

GREEN CREDIT – THE ROLE OF BANKS IN FACILITATING CARBON NEUTRALITY

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ABSTRACT

The paper analyzes several elements of credit institutions' decisions on crediting companies. Primarily, the paper analyzes the fundamentals of green financing and its impact on credited companies and credit institutions' profits. Furthermore, the paper deals with the information credit institutions take into account when calculating a company's credit score and carbon footprint and the notion that a company's credit score is not independent of its carbon footprint. Methodologically, the paper relies on statistical and econometric data and theoretical analyses of that data. Afterward, the paper deals with the question of whether or not a credit institution should credit a company or if it should use other tools at its disposal to steer companies in the desired (green) direction. The last part questions the legality of differentiating interest rates on the same market based on companies' carbon footprints.

Key words: ESG, green financing, carbon footprint, interest, market.

1. INTRODUCTION

ESG (Environmental, Social and Governance) is an acronym that refers to a set of business metrics that socially conscious stakeholders use to observe a company's impact on society and sustainability.¹ ESG has come a long way from representing desirable business qualities to becoming important business

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¹ Gaganis, C., Pasiouras, F., Tasiou, M.: ESG and Credit Risk, in: Gaganis, C. et al. (eds.): *Sustainable Finance and ESG risk, management, regulations, and implications for financial institutions*, Cham: Palgrave Macmillan, 2023, p. 125.

decision-making variables.² The goal of ESG is its implementation into everyday business and decision-making practices. This implementation necessarily means change regarding internal company structures, risk analysis, information needed to make business decisions, documentation (re)evaluation, etc. To do that, companies need money. While some companies do have the necessary funding to conduct these changes and implement almost every important ESG element into their everyday business with their funds (equity capital), most companies will need external income (debt capital) for full implementation of ESG standards.³

The most common form of external financing (debt capital) for the aforementioned types of company modifications is a loan (credit). Credit institutions have a unique chance to use crediting and investing to contribute significantly to sustainable development. Credit institutions can facilitate the development of a more carbon-neutral economy by providing the necessary funding that will allow companies to offset their emissions. Also, credit institutions can decide not to credit those companies that have a negative carbon footprint or whose business endeavors are ecologically hazardous and/or will harm the environment in general. Besides deciding whether or not to credit a certain business endeavor, credit institutions have another instrument that they can use to steer companies into the desired, environmentally friendly, direction – interest. Credit institutions are well known for using interest for their benefit. They can decide to, *e.g.*, offer lower interest rates to companies whose business endeavors are ecologically friendly or to those companies that are “going green.” On the other hand, credit institutions could offer higher interest rates to companies whose carbon footprint score is negative or whose business endeavors will harm the environment.

But how is it legal to credit one company and not another or offer one company lower interest rates than another? The aforementioned issue is especially relevant in situations where two or more companies exist and conduct business in the same market (meaning that they are competitors in some way). This is the general question this paper will try to address as well as try to provide possible

² According to PricewaterhouseCoopers: PwC’s Global Investor Survey from 2023, 70% of investors find that ESG variables should be embedded directly into their corporate strategies (more information on this topic is available on <Global Investor Survey 2023 | PwC>). Stock exchanges around the world (*e.g.* Hong Kong Stock Exchange, EURONEXT, National Stock Exchange of India and NASDAQ) are increasingly implementing ESG reporting requirements (Myers, C. Czarnecki, J. J.: Sustainable Business Law? The key role of corporate governance and finance, *Environmental Law*, 51(4) 2021, p. 1021).

³ Haentjens, M., de Gioia Carabellese, P.: *European banking and financial law*, New York: Routledge, 2020, p. 191.

legal reasoning behind decisions to credit or not to credit certain companies based on their business decisions and/or their carbon footprint.

The paper will present an idea that the usage of different interest rates when crediting companies will effectively raise the prices of goods and services of carbon footprint negative companies, effectively using the market's own rules against them (the higher the price the lower the sale). Structurally, the paper will primarily depict how credit institutions calculate a company's credit score, and how credit institutions calculate a company's carbon footprint. Following up on that dual profile of a company the question of whether a credit institution should or should not credit a company will be addressed, while considering the positive and negative effects of both decisions. The final part of the paper will tackle the question of the legality of interest rate differentiation as a means for pushing companies into "green" business decisions and contributing to the achievement of carbon neutrality.

In terms of research methods, the paper is envisioned as a theoretical work but the conclusions presented in the paper will be supported by statistical and econometric data respectively.

2. CREDIT SCORE AND CARBON FOOTPRINT PROFILING

Croatian credit institutions calculate a potential client's credit score based on a specific set of information received by a potential client as well as information that they found out themselves primarily through prior relations and/or credit obligation registries. The calculation of a potential client's credit score is important for the credit institution's ability to manage and mitigate credit risk.⁴

Methods of calculation of potential clients' credit scores differ according to whether a potential client is a consumer or a company. While the calculation of a consumer's credit score is somewhat prescribed by law,⁵ the calculation of a company's credit score relies much more on specific economic data.

