

The Improvement Path for Credit ABS of Commercial Banks—A Case Study of China Construction Bank

Zhiming Qu^{1,*}

¹Finance, School of Business, East China University of Political Science and Law, Shanghai, 201620, China

Abstract. This article focuses on the current state of asset securitization in China Construction Bank (CCB). It conducts an in-depth analysis of two areas, namely non-performing asset securitization and green asset securitization, and explores suitable improvement approaches for these two domains. The analysis analyzed the basic information of China Construction Bank's asset securitization, including market share and other relevant factors, and takes into account the domestic and international development status and historical path, and incorporates mainstream views in academia to propose practical and significant solutions. For non-performing asset securitization, the main improvements are targeted towards the credit enhancement system and methods. The suggested approaches include the introduction of insurance and risk diversification mechanisms, as well as market adjustments to enhance the credit enhancement capabilities of non-performing asset securitization. Regarding green asset securitization, the focus lies on the pricing system as the domestic market is still in its early stages of development. The suggested methods involve improving the foundation, establishing standards, and enhancing awareness.

1 Introduction

1.1 Research background

Since 2012, the revival of credit Asset-Backed Securities (ABS) has played a significant role in China's commercial banking sector. Over the past eleven years, ABS has adhered to asset credit as its core, entering a phase of high-quality ABS, maintaining "zero defaults" and "zero risk events." It has continued to innovate, promoting product diversification in the bond market, and its role in serving the real economy and preventing and resolving financial risks has become increasingly prominent. In the field of commercial banking, green asset securitization has received attention and continues to develop. In contrast, non-performing asset securitization remains in a stable growth state as an important means for banks to handle non-performing assets.

ABS plays a crucial role in commercial banks by diversifying their funding sources. By packaging credit assets into securitized products, commercial banks can transform them into tradable assets, thus gaining access to a wider range of funding sources. This diversified financing method helps lower commercial banks' funding costs and enhances their resilience to risks, as shown in Figure 1.

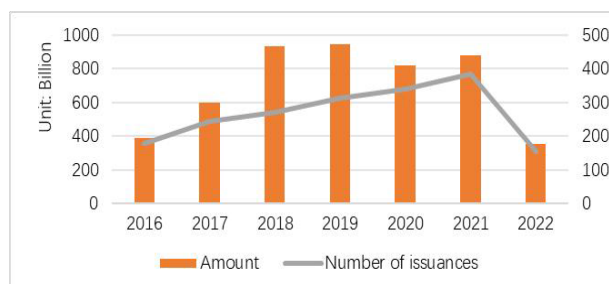


Fig 1. Amount and number of credit ABS issuances
(Photo credit: Origin)

Furthermore, ABS provides commercial banks with an effective tool for managing non-performing assets. Non-performing asset securitization, as a vital approach, helps commercial banks transfer non-performing assets off their books, reducing the burden of such assets and improving asset quality. By packaging non-performing assets into securitized products, commercial banks can sell them to other investors, facilitating the swift clearance of assets and the retrieval of funds, thereby enhancing the banks' asset efficiency.

Additionally, ABS plays a significant role in the field of green finance, especially in green asset securitization. With the growing global emphasis on environmental protection, commercial banks increasingly focus on developing green finance. Commercial banks can attract more social capital to support environmental projects and drive sustainable development by packaging green assets into securitized products. This enhances the banks' social image and reputation and brings new business opportunities and profit potential.

* Corresponding author: 210529010152@ecupl.edu.cn

In summary, ABS has multiple roles in the commercial banking sector. It diversifies funding sources, helps commercial banks reduce financing costs, and enhances risk resilience. ABS also provides an effective tool for managing non-performing assets, alleviating the burden of such assets, and improving asset quality. Furthermore, ABS's development in the field of green finance presents new opportunities for commercial banks. As ABS continues to innovate and evolve, its role in serving the real economy and preventing and resolving financial risks will become increasingly prominent, providing robust support for the sustainable development of commercial banks.

