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Implementation of Green Banking in the Largest Polish and Romanian Commercial Banks – An Analysis of Progress, Strengths, and Weaknesses

Błażej LEPCZYŃSKI
University of Gdansk, Poland
blazej.lepczynski@ug.edu.pl

Małgorzata SIEMIONEK-RUSKAŃ
University of Gdansk, Poland
malgorzata.ruskan@ug.edu.pl

Mina FANEA-IVANOVICI
Bucharest University of Economic Studies, Bucharest, Romania
mina.ivanovici@economie.ase.ro

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Abstract: In the context of the Green Deal, which set out to transform Europe into a climate neutral area by 2050, governments and international bodies have shown a growing interest in the financing activities that contribute to this objective. This is because the financial system plays a crucial role in channelling resources towards less polluting technologies. Due to its central place in the financial system, the banking system has obviously taken on the same responsibility. Commercial banks can make a change towards a greener economy through the services they provide (green financial products), their loan portfolio (financing companies with a lower carbon footprint instead of highly polluting ones) and the internal transformation of their own activities (using renewable energies, less paper, etc.). The main aims of this paper are the assessment of the degree of development of green banking in Poland and Romania and the identification of weaknesses and strengths in the following areas: strategy, best examples of ESG (environmental, social governance) practices, ESG rating, methods to calculate and reduce the CO2 emissions, risk management, organization and management of a bank, financing the bank's activities, credit activities (corporate banking and retail and mortgage banking). Using data from their reports and official websites, we find that steps have been made towards green banking, but progress is meagre, and the process is only in its early stages. This study will be useful to practitioners through the landmarks and set of criteria it proposes, as well as to researchers as a starting point for a deeper analysis of each area of green banking.

Keywords: green banking; green finance; Poland; Romania.

JEL Classification: G19; Q56; Q59; R11.

Introduction

Green banking has become one of the major strategic priorities in European banks. Banks are in the process of implementing the principles of green banking, using performance indicators to measure and monitor the greenhouse gas emissions related to their banking activities. On the other hand, banks are expanding green financial services. The scope of implementation of green banking may vary depending on the country.

The purpose of the research is to conduct a comparative analysis of the level of green banking implementation in Poland and Romania. To this purpose, and because there is no research tool suitable for this, the authors of this paper decided to construct a research tool, namely a green card/map, which will be presented further. The authors examined two transition countries in this respect, i.e., Poland and Romania. Both countries have transformed their banking systems and numerous reforms have been undertaken in order to increase the competitiveness of the above-mentioned sectors. It is important to understand the great role of the banking sector in the financial system of the two countries. In Poland, the share of the banking sector in the financial system is more than 70%, and in Romania it has a similar share-77% as of the end of the year 2020,

https://www.bstdb.org/BSTDB_Overview%20of%20the%20financial%20sector_ROMANIA.pdf). This means that the banking sector in the examined countries plays a vital role in the direction of green transformation. In both Poland and Romania there is a poorly developed corporate bond market. In addition, equity market is also poorly developed – the Warszaw Stock Exchange is developing slowly, and the Bucharest Stock Exchange is smaller in size than the Polish one. In 2021, the Polish banking sector assets totaled €559.40 billion. The value of the total balance sheet increased by 9.5% comparing to 2020 (https://www.ebf.eu/wp-content/uploads/2022/12/Banking-in-Europe-EBF-Facts-and-Figures-2022.-FINAL.pdf). The indicator of bank assets to GDP for Poland reached a level of 65.81% and for Romania - 40.8% in 2021 (https://www.theglobaleconomy.com/rankings/bank_assets_GDP). According to Statista, the latest data reported (for 2020), the first ten major banks in Romania totaled 97210 million euro in financial assets. In Poland only two big banks are controlled by the Polish capital (PKO BP and Pekao). The rest of 10 banks has majority foreign capital. In Romania, two banks have Romanian capital (CEC Bank and Banca Transilvania), the rest having majority foreign capital. The total assets of commercial banks in Poland increased annually during this period from approximately 940 billion zloty in 2009 to over 2.47 trillion zloty as of December 2022. In Poland, the first ten banks account for about 70% of total assets (Statista 2022a). In Romania, 113 billion EUR is the total market (https://seenews.com/news/banca-transilvania-maintains-lead-on-romanias-banking-market-in-2020-745910), and the first 10 banks account for roughly 86% of the total assets, based on the total assets of the biggest 10 banks using data of 2020 (Statista 2020).