Calculating companies' credit score generally begins with an analysis of their lending capacity. A company's lending capacity represents an amount of financial debt that can be paid off over a period of time acceptable to the creditor under the assumption of zero growth of the company's cash flow. Another

⁴ Mishkin, F., Eakins, S. G.: *Financial markets and institutions*, Harlow: Pearson, 2018, p. 595.

⁵ See Art. 18 of the Consumer Housing Credit Act (NN no. 101/17, 128/22, 156/23) and Art. 8 of the Consumer Credit Act (NN no. 75/09, 112/12, 143/13, 147/13, 9/15, 78/15, 102/15, 52/16, 128/22, 156/23).

important element is a company's net working capital which is calculated by subtracting a company's short-term debts from its short-term property. An adjusted net working capital is an important indicator because its efficiency has a direct impact on the company's repayment potential which in turn directly affects the overall company value.⁶ So, it is safe to assume that a credit institution will primarily focus on a company's financial stability and prospects as two important elements when deciding on crediting that company (hard facts).⁷ However, credit institutions also take into consideration non-financial indicators (soft facts) that are generally obtained through prior relations with a client. There are seven basic non-financial indicators that credit institutions take into account when calculating a company's credit risk: 1) the reason for requesting a credit; 2) characteristics of the company's overall management; 3) accounting cooperation and transparency; 4) the market on which the company is conducting its business; 5) company's employee qualifications; 6) prior company-bank relationships; 7) general risk indicators.⁸ The process of approving a credit to a certain company is generally based on the company's financial statements, however, the task of the credit institution is to also evaluate a company's future business prospects which can lead to soft facts prevailing when deciding on crediting a certain company.⁹

When considering granting a green credit,¹⁰ hard and soft facts are no longer enough to determine whether to credit or not to credit a specific company. Other indicators, primarily focusing on environmental impacts, will have to

⁶ For more details relating to net work capital and cash flow as indicators of loan capabilities see Ribić, D.: Sposobnost zaduživanja trgovačkih društava, *Praktični menadžment*, 1(1) 2010, pp. 92-93 and especially Brealey, R., Myers, S. C., Marcus, A. J.: *Osnove korporativnih financija*, Zagreb: Mate, 2007, pp. 220-224.

⁷ For more detail relating to hard facts see Žager, K., Mamić, I., Sever, S.: *Analiza financijskih izvještaja*, Zagreb: Masmedia, 2008, p. 37.

⁸ Ribić, D.: Procjena kreditnog rizika, *Praktični menadžment*, 2(1) 2011, pp. 111-113.

⁹ Bakić, L.: *Procjena kreditne sposobnosti poduzetnika na primjeru OTP banke d.d.*, Master's thesis, Split: Ekonomski fakultet, 2019, p. 35.

¹⁰ A green credit (or green financing) can be described as a multifaceted approach with the primary goal to facilitate the allocation of capital to initiatives and projects that not only promise a reasonable rate of return but also deliver tangible environmental and social benefits (Dathe, T.: *Implementing Environmental, Social and Governance (ESG) Principles for Sustainable Businesses, A Practical Guide in Sustainability Management*, Berlin: Springer Nature, 2024, p. 228). Unfortunately the share of green credits on credit institutions' balance sheets is still low in the EU (approx. 4.5% of all granted credits). However, as of 2015 until today the share of green credits has experienced an increase in granting and it is estimated that the capital value of all granted green credits in the EU today is approx. 156 million EUR. Regardless of the said increase and the amount of granted credit, 73% of all green credits are granted to households while only 27% are granted to companies. For more detail see Rojko, J. Keserović, A.: Implementacija održivosti u poslovanje kao temelj sinergije korporativnog i

be taken into account side by side with a company's credit score. A company applying for a green credit should communicate to a credit institution: 1) its environmental sustainability objectives; 2) the process by which the credit applicant determines how its projects fit within eligible categories (*e.g.* renewable energy, pollution prevention and control, terrestrial and aquatic biodiversity conservation, clean transportation, sustainable water, and wastewater management, climate change adaptation, eco-efficient and/or circular economy adapted products, production technologies, and processes, green buildings, etc.) and 3) the related eligibility criteria, including, if applicable, exclusion criteria or any other process applied to identify and manage potentially material environmental risks associated with the proposed projects.^{11,12}

It is important to emphasize that a company's carbon footprint and its credit score are not mutually exclusive nor independent from one another. On the contrary, companies that implement ESG into their business decisions generate more profit by mitigating potential risks (*e.g.* systematic, supply-chain, litigation, reputational and regulatory risks, etc.). A dedicated corporate social responsibility (CSR) policy or philanthropy program could in theory fund a wider range of projects giving credit institutions more flexibility and diversity in regards to which business endeavors to credit.¹³ In other words, companies that incorporate ESG into their business decisions have a more stable cash flow and higher profit margins, which leads to increased share value¹⁴ and overall

financijskog sektora, in: Pavković, A. (ed.): *Banke i bankarstvo – izazovi i trendovi*, Zagreb: Narodne novine d.d., 2024, p. 168.