1.2 Literature review

Tao Jiacheng and others conducted a study based on data from 42 listed banks in China and concluded that asset securitization can enhance banks' profitability. They found that this can be achieved by increasing the proportion of non-interest income in the profit structure, reducing risk exposure, and alleviating capital constraints [1]. Similar conclusions were drawn by Senfeng Gou using an improved DuPont analysis method, and it was observed that the benefits of asset securitization are even greater for larger commercial banks or those with more active asset securitization activities [2,3]. Zhang Jianghong provided a detailed explanation of the advantages of non-performing asset securitization, highlighting how this measure enables commercial banks to effectively address the negative impact and issues caused by non-performing assets on the entire socio-economic system, thus improving commercial banks' liquidity and capital adequacy [4]. Song Xiaoling and others explored the positive impact of green credit ABS on bank profitability based on the Equator Principles. However, it should be noted that domestic green credit ABS is still in its developmental stage and differs from more mature systems abroad, necessitating continued efforts towards its vigorous development.

1.3 Research gap

Previous research has primarily focused on the overall theoretical benefits of asset securitization, with limited quantitative analysis on specific projects such as non-performing and green asset securitization. This is mainly because these two types of ABS (Asset-Backed Securities) are still in the developmental stage in China. Moreover, several empirical analyses have indicated that the current credit asset securitization of non-performing and green assets may somewhat hinder the profitability of listed commercial banks.

This paper aims to utilize existing data and theories, taking China Construction Bank, which has the largest volume of ABS in the domestic market, as an example. The objective is to analyze the potential benefits of non-performing assets and green asset credit ABS on the profitability of commercial banks. Furthermore, further research and promotion of credit asset securitization in

these two areas are crucial for fostering financial market stability and sustainable development.

1.4 Research framework

Firstly, non-performing asset securitization can effectively transfer and diversify the risks associated with non-performing assets, thereby enhancing commercial banks' asset quality and overall risk management capabilities. Packaging non-performing assets into securitized products makes it possible to attract more investors, thereby increasing liquidity and market activity. Additionally, non-performing asset securitization can alleviate capital constraints for commercial banks, releasing capital supply and providing more lending and investment opportunities, consequently promoting profitability.

Secondly, green asset securitization is important as an emerging financial instrument in promoting sustainable development and environmental protection. Packaging green credits into securitized products can attract more funds to flow into green industries and projects, facilitating the growth of the green economy. Compared to traditional credit models, green asset securitization offers higher flexibility and liquidity, providing commercial banks more opportunities to participate in the green finance market, expand their business scope, and enhance profitability.

2 Case description

China Construction Bank, one of the major commercial banks in China, has significant experience and market share in credit asset securitization. The bank actively participates in credit asset securitization, packaging credit assets into securities products and issuing them to investors, thereby achieving risk transfer and fund retrieval. China Construction Bank has a wide range of product lines in credit asset securitization, covering various loans and debt assets.

Non-performing asset securitization involves transforming non-performing assets, such as non-performing loans, of banks or other financial institutions into securities products to attract investors and diversify risks. In China, the non-performing asset securitization market is still developing but has made certain progress. China Construction Bank ranks first in both the total amount and the number of issuances of Non-Performing Asset Credit Asset-Backed Securities (ABS). Wang supports the promotion of sustainable development through the securitization of non-performing assets in China, considering it as one of the important issues currently faced by the academic community and regulatory authorities. As one of the significant domestic issuers of non-performing asset securitization, China Construction Bank actively promotes the development of non-performing asset securitization business to alleviate the pressure of non-performing assets on the bank.

With its leading position in the market, China Construction Bank plays a crucial role in securitizing non-performing assets. By converting non-performing

assets into tradable securities, the bank can attract investors and effectively manage and mitigate the risks associated with these assets. This contributes to the bank’s overall risk management strategy and helps to reduce the impact of non-performing assets on its balance sheet, as shown in Figure 2.