1. Literature Review

The process of green transformation of EU member states towards low carbon emission strengthens the importance of green banking. Big banks in the world are joining alliances, which should help to reach climate neutrality. One of the examples is the Net-Zero Banking Alliance, which is committed to aligning banks' lending and investment portfolios with net-zero emissions by 2050.

The ratification and enforcement of the Paris Agreement and the preparation of the European Green Deal by the European Commission have been key factors in creating a new environment for the functioning of the banking sector. The role of green banking in corporate strategies of commercial banks has grown significantly. The pressure from shareholders is also growing. They are expecting the banks to include green financial products in their offer.

Green transformation in banking has two dimensions. On the one hand, banks implement the principles of green banking and expand their green products, on the other hand it can been noticed the process of decarbonization of the loan portfolio in Europe. This can be understood as the decrease of the number of credits and loans associated with "dirty" projects that are related to fossil fuels (Wass 2022).

Green banking is in the early stages of its development. Regulatory pressure is a key factor determining the transformation of banks towards green banking. Green banking is one of the components of environmental, social, responsible, sustainable banking (Park and Kim 2020). There is a strong connection between green banking and ethical banking (Miah and Hassan 2023). So far, there has been no universal definition of green banking. Green banking plays a significant role in the environmental pillar of sustainable development (Zioło 2020). One of the first definitions was the one proposed by Schultz (2010). The author understands green banking as a set of stimulating environmentally-friendly practices and decreasing the carbon footprint from banking activities (Schultz 2010). Bahl (2012), Islam and Das (2013) suggested a similar approach to the role of green banking. "Green banking adoption is not just a change in the business operations of a bank, instead it is a cultural shift within a bank and affects all aspects of the banking operations" (Bukhari, Hashim and Amran 2019)

From the banks' point of view, green banking is a component leading to competitive advantage. Moreover, banks underly their social and ethical character in the process of developing green banking. It can also be treated as a tool to build trust in a bank.

Green banking can be seen as a way to reduce environmental pollution and slow down climate changes from the entire economy perspective. Banking sector plays a vital role in promoting investments supporting the development of a zero-emission economy. Green banking has many advantages not only for individuals, but also for companies. The banking sector is the major access channel to green financial solutions. According to other authors, green banking is connected to discriminatory industry policy focusing on low carbon industries and excluding industries that have a negative impact on the natural environment (Niedziółka 2021).

Green banking should be considered in its three dimensions. The first one involves the development of the offer of green banking services. Banks may contribute to environmental protection and decline the carbon footprint through a green credit policy, green financing banking activities and green payment solutions. There are

several objectives of green financial products so that banks can comply with government's regulations or guidance, enhance firm reputation, and seize emerging business opportunities (Park and Kim 2020). Implementation of green credit policy plays an especially important role as it is seen as the main pillar of green banking. The second dimension is related to decarbonisation of loan portfolios in banks. The last dimension is connected to the internal transformation of banks towards green banks. Banks have been undertaking restructuring activities based on electronic circulation of documents, greening their branches and using renewable energy technologies. Green banking also means the development of mobile distribution channels and mobile payments. These three dimensions create green banking.

The banks that underline that they are green credit institutions because they made green electricity transformation and reduced paper usage in their activities have been accused of greenwashing. In order to reduce the scale of greenwashing in the European Union starting from 2024, banks will be required to disclose the level of the green asset ratio (GAR).

Banks pursue their macroeconomic and microeconomic goals. Green banking provides a different perspective than that of traditional banking. The macroeconomic role of banks operating in green banking means the development of green credit services supporting the transformation of the economy towards a climate-neutral economy. Indicators such as the share of green financing in the bank's total credits are gaining ground.

On the other hand, it is hard to imagine green banking without the process of decarbonizing loan portfolio. Green banking can play an important role in the development of a sustainable industry (Paluszak, Wiśniewska-Paluszak 2016). From a microeconomic perspective, green banking can be interpreted as a bank's profit while considering the environment.