¹¹ Loan Market Association, *Green loan principles – supporting environmentally sustainable economic activity*, London: Loan Market Association, 2018, p. 2 & p. 4.

¹² Credit institutions should implement analyses of: a) Emissions such as: i) waste recycling; ii) CO₂ equivalent emissions, covering gasses such as: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, etc.; iii) total waste to revenues; iv) existence of environmental management systems; v) environmental fines concerning the violation of environmental regulations; vi) biodiversity impact and activities to reduce the impact of the company's activities on ecosystems and species; b) Use of resources: i) water use to revenues; ii) water recycled; iii) land use, *i.e.*, initiatives that a company takes to reduce its environmental impact on land owned, leased, or managed for production activities; iv) total energy use to revenues; v) renewable energy use ratio; vi) implementation of policies regarding the impact of the supply chain on the environment and the reduction of toxic chemicals or substances as well as sustainable packaging; c) innovation: i) environmental R&D expenditures. (Doumpos, M., Eskantar, M., Zopounidis, C.: Socially and environmentally responsible investments and mutual funds, in: Gaganis, C. et al. (eds.): *Sustainable finance and ESG risk, management, regulations, and implications for financial institutions*, Cham: Palgrave Macmillan, 2023, pp. 76-77).

¹³ Light, S., Skinner, C. P.: Banks and climate governance, *Columbia Law Review*, 121(6) 2021, p. 1940.

¹⁴ These conclusions are based on statistical and econometric data found in the following papers: Bénabou, R., Tirole, J.: Individual and corporate social responsibility, *Economica*,

positive economic growth. Profits are therefore directly intertwined with positive environmental effects and carbon emission reduction.¹⁵

Taking into account all the aforementioned criteria, credit institutions should be able to create a dual profile of a company. The first profile should represent a company's possibility to return the credited amount of money in the agreed-upon time and the agreed-upon manner, while the second profile should represent the company's impact on the environment so that it takes into account not only a particular endeavor but the company's overall impact on the environment. Calculating a company's credit score is something credit institutions have been doing for a long time and have the sufficient knowledge and means to do so in a satisfactory manner. However, profiling the company's environmental impact can prove challenging. Credit institutions have been able to group these challenges into three major categories: 1) considerable resources are required for credit institutions to implement the necessary procedures and adequate taxonomy for such profiling; 2) there is a general lack of client data relating to their environmental impact; 3) there is a possibility of different interpretation of certain criteria provided by a company by different credit institutions.¹⁶ These challenges have no immediate solution and will require a systemic and multilayered approach by each credit institution individually and all credit institutions collectively. Such an approach takes time, considerable

77(305) 2010, pp. 9-15; Lins, K. V., Servaes, H., Tamayo, A.: Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis, *The Journal of Finance*, 72(4) 2017, p. 1820; Albuquerque, R., Koskinen, Y., Zhang, C.: Corporate social responsibility and firm risk: theory and empirical evidence, *Management Science*, 65(10) 2019, pp. 4457-4463; Dai, R., Chen, G. M.: Socially responsible corporate customers, *Journal of Financial Economics*, 142(2) 2021, pp. 620-626.

¹⁵ However, it is possible to find opposite views regarding this subject. For example Dorothy S. Lund argues that giving management the discretion to prioritize prosocial goals that sacrifice shareholder wealth will not change the practical operation of most companies that are still focused on increasing share value, so long as the incentive structure remains the same (Lund, D. S.: Corporate Finance for Social Good, *Columbia Law Review*, 121(5) 2021, p. 1632). Oliver Hart and Luigi Zingales argue that the support that activists receive from institutional investors are directly linked to their duty to their shareholders to vote for value-maximizing actions. Thus institutions may support an activist even if most shareholders are against it because that support increases share value. This standpoint means that companies invest in socially relevant endeavors only if that results in share value increase. (Hart, O., Zingales, L.: Companies should maximize shareholder welfare not market value, *Journal of Law, Finance, and Accounting*, 2(2) 2017, p. 247 & p. 251).

¹⁶ For more details relating to these challenges see Boissinot, J., Heller, T. C.: Scénarios climatiques en finance, *Revue d'économie financière*, 2(138) 2020, pp. 62-64 and the European Banking Authority: *Mapping climate risk: Main findings from the EU-wide pilot exercise (Rep/2021/11)*, Paris: European Banking Authority, 2021, pp. 44-45.

resources, and mutual cooperation not only between companies and their credit institutions but between credit institutions themselves.¹⁷

3. TO CREDIT OR NOT TO CREDIT?

Taking into consideration that all companies exist to make a profit,¹⁸ a decision of a credit institution not to credit a certain company can be seen as counter-intuitive and counterproductive as that decision will inevitably go against a credit institution's very purpose.

