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INNOVATIONS AND SUSTAINABILITY IN THE FINANCIAL AND BANKING SECTORS

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Economic development often goes hand in hand with the increasing pressure upon the extraction of fossil fuels, depletion of natural resources, and heavy impact on the environment. The advent of the modern industrial revolution and the rise of overproduction have resulted in large environmental degradation. Societies and organizations have had a tendency of not caring so much about the negative impacts of their activities on nature and environment, and their focus has been only on the generation of revenue and profits. Nowadays, various financial, consulting, banking, and industrial institutions must acknowledge that carrying the earth's carrying capacity is finite, and thus they ought not to overuse the environment. These provisions are in accord with the principles of sustainable economic development that have to be adapted and followed in order to sustain balanced economic development in various sectors of the modern economy.

This paper aims to highlight the ways through which the financial and banking sector can attain sustainable development, make sufficient financial profits, and at the same time how they can become "green" (i.e. function within the framework of the sustainable development and all its guiding principles). Sustainable economic development became the key point on the agenda of various economic and business institutions, so the banks and financial institutions are also an essential part of this trend and can hardly abstain from it. The paper describes how the new opportunities emerge for financial and banking institutions with the development of new environmentally-friendly technologies that mark the transition of humanity to the decarbonized economy.

Keywords: *financial sector, state and commercial banks, insurance companies, sustainable development, social responsibility*

JEL Classification: *G20, M30*

ИННОВАЦИИ И УСТОЙЧИВОЕ РАЗВИТИЕ В ФИНАНСОВОМ И БАНКОВСКОМ СЕКТОРЕ

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Экономическое развитие часто сопровождается увеличением объемов добычи полезных ископаемых, истощением природных ресурсов и неблагоприятным воздействием на окружающую среду. Современная промышленная революция и рост перепроизводства привели к большой деградации окружающей среды. Для общества и его субъектов длительное время была характерна тенденция потребления и отсутствия заботы о негативном воздействии их деятельности на природу и окружающую среду, их внимание было сосредоточено только на получении доходов и прибыли. В настоящее время различные финансовые, консалтинговые, банковские и промышленные учреждения должны признать, что использование ресурсов земли является конечным, и, соответственно, они не должны злоупотреблять окружающей средой. Эти положения согласуются с принципами устойчивого экономического развития, которые необходимо адаптировать и соблюдать в целях поддержания сбалансированного экономического развития в различных секторах современной экономики.

Данная статья призвана подчеркнуть, каким образом финансовый и банковский сектор может достичь устойчивого развития, прибыльно функционировать и, в то же время, сможет стать «зеленым» (то есть обеспечить свое функционирование в рамках устойчивого развития и всех его руководящих принципов). Устойчивое экономическое развитие стало ключевым моментом в повестке дня различных экономических и деловых организаций, поэтому банки и финансовые учреждения также являются неотъемлемой частью этой тенденции и вряд ли могут воздерживаться от нее. В статье описывается процесс появления новых возможностей для финансовых и банковских учреждений в разработке новых экологически чистых технологий, которые означают переход человечества к «зеленой» экономике.

Ключевые слова: *финансовый сектор; государственные и коммерческие банки; страховые компании; устойчивое развитие; социальная ответственность*

Introduction: financial sector and sustainable development

Over the last ten years, multiple research studies have been done concerning the environmental and social responsibility of various business companies. On the contrary, Jeucken (2010) asserts that banks and financial institutions have witnessed a slow environmental awareness compared to the manufacturing industry since such institutions overall regard themselves to be a fairly environmentally friendly sector. This development and adaptation are slower for the adapting economies in transition, while more developed market economies evolve at a quicker pace (Jiroudková et al., 2015; Simionescu et al., 2016; Baburina et al., 2017).

Essentially, the banking sector has a role in the attainment of sustainability. According to Pintér et al. (2016), therefore, the banking sector has two critical roles through which they may affect the economic contributors First, banks accumulate the firms and household savings and utilize the savings for more investments as well as lending undertakings. So, the finance industry may be viewed as a unique market in which demand and supply could meet. In such practice, banks act as intermediaries. Second, banks control and as well spread risks in relation to their activities. The main objective is to reduce the potential for risks, and this risk management is a significant contributor to the greening process.