"Research shows that for financial institutions, the simultaneous pursuit of strategic sustainability priorities and strong financial performance does not conflict with one another but rather, support each other when driven by consistent strong overall leadership" (KKS Advisors 2019, 2).

The research conducted by Kotsantonis and Bufalari on a group of 100 banks showed that there are conflicts between good financial results and implementation of ESG objectives (Kotsantonis, Bufalari 2019). Focusing on ESG in banks' strategies can impact organizational revenues, costs, risk exposure, access to capital, and its brand (Ritter, Forst and Pföstl 2021). It should taken into consideration that green loans are connected with higher level of credit risk, "for instance, a wave of insolvencies of solar panel companies has cost banks dear" (Lehmann 2020).

In the CEE countries, banks can motivate people towards savings or financing of enterprises. This is due to the large share of bank assets in the assets of the financial system and to the underdevelopment of the capital market. The development of green banking will be of key significance in the future for the transformation of the economy into a zero-emission economy. It should be kept in mind that banks have limited ability of financing innovation. It is difficult to imagine reaching a goal of climate neutrality without innovation on CO2 reduction techniques (Aghion et. al. 2022). Banks have extensive credit departments, which do not specialize in assessing the creditworthiness of start-ups. De Hass i Popov analyzed the relationship between financial development and structure and carbon emissions in countries and sectors during the period 1990-2013. They found out that "for given levels of economic and financial development and environmental regulation, CO2 emissions per capita are lower in economies that are relatively more equity-funded" (de Haas, Popov 2019). Public development or green investment banks are an important part of green banking sector. There is little research on the implementation of green banking in commercial banks.

Laskowska conducted a study on pro-ecological strategies of banks in Poland (Laskowska 2018). She performed a comparative analysis of two banks with strategic investors from Portugal (Millennium Bank) and France (BNP Paribas Bank). The author found that the above-mentioned banks do not have a sophisticated ecological financial offer, but they are leaders in the Polish banking sector. The second part of this research consisted in expert interviews and it was concluded that Polish banks should follow Scandinavian, German or Dutch banks in the field of green banking (Laskowska 2020). The comparison of the results of surveys conducted by PWC in 2021 and 2022 among Polish banks on the level of implementation of green finance shows that the green transformation has accelerated in the Polish banking sector (PWC 2022; PWC 2023). PWC's research covers aspects related to green banking in the area of strategy, banking service offering, procedures and risk.

Green banking is also a research interest in Romania. It was concluded that Banca Transilvania is worth mentioning in terms of expanding green banking (Dumitraşcu, Feleaga L. and Feleaga N. 2014; Druga 2022).

Implementation of green banking in banks' strategies was the subject of research in Indian banking. This banking sector has a different ownership structure in comparison to Poland and Romania. India's banking system is controlled by government-owned banks, which have a share of 60% of total commercial banks assets (Sutton

2021). Mekala claims that Indian banks are far behind the developing countries when we take into consideration green banking development (Mekala 2019, 21). We may assume that a large share of the state in the banking sector does not necessarily contribute to the development of green banking.

2. Methodology

Green banking is a relatively new research area. Commercial banks are currently in the early stages of implementing green banking. There is a lack of widely recognized tools for assessing the progress of green banking development. Meanwhile, this is a very important issue, because under regulatory pressure, the coming years in the banking sectors of CEE countries will be marked by the implementation of green banking.

In particular, it is necessary to develop a research methodology to assess banks and banking sectors in terms of the degree of development in green banking.