On the other hand, there are certain negative implications regarding decisions to not credit a company's business endeavor. Primarily, that specific company might not be able to conduct its business; a direct result of that might be a general lack of income for the company which means that the company, in the long run, might go into debt, its stock value could decrease, the company might eventually not be able to pay its employees and in the most extreme cases it might even go bankrupt.¹⁹ Of course, this example was enhanced to the utmost

¹⁷ These challenges were addressed in Croatia throughout 2023 when the lead Croatian credit institutions collaboratively worked with the Croatian Credit Obligations Register (hereinafter: HROK) to create a unified ESG questionnaire that would encompass information necessary for carbon footprint profiling. By unifying the questionnaire credit institutions have managed to (somewhat) overcome the challenge of information gathering and potentially adjust business decisions relating to crediting companies. The questionnaire can be accessed and filled out by companies after a registration process at HROK's website: <<https://www.hrok.hr/esg>>, last accessed on 01/10/2024.

¹⁸ Barbić, J.: *Pravo društava, Knjiga 1. Opći dio*, Zagreb: Organizator, 2008, p. 168.

¹⁹ Extensive research has been made in regards to the correlative effects of implementing ESG standards into and a decrease of potential company default/bankruptcy. However, this correlation is highly geographically based and is dependent on specific market characteristics. International companies headquartered in regions, whose countries belong to leading economies globally, have a positive influence of ESG initiatives on corporate financial performance and corporate credit rating. These regions are North America, Developing Asia, and Developed Asia. Companies from Eastern Europe demonstrate the effective implementation of ESG activities, which might be caused by those adjacent to Western Europe. Eastern Europe learns from the experience of Western Europe and imposes projects aimed at achieving sustainability to keep up with peers from Western Europe, albeit Western Europe reveals worse results than Eastern Europe. However, they may implement more advanced ESG projects that are more expensive in comparison with ESG projects of Eastern Europe. Finally, the Middle East, Africa, and Latin America do not benefit due to ESG project implementation that may be caused by the high level of corruption, political uncertainty, and political instability of some countries included in these regions. For more details relating to this subject and the relevant statistical and econometric data see Cherkasova, V., Nenuzhenko, I.: Investment in ESG projects and corporate performance of multinational companies, *Journal of Economic Integration*, 37(1) 2022, pp. 67-84 & p. 86.

extreme, but it is not impossible to imagine that this scenario occurs, especially if credit institutions take a strong environmentally friendly stance towards certain endeavors. So, it is important to remember that a decision to not credit a specific company's endeavor might have immediate negative social and economic implications far sooner than the desired environmental implications become noticeable. In that sense, it is important to find the right tool to steer companies in the desired direction and still manage to avoid unwanted social and economic side effects. That tool, in the author's opinion, can be found within credit institutions' sources of income.

Two of the most prominent sources of income for credit institutions are interest and fees. Interest has an important economic role in individual transactions as well as a role in regulating economic developments in a national economy which makes it an important element in both national and EU economic policies.^{20,21} On an individual scale, interest has a role in the context of creditor protection and claim insurance. In that aspect, interest has a preventive and potentially remunerative effect in the case of a potential debtor default.²²

However, it should be noted that the functions of interest vary depending on the type of interest. Default interest, for example, has a compensatory function in cases when a debtor is late with his payment. Therefore, default interest represents a (monetary) corrective for a (monetary) obligation that has not been paid in the agreed upon time and/or the agreed upon manner.²³ Theoretically, default interest can be defined as a benefit that has eluded the creditor due to the debtor's default in fulfilling his main monetary obligation.²⁴ On the other hand, contractual interest represents a debtor's counteract for the creditor's en-

²⁰ Giunio, A., Kirchbaum, R.: *Kamate, jučer, danas, sutra*, Zagreb: TEB, 2008, p. 17.

²¹ Interest and interest rates have proven to be one of the key factors in combating inflation. E.g. The Governing Council of the European Central Bank (hereinafter: ECB) has decided in June 2023 to raise the three key interest rates by 25 base points. Accordingly, the interest rate on the main refinancing operations were raised to 4.00% and the interest rates on the marginal lending facility to 4.25% and the deposit facility to 3.50% respectively. The goal of this decision has been to bring interest rates to levels sufficiently restrictive to achieve a timely return of inflation to the desired 2% medium-term target. For more information see European Central Bank: *Combined monetary policy decisions and statement*, Frankfurt am Main: European Central Bank, 15.06.2023.

²² Belaj, V. et al.: *Zaštita vjerovnika – stvarnopravno, obveznopravno i ovršnopravno osiguranje tražbina*, Zagreb: Narodne novine d.d., 2005, p. 5.

²³ For further research into default interest and their compensatory functions as an increased price for services rendered see Miladin, P.: Novčane obveze i kamate – izabrana pitanja (zabranu anatocizma i računanje djelomičnog plaćanja), *Pravo u gospodarstvu*, 58(5) 2019, p. 779.

