MUHANDISLIK & IQTISODIYOT

ijtimoiy-iqtisodiy, innovatsion texnik, fan va ta'limga oid ilmiy-amaliy jurnal

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"GLOBAL DIGITAL INTEGRATION: THE RELEVANCE OF ENSURING MICRO AND MACROECONOMIC SUSTAINABLE GROWTH THROUGH TECHNOLOGICAL AND INDUSTRIAL DEVELOPMENT IN THE TRANSITION TO A GREEN ECONOMY BY 2030"

«ГЛОБАЛЬНАЯ ЦИФРОВАЯ ИНТЕГРАЦИЯ: АКТУАЛЬНОСТЬ ОБЕСПЕЧЕНИЯ УСТОЙЧИВОГО МИКРО- И МАКРОЭКОНОМИЧЕСКОГО РОСТА ЧЕРЕЗ РАЗВИТИЕ ТЕХНОЛОГИЧЕСКОЙ И ИНДУСТРИАЛЬНОЙ ПРОМЫШЛЕННОСТИ В ПЕРЕХОДЕ К ЗЕЛЁНОЙ ЭКОНОМИКЕ К 2030 ГОДУ»

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05.01.00 – Axborot texnologiyalari, boshqaruv va kompyuter grafikasi
05.01.01 – Muhandislik geometriyasi va kompyuter grafikasi. Audio va video texnologiyalari
05.01.02 – Tizimli tahlil, boshqaruv va axborotni qayta ishlash
05.01.03 – Informatikaning nazariy asoslari
05.01.04 – Hisoblash mashinalari, majmualari va kompyuter tarmoqlarining matematik va dasturiy ta'minoti
05.01.05 – Axborotlarni himoyalash usullari va tizimlari. Axborot xavfsizligi
05.01.06 – Hisoblash texnikasi va boshqaruv tizimlarining elementlari va qurilmalari
05.01.07 – Matematik modellashtirish
05.01.11 – Raqamli texnologiyalar va sun'iy intellekt
05.02.00 – Mashinasozlik va mashinashunoslik
05.02.08 – Yer usti majmualari va uchish apparatlari
05.03.02 – Metrologiya va metrologiya ta'minoti
05.04.01 – Telekommunikasiya va kompyuter tizimlari, telekommunikasiya tarmoqlari va qurilmalari. Axborotlarni taqsimlash
05.05.03 – Yorug'lik texnikasi. Maxsus yoritish texnologiyasi
05.05.05 – Issiqlik texnikasining nazariy asoslari
05.05.06 – Qayta tiklanadigan energiya turlari asosidagi energiya qurilmalari
05.06.01 – To'qimachilik va yengil sanoat ishlab chiqarishlari materialshunosligi
05.08.03 – Temir yo'l transportini ishlatish
05.09.01 – Qurilish konstruksiyalari, bino va inshootlar
05.09.04 – Suv ta'minoti. Kanalizatsiya. Suv havzalarini muhofazalovchi qurilish tizimlari
10.00.06 – Qiyosiy adabiyotshunoslik, chog'ishtirma tilshunoslik va tarjimashunoslik
10.00.04 – Yevropa, Amerika va Avstraliya xalqlari tili va adabiyoti
08.00.01 – Iqtisodiyot nazariyasi
08.00.02 – Makroiqtisodiyot
08.00.03 – Sanoat iqtisodiyoti
08.00.04 – Qishloq xo'jaligi iqtisodiyoti
08.00.05 – Xizmat ko'rsatish tarmoqlari iqtisodiyoti
08.00.06 – Ekonometrika va statistika
08.00.07 – Moliya, pul muomalasi va kredit
08.00.08 – Buxgalteriya hisobi, iqtisodiy tahlil va audit
08.00.09 – Jahon iqtisodiyoti
08.00.10 – Demografiya. Mehnat iqtisodiyoti
08.00.11 – Marketing
08.00.12 – Mintaqaviy iqtisodiyot
08.00.13 – Menejment
08.00.14 – Iqtisodiyotda axborot tizimlari va texnologiyalari
08.00.15 – Tadbirkorlik va kichik biznes iqtisodiyoti
08.00.16 – Raqamli iqtisodiyot va xalqaro raqamli integratsiya
08.00.17 – Turizm va mehmonxona faoliyati

Ma'lumot uchun, OAK Rayosatining 2024-yil 28-avgustdagi 360/5-son qarori bilan "Dissertatsiyalar asosiy ilmiy natijalarini chop etishga tavsiya etilgan milliy ilmiy nashrlar ro'yxati"ga texnika va iqtisodiyot fanlari bo'yicha "Muhandislik va iqtisodiyot" jurnali ro'yxatga kiritilgan.