The financial institutions' contribution in attaining sustainable development is vast, as they act as an intermediary between companies and people with surplus and shortages of capital; research and development activities, demand and supply of insurance; and they control their partners' risks and projects (Mawdsley et al., 2018). Similarly, the activities and operations of financial institutions largely affect the environment. The environmental effects of financial organizations may be categorized into external and internal problems. The environmental impacts of internal actions are relatively low compared to the other economic sectors. Nevertheless, if the financial industry's size is put into consideration, it is evident that the use of paper, energy, water and the quantity of waste they generate during their operations must not be ignored.

Figure 1 that follows illustrates this point using the shares of sustainable technology patents issues in selected countries. The bars show the numbers of priority patent applications for high-value inventions (two patents or more in a patent family) in environmental technologies as a share of all patent applications for high-value inventions. One can see that while Saudi Arabia, Spain, Poland and UK are in the lead, such countries as Mexico, Russian Federation, or Israel are lagging behind, with China closing the gap (this is, of course, given by the vast population of China, which is, on the other way, a champion in renewables and sustainable technologies, such as the electrification of transport).

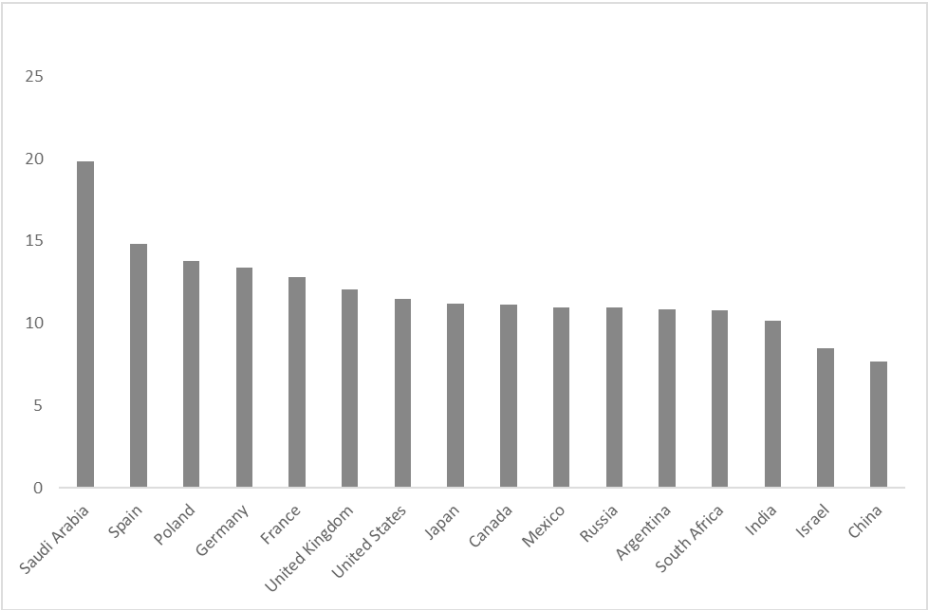

Figure 1. Share of environmental patents in selected countries, in %
Source: OECD (2018).

In general, the financial institutions' external activities are not harmful to the surroundings. Goods and facilities of insurers, banks private equity and venture capital corporations as well as asset management firms directly impact the environment negatively. Conversely, as a result of their lending, investment and risk management activities

indirectly pollute the surrounding (Bretschger and Vinogradova, 2017). Unluckily, it is difficult to assess the impacts the external and internal doings of financial institutions have on the environment, even though some efforts have been advanced; the method requires some improvements. The shareholders, workers, and managers of institutions are the driving forces of sustainable development whose attitudes, environmental awareness and personal goals are vital. Economic objectives coupled with the financial institutions' reputation are as well motivating factors which drive them to going a stride further and in contributing to sustainability, since the novel green commodities and services may offer fresh marketplaces and greater share of the market, and at the same time minimize the threats to liability risks.