²⁴ Slakoper, Z. et al. *Obvezno pravo, Opći dio s uvodom u Privatno pravo*, Rijeka: Novi informator and Pravni fakultet Sveučilišta u Rijeci, 2022, p. 357; Giunio, M.: *Pravno uređenje*

abling of capital usage. Contractual interest has, as opposed to default interest, an exclusively compensatory function, *i.e.* the function of reimbursement of the value for the usage of capital.²⁵

Contrary to the theoretically accepted ancillary nature of contractual interest, from a credit institution's perspective contractual interest represents the very reason and purpose for concluding credit agreements. This is especially evident if one considers that contractual interest is determined on the period during which the creditor is deprived of the ability to use the money he has transferred to the debtor *via* credit agreement.²⁶ It is also important to note that credit annuity, especially at the beginning of repayment, is constructed in a way that interest represents the majority of the annuity, and as time passes by, the annuity starts to consist more from capital and less from interest, meaning that it is the credit institution's goal to receive the interest as fast as possible.²⁷ The importance of interest in credit annuity is also noticeable in situations where the interest rates can fluctuate, meaning that interest rates can directly impact the amount of a debtor's monthly obligation.²⁸ Considering all the previously mentioned elements, it could be argued that interest in the banking sector, from a purely economic standpoint, represents the debtor's main obligation.²⁹ This standpoint can also be substantiated with the fact that the five main credit institutions (market leaders) in Croatia have cumulatively generated approx. 1,8 billion EUR in profits from interest alone in 2023, while they have cumulatively generated approx. 458.8 million EUR in profits from fees alone in 2023.³⁰ It is

kamata, in: Barbić, J., Giunio, M. A. (eds.): *Zbornik 43. susreta pravnika Opatija*, Zagreb: Hrvatski savez udruga pravnika u gospodarstvu, 2005, p. 203.

²⁵ Slakoper, Z. et al.: *Trgovačko ugovorno pravo*, Rijeka: Novi Informator and Sveučilište u Rijeci, Pravni fakultet, 2024, p. 233.

²⁶ Tot, I.: Kamate, in: Slakoper, Z. (ed.): *Bankovni i financijski ugovori*, Zagreb: Narodne novine d.d., 2017, p. 165.

²⁷ For an extensive mathematical depiction of calculating credit annuity see Šegota, A.: *Financijska matematika*, Rijeka: Ekonomski fakultet u Rijeci, 2012, pp. 98-109.

²⁸ For more details on this matter see Francisković, D.: Analiza potpune kompenzacije povećanja anuiteta zbog valutne klauzule produljenjem razdoblja otplate, *Ekonomska misao i praksa*, 20(2) 2011, pp. 314-324.

²⁹ Gorenc, V. et al.: *Komentar Zakona o obveznim odnosima*, Zagreb: Narodne novine d.d., 2014, p. 68.

³⁰ This data was created as a result from analyzing yearly financial reports of Zagrebačka banka, d.d. (hereinafter: ZABA), Erste&Steiermärkische Bank d.d. (hereinafter: Erste); Privredna banka Zagreb, d.d. (hereinafter: PBZ); OTP bank d.d. (hereinafter: OTP) and Hrvatska poštanska banka, dioničko društvo (hereinafter: HPB) for the 2023 fiscal year (data for 2024 were not available at the time of writing), all available on <Sudski registar – Pretraga subjekata (pravosudje.hr)>, last accessed on 30/09/2024. Those reports showed that ZABA's profit (net income) from interest amounted to 577,000,000.00 EUR, while the profit from fees amounted

safe to conclude that credit institutions generate more income from interest than fees, making interest a more important profit-generating instrument.

Taking into account the amount of money credit institutions make just from interest alone, as well as the importance of interest in national and EU economic policies as well as individual transactions and private law relations, it could be argued that interest is the desired instrument that could serve as a deterrent from company's decisions to invest or participate in environmentally harmful endeavors.

Using interest could prove beneficial in achieving carbon neutrality while retaining the core goal of credit institutions. Companies get the required money to continue their business while credit institutions generate profit. However, interest can be used as an important deterrent in a way that companies whose carbon footprint is negative and whose business endeavors generally harm the environment get the money they need, but with a higher interest rate so that the "price" they have to pay for the credit becomes economically unjustifiable. Alternatively, those companies whose carbon footprint is positive and whose business endeavors don't harm the environment will also get the money they need but at a substantially lower interest rate making their "price" much more acceptable.^{31,32}

to 166,000,000.00 EUR. The ratio in favor of interest was more than 3:1 in ZABA's case. Afterwards came PBZ with profit from interest that amounted to 473,000,000.00 EUR, while the profit from fees amounted to 111,000,000.00 EUR. The ratio in favor of interest in PBZ's case was more than 4:1. Erste's profits from interest amounted to 353,000,000.00 EUR, while the profit from fees amounted to 87,000,000.00 EUR. The ratio in favor of interest was 4:1 in Erste's case. OTP's profit from interest amounted to 328,100,000.00 EUR, while the profit from fees amounted to 65,600,000.00 EUR. The ratio in favor of interest was 5:1 in OTP's case. HPB's profit from interest amounted to 145,776,000.00 EUR, while the profit from fees amounted to 29,358,000.00 EUR. The ratio in favor of interest was almost 5:1 in HPB's case.