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SPECIFIC FEATURES OF GREEN FINANCING IN COMMERCIAL BANKS

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Abstract. Green financing has become an essential tool for commercial banks as they respond to growing demands for environmental responsibility and sustainable development. This article examines the key features that define green financing in the banking sector—such as integrating environmental risks into credit decisions, offering green loans and bonds, and aligning with international sustainability standards. Through a qualitative and comparative approach, the study explores how these practices are changing the way banks operate, improving transparency, and promoting long-term investment in environmentally friendly projects. The findings suggest that banks embracing green finance not only strengthen their reputation and meet new ESG (Environmental, Social, and Governance) requirements, but also unlock fresh opportunities in emerging sustainable finance markets.

Keywords: Green finance, commercial banks, ESG, sustainable lending, climate risk, green bonds, sustainable banking.

Annotatsiya. Yashil moliyalashtirish tijorat banklari uchun ekologik mas’uliyat va barqaror rivojlanishga bo‘lgan talablar ortib borayotgan sharoitda muhim moliyaviy instrumentga aylanmoqda. Mazkur maqolada bank sektorida yashil moliyalashtirishni tavsiflovchi asosiy jihatlar — xususan, kredit qarorlarida ekologik xavflarni hisobga olish, yashil kreditlar va obligatsiyalarni taklif etish hamda xalqaro barqarorlik standartlariga muvofiqlik masalalari tahlil qilinadi. Sifat va qiyosiy tahlil usullari asosida ushbu amaliyotlarning banklar faoliyatiga ta’siri, shaffoflikni oshirishi va ekologik toza loyihalarga uzoq muddatli investitsiyalarni rag‘batlantirishi o‘rganiladi. Tadqiqot natijalari shuni ko‘rsatadiki, yashil moliyani joriy etayotgan banklar nafaqat o‘z obro‘sini mustahkamlaydi va ESG (Atrof-muhit, ijtimoiy va korporativ boshqaruv) talablariga javob beradi, balki barqaror moliya bozorlarida yangi imkoniyatlarga ham ega bo‘ladi.

Kalit so‘zlar: yashil moliya, tijorat banklari, ESG, barqaror kreditlash, iqlim xavfi, yashil obligatsiyalar, barqaror bank faoliyati.

Аннотация. Зелёное финансирование становится важным инструментом для коммерческих банков в условиях роста требований к экологической ответственности и устойчивому развитию. В статье рассматриваются ключевые характеристики зелёного финансирования в банковском секторе, включая интеграцию экологических рисков в процесс принятия кредитных решений, предоставление зелёных кредитов и облигаций, а также соответствие международным стандартам устойчивого развития. На основе качественного и сравнительного анализа исследуется влияние данных практик на деятельность банков, повышение прозрачности и стимулирование долгосрочных инвестиций в экологически безопасные проекты. Результаты исследования показывают, что банки, внедряющие зелёное финансирование, не только укрепляют свою репутацию и соответствуют требованиям ESG (экологическим, социальным и управленческим), но и получают новые возможности на развивающихся рынках устойчивого финансирования.

Ключевые слова: зелёное финансирование, коммерческие банки, ESG, устойчивое кредитование, климатические риски, зелёные облигации, устойчивый банкинг.

INTRODUCTION

As climate change and environmental challenges become more pressing, financial institutions, especially commercial banks, are being pushed to rethink how they lend and invest. Green financing has emerged as a way to channel funds into projects that make a positive impact on the environment, including areas such as renewable energy, energy efficiency, sustainable farming, and green infrastructure. In this transition to a low-carbon economy, banks play a vital role by directing capital where it can support sustainability goals.