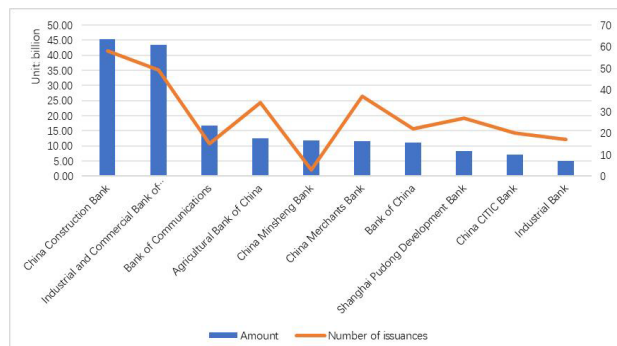


Fig 2. Top Ten Issuers of Non-Performing Asset Credit ABS (Photo credit: Origin)

Green credit securitization refers to packaging green loans or debt assets related to environmental protection and sustainable development into securities products for issuance. Amit also argues that commercial banks can enhance profitability and promote diversified operations by choosing to securitize green assets [5,6]. In China, green finance and credit securitization receive government support and promotion. China Construction Bank ranked second among the top six banks in terms of green loan balance in 2022. The bank actively responds to national policies and promotes the development of green loan securitization business. By issuing green loan securitization products, China Construction Bank can attract more funds to green industries and projects, facilitating sustainable development and environmental protection.

China Construction Bank’s proactive efforts and achievements in green finance are evident. As a significant financial institution, China Construction Bank responds to national policies and strives to promote green loan securitization business development, as shown in Figure.

Overall, China Construction Bank actively participates and plays an important role in credit asset securitization, non-performing asset securitization, and green credit securitization. These securitization businesses help improve the bank’s asset quality, risk management capabilities, and profitability while promoting the development of the financial market and achieving sustainable economic growth.

3 Analysis on the problems

3.1 Problem 1. non-performing asset securitization

The non-performing loan (NPL) balance of China Construction Bank is experiencing stable growth. This stable increase in NPL balance may challenge the bank’s

risk-bearing capacity. Through non-performing asset securitization, China Construction Bank can transfer the NPLs to other investors, achieving risk diversification and assisting in capital retrieval and asset value realization. By packaging the NPLs into securitized products and selling them to investors, China Construction Bank can swiftly recover funds from a portion or the entirety of the NPLs, thereby enhancing the capital return rate and capital adequacy ratio.

In non-performing asset securitization, the credit enhancement theory of asset securitization plays a crucial role. How to implement credit enhancement for non-performing assets determines whether banks can attract funds from institutional investors and capital markets, provide new funding sources, and increase the bank’s financing channels and fund flexibility.

Internal Enhancement: Internal enhancement refers to classifying different assets within the structure of non-performing asset securitization to achieve credit enhancement for investors. By dividing non-performing assets into different priority levels of securities, such as senior, subordinated, subordinated, subordinated, and underlying securities, internal enhancement ensures that senior securities have priority repayment rights while subordinated and underlying securities bear higher risks.

External Enhancement: External enhancement refers to providing additional credit enhancement protection by introducing third-party guarantors or credit enhancement institutions. In this case, the issuer of non-performing asset securitization purchases additional guarantees or credit enhancements to enhance the credit quality of the securitized products and boost investor confidence. These guarantors or credit enhancement institutions typically have higher credit ratings and stronger repayment abilities, thereby providing a higher level of credit enhancement.

Both internal and external enhancements aim to improve the credit quality of non-performing asset securitization products, attract more investor participation, and reduce overall risk levels.