³¹ This practice is something that is already being used and is not considered extremely controversial. In the last few years markets have witnessed the introduction of financial incentives for sustainability-linked credits and bonds where the price is linked to a borrower's or issuer's performance and therefore improved performance leads to lower interest rates. Depending on the borrower's context, credit institutions have the opportunity to tailor credit products in a way that is consistent with the funding strategy of their clients. Some clients may have ambitious corporate-level targets (*e.g.*, decarbonization), while others prefer to focus on specific assets (*e.g.*, specific green investments) and communicate the impact of those assets on climate change and other development challenges. The first would be served with a sustainability-linked credit, while the latter would find a green credit much more effective. For more detail see Kerr, T., Avendano, F.: Green loans and multinational corporations – financial innovation to deliver sustainability, *Natural Resources & Environment*, 35(2) 2020, p. 49.

³² A study conducted by ECB from 2023 required credit institutions under direct ECB supervision to classify their clients in three groups: "green firms", defined as those that do not contribute or contribute little to climate change; "firms in transition", namely, those that contribute

Using interest as a means of steering companies into environmentally friendly (green) business conduct based on differentiating interest rates can prove crucial in achieving carbon neutrality.³³ This conclusion is based on the fact that the company's necessary cash flow is not interrupted and everyone can still conduct their business, but at drastically different prices. An increase in interest rates for carbon footprint-negative companies could lead to an increase in the prices of their products or services. Meaning that their overall sales could eventually decrease because of higher prices.³⁴ These economic signals from end consumers could provide a final necessary push for those companies to “go green.”³⁵ Even though their prices will increase, their sales decrease and their

to climate change but are making considerable progress in the transition; and “brown firms”, namely, those that contribute significantly to climate change and have not yet started the transition or have made little progress. Then they were asked to indicate how they had changed (if at all) their credit standards and their terms and conditions to each of these three groups of clients over the previous 12 months. The results showed that credit institutions differentiated not only their interest rate policies but also their decisions on credit quantities across companies depending on their perceived environmental impact, and that committed credit institutions were more generous in extending credit to green firms and firms in transition. For more details see Altavilla, C. et al.: Climate risk, bank lending and monetary policy, *ECB Working Paper Series*, (2969) 2024, pp. 27-28.

³³ Some credit institutions in the EU already have procedures in place for carbon footprint negative companies. *E.g.* De Nederlandsche Bank (DNB) has, since 2020, conducted extensive research relating to transitional risks and has come to the conclusion that a clear price difference has emerged between the costs of crediting companies with relatively high carbon emissions and those with lower (or no) carbon emissions. The difference was almost 40 base points at the beginning and has since then only widened. Today, the difference in financing costs is about a quarter lower when carbon-intensive companies invest more in sustainable innovation than similar companies that do not make such green investments. For more information see Broeders, D., de Jonge, M., Rijsbergen, D.: The European Carbon Bond Premium, *DNB Working Paper*, 798 2024; Boermans, M. A., Bun, M., van der Straten, Y.: Funding the Fittest? Pricing of Climate Transition Risk in the Corporate Bond Market, *DNB Working paper*, (797) 2024.

³⁴ This effect was proven by statistical and econometric data that analyzed the effects of increased interest and exchange rates on overall prices of goods and services. In mid-2018, interest rates had risen to a maximum value of 4.65%, which has greatly increased the cost of corporate financing, higher production and expansion costs, and lower carbon prices due to lower carbon demand. The result of this finding was that from 2020 onward interest rates for carbon footprint negative companies have not changed too much. For more details see Yang, J., Wan, Y., Shen, S.: Research on the impact of exchange rates and interest rates on carbon price changes in the context of sustainable development, *Frontiers in Ecology and Evolution*, 10 2022, pp. 6-7.

³⁵ This conclusion has been statistically proven by analysing the effect of applying different interest rates to companies that had a carbon footprint positive profile in comparison to those whose carbon footprint was negative. The research took into consideration an international sample of 2765 companies across 46 countries with 12,647 observations from 2010 to 2021. The research showed that from 2010 until 2015 companies preferred short-term financial sta-

credit installments will be higher than their competitors that “went green,” no sudden and violent economic shock to the company, and their stocks and monetary obligations will occur as they would have if credit institutions decide not to credit them altogether. Several smaller but economically significant economic signals could prove more crucial for achieving the desired goal, than one major signal that could eventually steer companies into unwanted financial territory and potentially questionable sources of financing.³⁶

However, the aforementioned scenario is the best-case scenario that will potentially take years to put in motion, and even longer to create actual noticeable effects.³⁷ Until that point, an important legal question arises. How exactly is the previously depicted scenario legal?

4. THE LEGALITY OF INTEREST RATE DIFFERENTIATION

The legality of interest rate differentiation comes into consideration when a credit institution decides to credit different companies in the same market with different interest rates.