This paper takes a closer look at what sets green financing apart in the banking sector. It explores the specific features that define green finance, particularly how it incorporates environmental considerations into risk management, investment decisions, and the design of financial products. As global initiatives like the Paris Agreement and the EU Green Taxonomy take hold, and as investors and stakeholders increasingly prioritize

ESG (Environmental, Social, and Governance) factors, green financing is becoming not just a trend but a key pillar of modern banking.

Over the past two decades, green finance has become a major area of interest among researchers, as climate change and environmental issues have moved to the forefront of financial policy and banking strategy. Scholars have examined green financing from many angles—exploring its core concepts, its implementation by commercial banks, the unique challenges faced in developing countries, and its implications for long-term financial stability.

Campiglio (2016) highlights that the financial system, particularly banks, must reallocate capital from carbon-intensive sectors to sustainable investments. He stresses that without the active involvement of banks, global climate targets under the Paris Agreement cannot be met.

Weber (2005) is one of the early researchers who discussed the integration of environmental risk into banking credit assessment. He argues that environmental mismanagement by borrowers can translate into credit risk for lenders, making it imperative for banks to embed environmental evaluation into risk models.

Scholtens (2009) provides a framework linking corporate social responsibility (CSR) with banking practices. He argues that green finance is not merely a compliance issue but a strategic orientation that can provide banks with a competitive advantage through reputation and trust.

Zhang, Wang, and Li (2020) investigate the role of green credit policies in China and their influence on bank behavior. The authors find that banks participating in green credit schemes demonstrate higher risk-adjusted performance and improved loan portfolio quality.

Böcking, Lüdeke-Freund, and Rohn (2017) examine the design of green financial products and emphasize the need for product standardization and verification to prevent greenwashing. They also discuss how ESG-linked instruments require new risk assessment capabilities within banks.

Busch, Bauer, and Orlitzky (2016) empirically analyze the financial performance of banks engaged in sustainable financing. Their findings suggest a positive correlation between ESG activities and long-term profitability, especially in developed markets where disclosure and governance are strong.

Volz (2018) focuses on the role of central banks and regulatory frameworks in supporting green banking. He argues that prudential regulations should include climate risk exposure and that commercial banks need incentives to align their lending portfolios with sustainability goals.

Capelle-Blancard and Petit (2019) critique the current state of green bond markets and question the effectiveness of voluntary guidelines. Their analysis reveals that while green bonds offer reputational benefits, the absence of robust verification mechanisms remains a key obstacle.

Wang and Zhi (2016), in a study of Chinese financial institutions, argue that green finance development is influenced not only by policy and market forces but also by internal bank culture and the level of environmental awareness among bank staff.

Kreibich and O'Brien (2021) advocate for a structural transformation in banking operations. They state that green financing should go beyond isolated instruments (e.g., green bonds) and be embedded into bank-wide strategies, credit policies, and client engagement frameworks.

This section evaluates the green financing practices of selected commercial banks based on key performance indicators: green loan share, green bond issuance, and ESG disclosure quality. Data were collected from public sustainability reports and regulatory disclosures.

As shown in Table 1, the share of green loans in total loan portfolios varies significantly across banks:

- DBS (Singapore) leads with 25% green loans.
- ING (Netherlands) follows with 22%, reflecting its strong ESG lending framework.
- HSBC and BNP Paribas report green loan shares of around 15–18%.
- In contrast, NBU (Uzbekistan) shows a low figure of 6%, suggesting an early-stage green finance ecosystem.

This divergence reflects disparities in regulatory frameworks, capital market development, and climate-related policy incentives across countries.

Table 1. Key green financing indicators among banks

Bank	Green Loans (% of Total Portfolio)	Green Bonds Issued (USD Billion)	ESG Disclosure Score (0–100)
HSBC	15	5.1	88
ING	22	7.3	92
BNP Paribas	18	6.8	90
DBS	25	2.4	85
NBU (Uzbekistan)	6	0.2	50

Table 2 demonstrates examples of green financing initiatives implemented by commercial banks in different regions:

- These initiatives reflect how banks tailor green finance to their local context while aligning with global sustainability goals.
- ING and DBS focus on performance-linked lending frameworks, while HSBC and Bank of America emphasize green bonds and large-scale project finance.
- The National Bank of Uzbekistan is in earlier stages, piloting green loan programs for renewable energy and sustainable agriculture.