Table 1. Green banking evaluation areas

Area	Research questions
Strategy	1. Which place takes green financing in the bank's growth strategy (corporate strategy) for the coming 3-5 years? (Green assets ratio = The share of green assets/total assets in %) 2. Has the bank made a strategic decision about reducing financing of power engineering companies? (companies that reach at least 10% of their income from carbon)
The best examples of ESG practices	3. Has the bank signed the Principles for Responsible Banking? 4. Has the bank entered the Net-Zero Banking?
ESG rating	5. Does the bank use ESG rating? Which type, which ESG rating agencies? 6. Does the bank count its carbon footprint? Has the bank been evaluated in this field?
Methods to calculate and reduce the CO2 emissions	7. Does the bank use Science Based Targets Initiative (SBTI)?
Risk management	8. Does the bank take into consideration ESG risks in the process of evaluation of credit applications? 9. Does the bank calculate the CO2 emissions associated with its credit portfolio?
Organization and management of a bank (back office challanges)	10. Is there in the bank an organizational unit /department or position such as Chief Sustainability Officer? 11. What internal indicator does the bank use to measure green products in their business activity? 12. Does the bank use renewable energy sources to provide electricity in its buildings? 13. Has the bank eliminated/reduced significantly paper in its business activities?
Financing of bank's activities and deposit products	14. Has the bank issued/is issuing/is going to issue green bonds or green covered bonds? 15. Does the bank offer green products/deposits/investment products in its offer?
Credit activities – universal banking Corporate banking Retail and mortgage banking	16. Does the bank have an offer of credits for companies (especially for companies from the SME sector) warranted on green/ecological properties? 17. Does the bank have an offer of solutions for supporting clients in issuing green bonds? 18. Does the bank offer financing for small medium sized companies that are focusing on electric transformation? 19. Does the bank have in its offer loans for companies taken into consideration social and energetic criteria? (ESG-linked loans)? 20. Does the bank have guarantees for entrepreneurs related to sustainable development? 21. Does the bank have an offer for green mortgages for energy efficient houses or flats? 22. Does the bank have an offer in the field of electromobility for individual customers? 23. Does the bank offer Socially Responsible Investing (SRI) for customers?
Payment solutions – retail banking	24. Does a bank offer green cards to its customers made from recycled materials?

Source: Author's own research

Our research approach was, as a first step, to develop a list of criteria for assessing progress in green banking. In examining the progress of green banking in the largest Polish and Romanian banks, we focused on the following areas:

1.The banks' corporate strategies
2.Credit and payment services broken down into retail, mortgage and corporate banking,
3.Organization and management of a bank

4.Risk

5.Financing of bank's activities

6.Best examples of ESG (environmental, social governance) practices, ESG rating, methods to calculate and reduce CO2 emissions.

Within these areas, the authors of this research designed 24 specific questions (see Table 1). The implementation of green banking requires a strategic decision at the bank level and the provision of funds in the bank's budget for this purpose. Therefore, banks' corporate strategies were surveyed. The second area is the level of competitive strategies. Here we focused primarily on answering the question of whether the surveyed banks have taken steps to compete with green credit and payment products. Implementing green banking is also an area of bank and risk management.

In the second step, we conducted an analysis of the strengths and weaknesses of the surveyed banks in the field of green banking. Thus, our method refers to the SWOT method, which has been widely used in assessing competitive position and strategic planning. In this study, we focused on issues related to assessing the internal strengths. Our tool can be supplemented with external elements, thus obtaining a green SWOT of commercial banks.

The choice of countries is based on the economic and social similarities between Poland and Romania, and as a continuation of earlier studies in this field (Siemionek-Ruskań *et al.* 2023). The banking sectors studied are characterized by similar levels of concentration. The Herfindahl Index at the end of 2022 was 1017 in the Romanian banking sector, while in the Polish sector it was 833 indicating low concentration in the sectors surveyed. (https://sdw.ecb.europa.eu/servlet/desis?node=1000002869).

The chosen Romanian banks were: Banca Transilvania, BCR, BRD, ING Bank, Raiffeisen Bank, CEC Bank, UniCredit Bank, Alpha Bank, OTP Bank, Eximbank, the selected Polish banks were: PKO BP, Bank Pekao, Santander, ING Bank Śląski, mBank, BNP Paribas, Millennium, Alior, Bank Handlowy Citi, Credit Agricole.

3. Results

The first part of the research focused on the evaluation of the role of green finance in the strategies of Polish and Romanian banks. The results are ambiguous. Both Polish and Romanian banks indicate in their strategies the implementation of the aims of the ESG and green banking, but it is worth mentioning they are at the initial stage in the field of measurement of the share of green financing in total assets. Developing a taxonomy and the mandatory requirement to measure and monitor green finance in banks will strengthen green banking in commercial banks strategies. Banks will be challenged to decarbonise their lending portfolios. It is worth noting that, both Polish and Romanian banks have low level of credit exposure in the fossil fuels sector, which can be seen as their strategic advantage over the "old" EU banks.

