, and stable credit outcomes. Specifically, the COVID-19 pandemic, changes in the global financial environment, and increasing geopolitical uncertainty increased the NDB's risk exposure and contributed to sustained growth in its lending activities. However, the expansion of risk exposure did not translate into actual credit losses. The primary reasons lie in the NDB's high proportion of sovereign lending and its efforts to optimize risk distribution through regional diversification and local currency financing. At the same time, its capital foundation, PCS, member support, and risk governance framework collectively constituted effective risk mitigation mechanisms, reducing the likelihood that potential risks would translate into credit losses. The main implication of this study is that credit risk assessment for emerging multilateral development banks should not focus solely on static indicators such as loan size and asset growth. Instead, it should examine the entire process of risk formation, transmission, and mitigation. For emerging multilateral development banks, it is necessary to strengthen dynamic risk monitoring mechanisms and coordinate financing expansion with the development of risk management capabilities. For member countries, improving debt management and project governance is essential to reduce the risk of transmission to MDB balance sheets. For credit rating agencies, institutional factors such as PCS, member support, and governance capacity should be incorporated into assessment frameworks to more accurately reflect MDB credit resilience. The CREF framework broadens existing perspectives that primarily focus on the sources of MDB credit advantages. It provides a new analytical pathway for understanding how emerging MDBs maintain credit stability while fulfilling their development financing responsibilities. Future research may further expand the sample of multilateral development banks by comparing emerging MDBs, such as the New Development Bank and the Asian Infrastructure Investment Bank, with traditional MDBs. In addition, incorporating quantitative approaches, including panel data analysis and credit risk models, could further examine the impact of institutional factors such as capital structures, PCS mechanisms, and governance arrangements on MDB credit risk resilience, thereby deepening the understanding of credit risk evolution mechanisms under different institutional settings.

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