In domestic non-performing asset securitization, credit enhancement measures are primarily focused on the senior/subordinated structure. Cao Mengqiao also acknowledges that one of the important ways to enhance non-performing asset securitization in Chinese commercial banks is through improving credit enhancement measures [7]. This approach somewhat simplifies the credit enhancement process but may result in lower market liquidity for the subordinated securities. Due to the higher risk associated with subordinated securities, fewer investors may be willing to purchase them, thus limiting their marketability. Additionally, this concentration of risk in subordinated securities can be a concern. If the subordinated securities face a higher risk of default, it could have negative implications for the entire securitization product.

3.2 Problem 2. green asset securitization

The core advantage of green asset securitization lies in its ability to help China Construction Bank optimize its

balance sheet and risk management. Liu analyzed the transformative impact of asset securitization on the business of commercial banks from the perspective of asset securitization [8]. By packaging green credit assets into securitized products, Construction Bank can transfer them off its balance sheet, reducing its exposure to risks associated with green credit. Xia Yong et al. analyzed the green social reputation of banks and concluded that commercial banks can enhance their green reputation through the development of green credit [9]. Fu further found that this impact is particularly significant for large banks operating within the context of public ownership in China [10]. In this article, China Construction Bank fulfills these prerequisites. By actively participating in the green asset securitization market, Construction Bank can expand its business scale and market share in green finance, enhancing its brand image and reputation. It also enables construction banks to obtain lower financing costs, as investors generally perceive green projects to have lower risks and better long-term returns. Moreover, green attributes can lead to lower financing costs for credit-based assets in the same category, as shown in Figure 3.

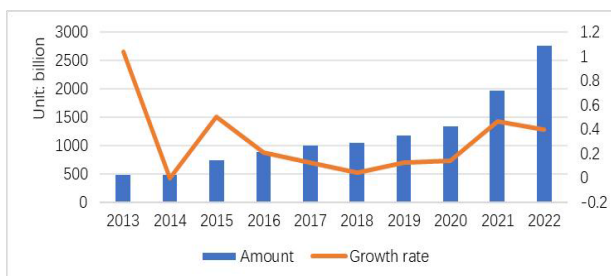


Fig 3. Green credit balance and growth rate of China Construction Bank
 (Photo credit: Origin)

The domestic green credit asset securitization started relatively late and is still in development, leaving room for improvement in several aspects. In terms of pricing green credit asset-backed securities (ABS), the domestic market mostly relies on static cash flow discounting and static spread methods, lacking a clear and unified pricing approach. Prices are typically determined through issuance inquiries. In contrast, foreign markets tend to favor option-adjusted spread (OAS) methodology, incorporating the possibilities of early exercise and prepayment into the pricing model to achieve fairer pricing.

The static cash flow discounting method discounts future cash flows based on projections but fails to account for green credit assets' unique attributes and risk factors. The static spread method relies on the spread levels of similar securities in the market, but it does not adequately reflect the additional value and environmental impact of green credit assets.

In comparison, the OAS methodology comprehensively considers the characteristics of green credit assets. Incorporating the possibilities of early exercise and prepayment into the pricing model ensures a more equitable pricing approach. The OAS methodology better captures the flexibility and potential

future returns of green credit assets, providing a more accurate pricing benchmark.

Therefore, there is room for improvement in pricing within the domestic green credit asset securitization market. Establishing a clear and unified pricing approach is necessary, drawing on foreign practices and experiences and introducing pricing models that comprehensively consider factors such as the OAS methodology. This will enhance transparency, fairness, and market participants' confidence in green credit asset securitization, further promoting the development of green finance and the market's maturity.

The lack of consideration for green factors in the pricing system is evident. The novelty of green asset securitization lies in its green value, which is not reflected in the existing pricing models. It still follows the same pricing approach as ordinary asset-backed securities. This can be observed in two aspects:

Firstly, the reference benchmark for issuance prices continues to be the ordinary government bond interest rate. However, in the international development of green finance, many countries have taken measures to establish more applicable green bond benchmark interest rates. There are two specific models. One is France's "online point selection" approach, which aims to establish a green benchmark government bond comparable to the pricing benchmark of ordinary government bonds. The second model, represented by Germany, constructs a green government bond yield curve with slightly lower yields compared to ordinary government bonds. In contrast, China has not yet formed any green bond interest rate benchmarks, and the green value cannot be reflected, which will have a certain impact on the financing effectiveness of green projects.