The next question checked whether Polish and Romanian banks signed the Principles for Responsible Banking (ONZ initiative) and entered the Net-Zero Banking. Of the 10 Polish banks, seven signed the Principles for Responsible Banking. Three banks which are dependent on state, namely PKO BP, Pekao and Alior Bank, did not sign the above mentioned principles. In addition, PKO BP and Pekao play a significant role in the Polish banking market in terms of share in total assets as well as the number of the clients. In order to join Net-Zero Banking Alliance (NZBA), a bank should become a signatory to the Principles for Responsible Banking (https://www.unepfi.org/net-zero-banking/join-us/). All Polish and Romanian banks with foreign capital have joined Net-Zero Banking Alliance.

A necessary but not sufficient condition for the development of green credit offer is the embedding of ESG criteria in the creditworthiness assessment process. In particular, it is necessary to include climate risk, which affects both PD (Probability of Default) and LGD (Loss Given Default) parameters. Our research shows that the vast majority of Polish and Romanian large banks declare that they include such criteria in the evaluation of loan applications. Some of the banks surveyed (60 percent in the case of Romania and 70 percent of Polish large banks) also calculate the carbon footprint for the loan portfolio, but this type of measurement is in the early stages of development. Our research shows that the steps taken by Polish and Romanian banks in taking climate risk into account are a good starting point for the development of procedures and techniques for including climate risk in credit procedures, but an important barrier may be emissions databases.

Further on, we examined the use of ESG rating. They a relatively new assessment tool which, on the contrary to the credit rating of credit rating agencies, has not been standardized yet. ESG agencies enable the possibility of checking the company's ESG results, like credit rating agencies, and they also enable the evaluation of creditworthiness of the company (Berg, Kölbel, Rigobon, 2022). Over 50 % of Romanian and 90% of Polish banks have ESG rating. The most popular agency used by the banks in this research was Sustainalytics. ESG

rating (Mazzacurati 2021), undertaken by Sustainalytics is the evaluation of ESG risk. It is a type of rating that is used to measure exposure to ESG risk and to assess how these risks are managed.

In terms of organization and management of banks, four questions were answered. Of the 10 Polish banks, only one does not have a management position in charge of sustainability. The titles under which such functions are held are: Corporate Social Responsibility and Sustainability Committee; ESG manager; Corporate Social Responsibility and Sustainability Committee; ESG Council and ESG Risk Committee. On the other hand, the largest Romanian banks are a bit behind when it comes to implementing such a position – only six out of the ten banks have such an officer or department – their names are: Sustainability Committee; Climate Change, Environment and Social Committee; Sustainability Department; Sustainability Council and a Committee for Sustainable Finance; ESG Governance Structure (at group level); Department of Sustainability and a Manager. In both countries, these bodies were created in 2021 or 2022, therefore the process in the banking system may be ongoing.

Half of the largest Polish banks have internal indicators to measure green products in their business. Of the Romanian banks, only three use such indicators. The largest Romanian bank uses non-financial indicators, such as green loans granted to Romanian companies, or the proportion in total assets of exposures related to eligible economic activities and other green funding. The second largest bank uses MSCI indicators, while the third one has put in place progress indicators regarding sustainability at group level.

In Poland, the five largest ten banks have already used renewable energy sources to provide electricity in their buildings. In Romania, the situation is better, in that seven out of the ten banks report usage of renewable sources of energy. Two banks do not provide any details on this issue, whereas one of them announces that the plan is to replace ten old thermal power plants with condensation power plants. Two banks having already made progress in this respect report that this has been a group strategy, which was also taken over in Romania; one bank 'rethought the entire policy related to environmental projects and implemented a large-scale program that aims to reduce carbon emissions and introduce green energy into our buildings', another one mentions that 26% of the electricity it uses comes from such sources and another mentions that the electricity supplier confirms that a significant share of the consumption is derived from renewable resources.

All top Polish banks confirm the reduction or elimination of paper from its business activities. Romanian banks display a similar situation, nine out of the ten banks reporting the same thing. Whereas some have benefited from such a measure at group level, other banks cut on paper consumption and put in place digital platforms for approvals to replace paper; reduce paper usage by using digital scanning and document archiving; recycle part of the paper consumed. The bank that has not yet put in place such a measure, however, confirms that waste management is on the agenda, including paper.