Greening the financial sector

Green financial institutions refer to the financial institutions whose external and internal operations, – strategic goals, day-to-day activities, products and services, investment policies, and risk management – the process of decision-making and selection process of stakeholders show respect to the components and the environment, and the society's interests (Jeucken, 2010). Financial processes and decisions have become a major element in attaining sustainable development. As the financial institutions settle for different projects to undertake, they might impact the expansion of green investments as their monetary influence enables them to back up socially and environmentally liable conduct. In this viewpoint, insurers, financiers, and banks may be the key driver for, and actively partner in pursuit of sustainable development (United Nations Environmental Program (UNEP, 2016)).

Figure 2 that follows, shows the transformation path of the financial institutions (e.g. state banks, commercial banks, insurance companies, etc.) from the initial "greedy" state of the capital formation and accumulation towards gaining social awareness and consequently towards sustainable growth. Most banks and financial companies quickly realize that without embracing the principles of sustainable "green" development, their prestige and their images in the society might be damaged. Therefore, this transformation becomes an essential part of the modern strategy of how to attract more customers and to foster their economic and financial growth.

Figure 2. Transformation to sustainable green growth in financial institutions
Source: Own results.

Recently, most state and commercial banks alike began to broadcast environmental information and evade greedy lending behaviors. So, they provide new services: sustainable development finances, environmental consultative, along with environmental credit cards.

The Paris Agreement on climate change which was implemented in 2016 signaled investors and businesses that the international shift to a low-carbon economy is unavoidable, imperative and speeding up than it was ever thought possible. The implementation of the groundbreaking agreement is anticipated to boost technological innovations and policies which will speed up investment towards climate resilient and low carbon assets and projects (International Finance Corporation [10]). Additionally, the Financial Stability Board of the G20 came up with three categories of climatic risks for the financial industry.

- **Physical risks:** These consist of the effect on financial assets and insurance liabilities which occur from weather and climate-related activities like storms and floods that destroy properties or interrupt trade. Impacts are the highest for the insurance industry, although they also spread more widely.

- **Liability risks:** These happen if and when parties who have experienced damage or loss from the impacts of climate change pursue compensation from the parties they hold liable. These claims might come many years in the future, resulting in liabilities for carbon emitters and extractors and their underwriters.
- **Transition risks:** They are the financial risks which may be caused by the adjustment process toward a lower-carbon economy. Policy modifications, physical and technological risks may prompt a reevaluation of the value if a wide array of assets as opportunities and risks become obvious. And a predominantly rapid re-pricing would threaten the stability of financial institutions (International Finance Corporation, 2016).

Green innovations for the financial service sector

Generally, there are four categories of innovation for financial and banking institutions that can be presented here and described in somewhat greater detail:

- **Product innovation:** this is the innovation in the goods and services of the company with the introduction of modified and new items and services.
- **Process innovation:** it is the innovation in relation to the process of manufacture and delivery of goods and services.
- **Social innovation:** it is the organizational innovation with relation to the production process of commodities and services.
- **Structural innovation:** innovations associated with the input and output markets, and external connections.

Moreover, it becomes obvious that, all in all, all green innovations can be further split into the four following categories with each of them yielding characteristic features and marks:

- **Greed products and services:** While the goods and services of financial institutions do not have a direct impact on environmental pollution, it is commonly acknowledged that the indirect environmental effect financing projects and businesses must be controlled, managed and observed with care (Peeters, 2005). These present some green product and service innovations in financial sector like investing in fuel cell firms – the use of renewable energy sources.
- **Green process innovation:** This form of innovation will require banks to transform their internal activities and operations, establish new methods and procedures that serve the sustainability concept.
- **Green social innovation:** The introduction of new processes and concepts in the processes of production and management systems such as inventing and introducing environmental management systems, best practices, and workers' education could contribute to green social innovation (see Pintér et al., 2016).
- **Green structural innovation:** Some of the examples of this king of innovation would involve the international development banks from industrialized markets emerging in the emerging markets and supporting environmental undertakings and policies in those markets (Lisin et al., 2016).