Secondly, the green features are not reflected in the credit rating of green asset-backed securities. Unlike ordinary asset-backed securities, green asset securitization has additional environmental benefits and risks. There are strict restrictions on the approval and use of green projects. If there are violations in fund utilization or severe environmental pollution, they will face severe penalties from relevant regulatory authorities, undoubtedly increasing credit risks. In 2020, China issued the "Green Bond Credit Rating Guidelines (Trial)" for the first time, proposing the consideration of ESG factors in credit ratings. However, this program is currently being tested in the green finance reform and innovation pilot zones and has not been widely promoted.

4 Suggestions

4.1 Solution to credit enhancement in commercial bank's non-performing asset securitization

Chen pointed out that the key future reform and development direction for non-performing asset securitization in China is optimizing the structure of non-performing asset securitization products [11]. This not only helps to reduce issuance costs but also enhances market transparency. Credit enhancement in the

securitization of non-performing assets by commercial banks can be improved and refined through several methods.

The first one is diversified credit enhancement structures. Introduce more layers of credit enhancement structures, such as super senior, senior, subordinated tranches, and other derivative instruments, to increase the credit rating of the securities and reduce risks. This can attract more investors and enhance the market value of the securities.

The introduction of some helpful mechanisms, such as insurance mechanisms, can also help. Commercial banks can consider introducing insurance mechanisms to enhance credit enhancement. By purchasing credit insurance or utilizing guarantees from insurance institutions, the credit rating of the securities can be improved, providing stronger protection for investors. Another one is to Establish risk diversification mechanisms. Commercial banks can diversify their non-performing asset portfolios by combining different types of non-performing assets. This helps to reduce overall risk and increase the credit rating of the securities, thereby boosting investor confidence. By engaging third-party rating agencies, commercial banks can engage independent third-party rating agencies to assess and rate the non-performing assets, increasing the credibility and impartiality of the credit ratings. Liu and Kang believe that this is due to the improvement of market support measures [12].

Moreover, there are some things the bank and the market should pay attention to. Information disclosure for non-performing asset-backed securities should be strengthened, providing comprehensive, accurate, and transparent information to increase investor trust. They can strengthen risk management and monitoring as well. They should establish robust risk management systems to monitor the risk profile of non-performing asset-backed securities and implement appropriate risk control measures to ensure the sustainability and effectiveness of credit enhancement.

By implementing these improvement and refinement methods, commercial banks can further enhance the credit enhancement of non-performing asset securitization, mitigate risks, increase investor confidence, and better meet market demands.

4.2 Solution to pricing issues in commercial bank's green asset securitization

Taking into account the suggestions proposed by Yao and the current early stage of the development of green asset securitization in Chinese commercial banks, the following are some suggestions and improvement measures for addressing pricing issues in green asset securitization [13].

Establishing a green asset pricing model is an apparent way to approve green asset securitization. Commercial banks can develop a pricing model specifically for green assets, taking into account their characteristics and risk factors to more accurately determine the pricing of securities. Such a model can

assess and price green assets based on environmental impact, sustainability, market demand, and future cash flows.

Another solution is enhancing data collection and analysis of green assets. Commercial banks can strengthen their capabilities in collecting and analyzing data related to green assets. By establishing comprehensive green asset databases that include environmental data, energy efficiency data, financial data of green projects, etc., it is better to assess the value and risks of green assets and provide a more reliable pricing basis.