Regarding the financing of banks' activities, two items were analyzed. The five largest banks in Poland have already issued green bonds (PKO Bank Hipoteczny issued green covered bonds). In Romania, the six largest banks did that. These bonds are sustainability-related bonds. One bank has not yet issued such bonds, and it admits that it is still at the stage where the bank is adopting the EU taxonomy. The five largest banks in Poland offer green products of some sort. Romania has made more steps in this respect, with nine out of ten banks having already provided at least one type of green banking product, such as: green credits, sustainability bonds, green finance (broadly), credits for buying houses/apartments and credit lines for businesses, mortgage loan for green houses (with a RoGBC certification), green leasing to finance electric or hybrid cars. This type of product has been on the market since 2021.

Regarding the credit activities, two sectors were analyzed: corporate banking and retail and mortgage banking. In both Polish and Romanian banks, the biggest share in the total income are still traditional credits and loans. Green offer is treated as a supplement to the traditional product offer. There are two main barriers in the development of green credit offers. The first one is low customer demand, although our previous studies show that customers are interested in such products (Siemionek-Ruskań, Lepczyński, Fanea-Ivanovici, 2022). The second one is a slow speed of the development of electric cars.

The green deposit offer is poorly developed. Customers would have to accept a decrease in their income from the bank deposits. Such product can be associated with the fact that the bank can allocate part of the clients' interest to ecological or environmental protection objectives. Bank Ochrony Środowiska offered such solutions in the past but it did not meet customer's interest. In the area of deposits, the development of green products is very limited in the selected countries.

An interesting area from the point of view of the development of green banking is the area of private banking. In Poland, this area of banking is the concern of the largest banks. Their customers are among those with a higher level of economic education. In Romania, the six largest banks did not provide information if they

offer SRI for customers, and three of them confirmed they did not. Only one Romanian bank (BRD) indicated offering it (SRI). In the research of Polish banks shows that 60% of 10 biggest banks offer not only traditional investment products in private banking, but they also provide SRI such as wealth Management as an example.

Regarding the payment solutions only one question was asked. Of the 10 Polish banks, three offered green cards to its customers made from recycled materials. On Romania 80% of the biggest banks confirmed not using green cards. In both countries, banks should pay more attention to adapt to environmentally friendly payment solutions.

Conclusion

As for Polish large banks, our research shows that there is a preponderance of weaknesses, which is mainly due to the initial stage of green banking development in Poland. The inclusion of green strategic goals in the corporate strategies of the surveyed banks can be considered a strength. This means that green goals are becoming strategic priorities for the next few years. This, in turn, allows us to forecast that there will be an increase in the importance of green banking in the years to come. Of greater importance, however, are the current weaknesses. Our findings show that banks are in the early stages of introducing carbon footprint measurement and incorporating climate risk factors into their credit assessment procedures. The weak point of Polish banks in the context of green banking development is liabilities. Green wholesale financing (green bonds, green covered bonds) is very limited, which may inhibit green banking in Poland. The share of green loans in the loan portfolio is limited. Banks are just starting to make green retail and corporate loans, and are only looking to get a larger share of green project loans in a few years. Polish banks intend to focus mainly on supporting customers' energy transition.

The Romanian commercial banks have all included green orientation or a green transition in their strategies. However, the level of implementation largely varies from one bank to another. Some banks are adopting the terminology, while others have already created various sorts of green products and have been involved for a while in greening their activity too. Steps forward in terms of Net-Zero Banking Alliance have been made with the help of the groups' strategies most banks are part of. The main weaknesses of Romanian banks are that ESG rating is used by only half of the largest banks, only 6 out of 10 banks have created specialized departments and officers in charge of sustainability issues and strategies, the measurement of green products in the business, which is meagre. Also, we have not yet identified SRI offers in the Romanian banks. At the other end of the spectrum, Romania performs much better in terms of renewable energies use, paper use decrease or recycling, and more developed bond offer.