Table 2. Green Financing in Banks

Bank	Green Financing Initiative	Region
ING Group	Sustainability Improvement Loan Program: Loans linked to clients' sustainability performance targets.	Netherlands
HSBC	Issued over $5.8 billion in green bonds for renewable energy and low-carbon infrastructure projects.	United Kingdom
DBS Bank	Launched the Sustainable and Transition Finance Framework, committing SGD 50 billion in sustainable finance by 2024.	Singapore
Bank of America	Provided $200 billion in sustainable finance, including green bonds, energy-efficiency project financing.	United States
National Bank of Uzbekistan	Piloting green loan programs for solar energy installations and sustainable agriculture projects.	Uzbekistan

Green financing shifts the paradigm of commercial banking from short-term, profit-driven lending to long-term, sustainability-oriented finance. The adoption of green finance principles introduces several key changes:

- Strategic realignment: Banks integrate sustainability into core business strategy.
- Cultural transformation: Risk officers, loan officers, and investment teams are trained on ESG risk factors.
- Data requirements: Banks need environmental performance metrics, carbon footprints, and compliance scores from borrowers.
- Regulatory pressure: Central banks and regulators (e.g., ECB, BoE) are embedding climate risk in supervision frameworks.

However, challenges remain:

- Lack of standardized definitions (especially in emerging markets).
- High monitoring costs of environmental KPIs.
- Greenwashing risks, where projects are misclassified as "green" for image or incentives.

Banks in developing economies, such as those in Central Asia or Africa, face additional hurdles due to limited green project pipelines and underdeveloped capital markets.

The specific features of green financing in commercial banks revolve around the integration of environmental considerations into financial decision-making. By offering green loans and bonds, aligning with global ESG frameworks, and improving transparency, commercial banks are repositioning themselves as key players in the global sustainability agenda. Despite regulatory and operational challenges, green financing represents both a moral obligation and a strategic opportunity for forward-thinking financial institutions.

To accelerate the green transition, banks must continue to build internal ESG capacity, strengthen partnerships with environmental data providers, and collaborate with regulators and international organizations to foster a credible and scalable green finance ecosystem.

CONCLUSION AND RECOMMENDATIONS

The study demonstrates that green financing is becoming an integral component of modern commercial banking, reshaping how financial institutions assess risk, design products, and allocate capital. By embedding environmental and ESG considerations into credit decisions and investment strategies, banks are moving beyond short-term profitability toward long-term, sustainability-oriented value creation. Empirical and comparative evidence shows that banks with more advanced green financing frameworks tend to exhibit stronger transparency, improved portfolio quality, and enhanced reputational capital. At the same time, the uneven adoption of green finance—particularly in emerging and developing economies—highlights gaps in regulatory frameworks, market depth, and institutional capacity. Overall, green financing should be viewed not only as a response to environmental challenges, but also as a strategic pathway for strengthening the resilience and competitiveness of commercial banks.

To further enhance the role of green financing in commercial banks, the following recommendations are proposed:

1. Strengthen internal ESG capacity: Banks should invest in staff training, ESG risk assessment tools, and internal governance structures to ensure consistent integration of environmental criteria into lending and investment decisions.
2. Improve standardization and verification: The development and adoption of clear taxonomies, reporting standards, and third-party verification mechanisms are essential to reduce greenwashing risks and increase market credibility.
3. Expand green financial products: Commercial banks should diversify green loan instruments, sustainability-linked financing, and green bond issuance to meet the needs of different sectors and clients.
4. Enhance regulatory and policy support: Regulators and central banks should provide incentives, guidance, and prudential frameworks that encourage banks to align their portfolios with climate and sustainability objectives.
5. Foster partnerships and data infrastructure: Collaboration with environmental data providers, development banks, and international organizations can improve access to reliable data and mobilize larger volumes of green finance, especially in developing economies.

Implementing these measures will help commercial banks accelerate the green transition, manage climate-related financial risks more effectively, and contribute meaningfully to sustainable economic development.

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