Considering market demand and investor preferences, Commercial banks should consider the changing market demand and investor preferences during the pricing process. As the market for green asset securitization is relatively new, investors may have different perceptions and preferences regarding its risks and returns. Therefore, commercial banks should closely monitor market trends, and investor needs to adjust pricing strategies to attract a wider range of investors.

Commercial banks can also seek input from external rating agencies. They collaborate with independent external rating agencies to obtain their pricing recommendations and opinions on green asset securitization products. This can provide more objective and independent perspectives, thereby improving the accuracy and credibility of pricing.

It is also important to improve the accuracy of risk pricing simultaneously. Commercial banks should fully consider the risk characteristics of green assets and employ appropriate risk pricing methods during the pricing process. This includes considering environmental risks, legal and regulatory risks, technological risks, etc., to ensure that the pricing aligns with the level of risks involved.

By implementing these improvement measures, commercial banks can enhance pricing accuracy in green asset securitization, mitigate risks, and attract more investors to participate in the green finance market.

5 Conclusion

By analyzing the current situation of non-performing asset securitization and green asset securitization in China Construction Bank (CCB), the following conclusions can be drawn:

Firstly, some areas can be improved regarding non-performing asset securitization in CCB. One of the key issues is optimizing the internal structure of credit enhancement. Taking into account the mainstream methods of credit enhancement and structural improvement both domestically and internationally, as well as CCB's position as one of the six largest banks in China and the largest issuer of non-performing asset securitization, recommendations for improvement can be proposed.

Secondly, for the development stage of green asset securitization in domestic commercial banks, CCB can refer to the well-established asset securitization systems

in foreign countries. An effective improvement approach for CCB would be to enhance the pricing system.

This article focuses on two specific areas within CCB's asset securitization. By optimizing the securitization process, CCB can enhance operational efficiency, reduce risk exposure, and promote innovation and diversified development. Leading the development of non-performing asset securitization and green asset securitization in domestic commercial banks, non-performing asset securitization helps banks clean up their non-performing assets, improve asset quality, enhance profitability, and strengthen risk management capabilities. Green asset securitization facilitates commercial banks' participation in the green finance market, enabling them to engage in green lending and investments, expand their business scope, and enhance market competitiveness. Optimizing the securitization process elevates the industry's professional standards and risk management capabilities, fostering sustainable development.

This article lacks the use of primary data, and the availability of specific data on CCB's securitization products is limited. Therefore, the characteristics of the two types of products can only be summarized in a general manner, which may result in less precise features. In the future, more detailed and accurate data can be obtained through surveys and interviews to enhance the analysis.

References

1. J. C. Tao, S. Y. Zhang. *Market Modern*, (19): 130-133 (2023).
2. L. Gou. *Shanxi Univer of Finance and Economics*, (2023)
3. J. H. Zhang. *Times Finance*, (01): 76-78+95 (2023)
4. X. Song, X. Deng & R. Wu. *International Journal of Financial Studies* (2019)
5. Y. Wang. *International Journal of Social Sciences and Economic Management*, **3** (4): 20-29 (2022)
6. A. Ghosh. *Journal of Financial Innovation in Banking*, 2(1):1-28 (2018)
7. M. Q. Cao. *Small and Medium-sized Enterprise Management and Technology (Mid-monthly)*, **11**, 85-87 (2021)
8. Z. Y. Liu. *China Management Informatization*, **25**(2), 144-146 (2022)
9. Research Group of the Shizuishan City Center Branch of the People's Bank of China. *Financial Development Review*, (07), 32-44 (2022)
10. X. Y. Fu. *Investment and Entrepreneurship*, **33**(04), 215-219 (2022)
11. S. X. Chen. *China Business Review*, (20), 89-91 (2021)
12. T. Liu, K. Kang. *Journal of Tianjin Normal University (Social Sciences)*, (04), 94-100 (2022)
13. Y. Yao. [Master's thesis]. *Anhui University of Finance and Economics* (2021)