From the undertaken research we can observe that there is a positive correlation between the ownership structure and the level of implementing green banking principles and green financial services. Among 10 biggest players in each country, 7 Polish and 8 Romanian banks have a majority share of foreign capital in their structure. It is in these banks that the acquisition of green finance principles is most advanced.

The majority of Polish and Romanian banks has implemented green offer in retail banking sector which is promising for the future trends. On the other hand, it is worth taking into consideration serious barriers in developing green banking such as: 1) low level of an ecological culture 2) a lower level of the average household wealth in comparison to the older EU member states, which also negatively impacts on the green banking future.

Credit Authorship Contribution Statement

The authors contributed equally to this work.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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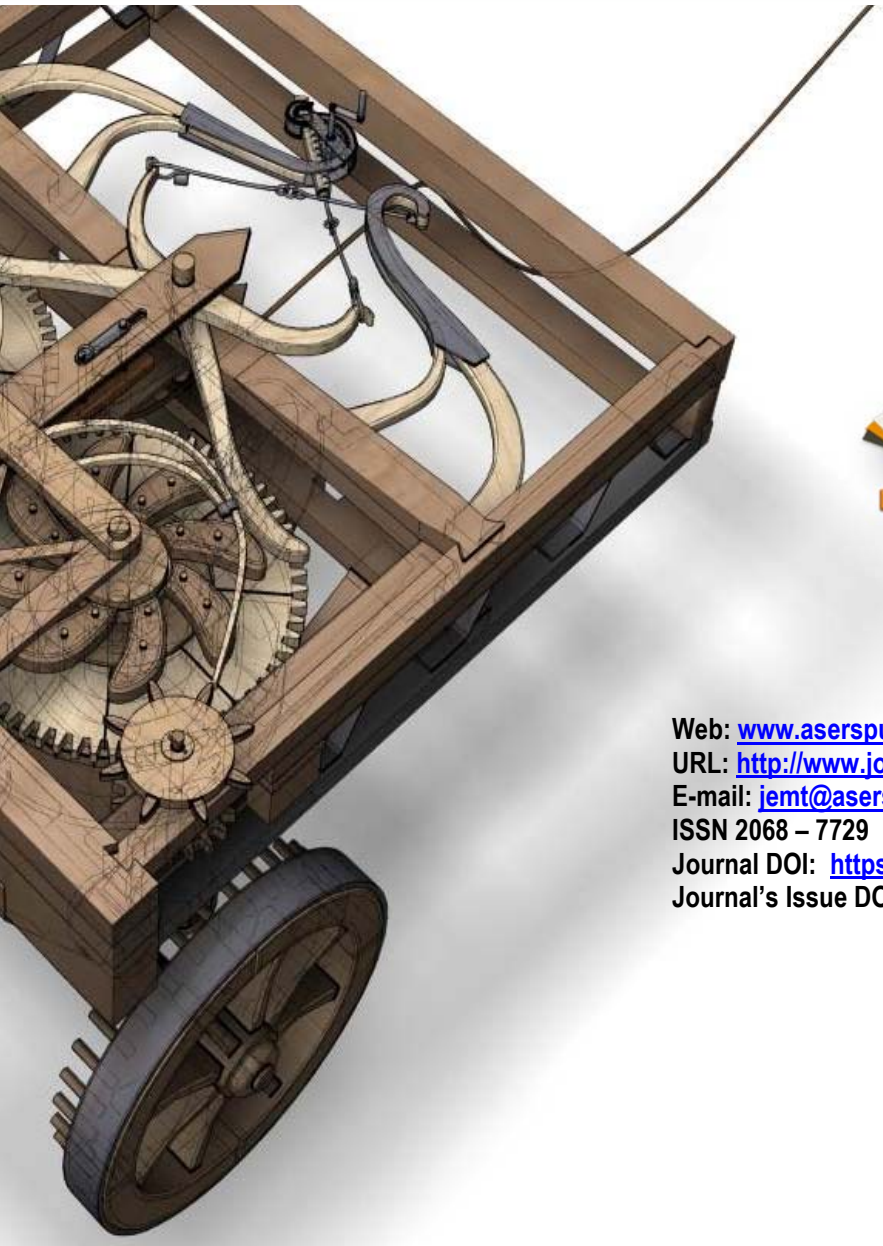

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