It is generally accepted that competition is a crucial element in an open market economy. The main advantages of competition are lower prices, better products, stronger innovation, wider choice, and more efficient production. Companies can compete with each other by reducing prices or by offering better quality and variety of goods and/or services to attract a larger customer base. Effective competition means that companies act independently from one an-

bility to long-term sustainability. However, after the Paris Agreement came into effect, company preferences changed as higher interest rates directly impacted their business decisions and prices. The research was primarily based on companies in countries that signed the Paris Agreement leading to more decisive results. However, problems relating to carbon emission still remained even after the enforcement of the Paris Agreement as long-term sustainability decisions were, are and will be affected by other external economic, social and political shocks. For the idea of increased interest rates to produce the desired effect, a stable economic and political environment is a necessity. For more details see Anastasiou D. et al.: Monetary policy impact on sustainability: Analyzing interest rates and corporate carbon emissions, *Journal of Environmental Management*, 368(September) 2024, pp. 12-13.

³⁶ This conclusion is based on the research and adjacent statistical data relating to carbon risk adjustment presented in Lamperti, F. et al.: Three green financial policies to address climate risks, *Journal of Financial Stability*, 54(June) 2021, pp. 100875.

³⁷ Empirical results indicate that the overall impact of a 1% increase in interest rates results in a reduction in CO₂ emissions by 0.70%. For more details see Yaw Broni, M., Hosen, M.: Lending Rate and Carbon Emissions Nexus: Evidence from the United States of America, *Research in Globalization*, 2(December) 2020, p. 12.

other but are subject to market pressures created by their competitors.³⁸ For this to be possible, market participants should operate with the highest possible degree of economic freedom, unhindered by barriers to competition. Therefore, rules regulating market competition are in place, especially relating to the EU single market.^{39,40} One of the most important rules of the EU single market is the prohibition of trade barriers imposed by national legislation rules.⁴¹ This rule also functions as a starting point for fair market competition which presumes significant competitiveness between entrepreneurs, no constraints/obstacles of entrepreneurial activities that lead to market inefficiency, and no possibility of independent price determination.⁴²

Taking the aforementioned into consideration, how exactly can credit institutions use interest as a tool that could possibly hinder a company's competitiveness on a certain market based on their carbon footprint?

The reason for that can be found if one analyses which options are available on a public law spectrum. If governments impose fiscal obligations to battle companies' negative externalities (*i.e.* Pigouvian tax), if they adopt any kind of regulation that may try to affect companies or their environmental impact

³⁸ For more detail see Samuelson, P., Nordhaus, W. D.: *Ekonomija*, Zagreb: MATE d.o.o., 2011, pp. 149-154 & pp. 160-163.

³⁹ For more detail see Butorac Malnar, V. et al.: *Pravo tržišnog natjecanja i državnih potpora*, Zagreb: Pravni fakultet Sveučilišta u Zagrebu, 2021, pp. 3-4.

⁴⁰ The importance of a free market economy is also emphasized on a constitutional level. According to Art. 49. par. 1. and par. 2 of the Constitution of the Republic of Croatia (NN no. 56/90, 135/97, 113/00, 28/01, 76/10, 5/14) entrepreneurial and market freedom are essential to the economic foundations of the Republic of Croatia. The state ensures that all entrepreneurs have an equal position on the market. This means that the state must ensure that the rules of conduct are respected in the market competition between competitors, so that all entrepreneurs on the market are legally in an equal position and, secondly, prevent the abuse of monopolies by its regulatory activity (Smerdel, B.: *Ustavno uređenje europske Hrvatske*, Zagreb: Narodne novine d.d., 2020, p. 367).

⁴¹ That prohibition is primarily achieved by not applying national legislation if it is in disagreement with the market freedoms set by the founding treaties (*i.e.* negative integration) and by applying European regulation instead of the non-applicable national regulation (*i.e.* positive integration/harmonisation). See Čapeta, Rodin, S.: *Osnove prava Europske unije*, Zagreb: Narodne novine, 2018, pp. 126-127; Craig, P.: Development of the EU, in: Barnard, C., Peers, S. (eds.): *European Union Law*, Oxford: Oxford University Press, 2020, p. 20.

⁴² Pošćić, A.: *Europsko pravo tržišnog natjecanja i interesi potrošača*, Zagreb: Narodne novine d.d., 2014, p. 39.

directly⁴³ or even impose certain liabilities on companies,⁴⁴ governments may find themselves violating market regulation relating to the abolishment of obstacles that can hinder market competition. Governments and public law regulation can only go so far before their conduct is deemed problematic from a fair open market point of view. However, negative externalities, as well as negative environmental impacts, have to be combated so that they stop causing additional costs, energy over-consumption, and general health issues. Hence, there are different combating interests at play simultaneously: 1) a need for a fair open market; 2) abolishment of obstacles for fair and free competition on that market; 3) a necessity to combat environmentally negative impacts of business decisions and negative externalities and 4) a right to a clean, healthy and sustainable environment.⁴⁵

Taking into consideration the obvious clash between reasons 2) and 3), while being governed by interests stated in 1) and 4), it seems that instruments of private and not public law could be the desired ones to combat negative impacts on the environment. In this scenario, credit institutions take on the role of a “controller” of business endeavors and company behavior based on available information.⁴⁶ As credit institutions don’t have any public authority (nor should they), they can achieve their newly market-appointed role by differentiating in-

⁴³ Kolstad, C., Ulen, T. S., Johnson, G. V.: Ex Post Liability for Harm vs. Ex Ante Safety Regulation: Substitutes or Complements?, in: Helfand, G. E., Berck, P. (eds.): *The Theory and Practice of Command and Control in Environmental Policy*, London: Routledge, 2003, pp. 331-344.

⁴⁴ Simkovic, M.: Limited liability and the known unknown, *Duke Law Journal*, 68(2) 2018, pp. 275-280.

⁴⁵ A clean, healthy and sustainable environment is proclaimed by the United Nations as a basic human right. United Nations Resolution The Human Right to a Clean, Healthy and Sustainable Environment (A/76/L.75 26/07/2022), 26.07.2022.

⁴⁶ This type of controller is doctrinally addressed with a neologism “social bank” (hereinafter: SB). SBs represent a hybrid between large credit institutions primarily focused on obtaining profit on one hand, and the value-based initiatives aimed at addressing financial operations by prioritizing non-financial outcomes on the other hand (a thorough research of this dichotomy is available in Mersland, R., Nyarko, S. A., Szafarz, A.: Do social enterprises walk the talk? Assessing microfinance performances with mission statements, *Journal of Business Venturing Insights*, 11(June) 2019, p. 3-5). SBs differ from conventional credit institutions by promoting social (and environmental) objectives in crediting. SBs are identifiable from conventional credit institutions by a specific target clientele, alternative risk management techniques adapted to addressing the challenges raised by the special asymmetric information stemming from this clientele, transparent information and simple intermediation and stake-holder participation in decision-making; Cornée, S., Cozarenco, A., Szafarz, A.: The Changing Role of Banks in the Financial System: Social Versus Conventional Banks, in: Gaganis, C. et al. (eds.): *Sustainable finance and ESG risk, management, regulations, and implications for financial institution*, Cham: Palgrave Macmillan, pp. 6-7.

terest rates, *i.e.* the only instrument that can cause enough turmoil in a market to make certain market participants change their behavior. It is the only tool that is not a regulation creating obstacles to a free and open market competition, it does not have a negative short-term economic effect on the company nor the economy in general, but it does and will create a desirable effect of deterring companies from unwanted actions that have a negative environmental effect because it will inevitably affect goods and service prices and effectively use the market's own rules against that company.⁴⁷

Interest is currently the only instrument that can simultaneously navigate national and EU market regulation restrictions, not trigger regulatory sanctions or actions by regulatory bodies, and still create a desirable effect of deterring companies from environmentally harmful business decisions.

5. CONCLUSION

In conclusion, it is important to emphasize that environmental impact is and must be one of the most important and decisive factors in modern-day business. We can no longer ignore the effects of global warming and its effect on energy consumption, health issues, and economic downsides. ESG must be implemented into everyday business and corporate structures, and its elements must become important aspects of decision-making. Credit institutions can play an important role as their analysis of a company's carbon footprint can become incredibly important in the long run. A company's negative carbon footprint can become its downfall if it does not implement ESG standards into its business practices because it will have trouble finding necessary funding for future endeavors. Companies are primarily driven by profits and their general standpoint is that more profits are to be gained in business areas that are non-eco-friendly. However, modern economic data proved that environmentally friendly business endeavors provide a wider variety of business opportunities, new potential clients, and profit gain. So, the stubbornness of archaic business mentalities has to be broken in a way that the companies nurturing such mentalities start steering away from it. That is incredibly difficult because of vast market regulations in place preventing intentional governmental intervention. The fair open market has to be independent of obstacles hindering competitiveness and free trade. Therefore, in a situation where public law and governments

⁴⁷ The market has a tendency to put companies in an unfavorable position relating to their carbon emissions, affecting those having inferior disclosure scores or unsatisfactory carbon administration performance (Choi, B., Luo, L., Shrestha, P.: The value relevance of carbon emissions information from Australian-listed companies, *Australian Journal of Management*, 46(1) 2020, pp. 3-23.).

become inadequate (as usual), private law instruments and private law subjects can become necessary and desirable controllers. In this case, credit institutions can use one of their most influential tools to effectively use the market's own rules against carbon footprint-negative companies. Higher interest rates will raise the prices of their goods and/or services, making them less competitive in a certain market, which could lead them to change their business endeavors and decisions regarding environmental impacts. The author is well aware that the depicted scenario is somewhat idealistic, but we are no longer in a situation where idealism can be waved away. Actions have to be taken to prevent further ecological devastation and we all have to start from somewhere. There are too many regulations in place, there are too many interests in play, and there is too much money at stake to simply ignore all the signs the environment is giving us. There is relevant data that proves money can still be made and not harm the very surroundings where it can be spent.

As for all of the readers thinking this is just another ecological activist screaming that we are killing the planet, I will just ask you this: How hot were you this summer and how high was your electric bill due to the excessive air condition usage?

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