Energy-related opportunities for the financial and banking institutions

The first and the most important aspect of the decarbonization and the shift to the renewable energy sources that can be exploited by the financial and banking institutions is energy efficiency. Energy efficiency positively impacts the competitiveness and profitability of banks, while at the same time minimizing or preventing the pressure to install additional power generation capacity on the grid (International Finance Corporation, 2016). With the introduction of further efficiency standards, businesses in emerging markets will continue modernizing and upgrading facilities and processes, a process which will require large amounts of capital. Thus, this presents an opportunity to banks in which they could invest (Lisin et al., 2015).

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Another area that has considerable potential for financial institutions is green building construction. Urbanization and population growth along with increasing incomes have led to a substantial upturn of new buildings, both commercial and residential, in developing nations, with an associated escalation in greenhouse gas emissions (UNEP, 2016). As nations implement building codes which have requirements for energy efficiency and with developers employing green building certification systems like LEED (Leadership in Energy and Environmental Design), the demand for financing of green construction is increasing. IEA approximates the construction sector requires an extra investment of about $296 billion annually on top of a $358 billion rolling into it each year (International Finance Corporation, 2016). The white goods industry makes energy efficient appliances which represent still a bunch of opportunities for financial sector with user funding items. Lighting through compact fluorescent lamps as well as light-emitting diodes, space cooling equipment like air conditioners, and household appliances that are energy efficient like dryers and washers are the forms of retail assets which financial institutions may target with customer fund programs and supplier network fund.

The third crucial area is the field of renewable energy projects. As reported by International Finance Corporation, 2016), although the generation of renewable energy represents a model change in the power industry across the globe, distributed solar photovoltaic lower than 1 megawatt is leading the way to the reforms in both emerging and developed markets (Štreimikienė et al., 2016). Rooftop solar systems provide many firms and households with the potential of generating electricity and, in certain incidences, injecting it into the grid and receiving an economic return (Strielkowski et al., 2017). Many studies forecast that distributed solar photovoltaic technology could transform the utility environment in developing and developed nations, economically outdoing diesel and grid-based coal production, and could relieve prevalent power shortages in places like South Asia and Sub-Saharan Africa, as well as other regions and countries in the world (Dagnachew et al., 2018; Anisimova, 2014; Lisin et al., 2014; Zlyvko et al., 2014; Agnew and Dargusch, 2015).

Due to the quick innovations and rapid reducing costs of solar panels along with battery components, captive and rooftop solar photovoltaic systems are turning to be commercially viable in most markets for remote households and communities who rely on kerosene and diesel. Funding the solar photovoltaic system through leases and loans is already common in the Europe and US. Financial sectors in developing nations may utilize the development financial institutions' support like IFC and work together with solar energy providers as well as energy service firms to rapidly penetrate this sector (International Finance Corporation (IFC) [10]). Also, financial sectors can seize the opportunity and combine solar home system loans with house mortgage loans as this has the potential for making solar financing easier. Moreover, it also enables financial institutions to take advantage of mortgage secularization.

Conclusions and discussions

All in all, it is easy to see that sustainable development requires that human beings use their environment in a manner which they do not hinder the use of the generations to come. Accordingly, sustainable development refers to a form of development that is simultaneously socially responsible, economically realistic and environmentally friendly. Environmental awareness calls for corporations, which are the economic actors, to keenly focus on the environmental aspect of their operations, and as well to evaluate moral and ethical considerations. Specifically, organizations and society have to substitute their traditional bottom line strategy with a triple bottom line approach, that is, they should make decisions based on the social and economic dimensions.

This paper shows how for quite a long time, various financial institutions, such as banks, auditing or consulting services, or insurance companies, have been concentrating

on generating the positive profit without paying too much attention to the sustainable development or green growth. However, this trend has recently been reversed commanding these institutions to focus on environmentally-friendly technologies and projects when making their business development plans. Greening of the banking and financial sector became a must for all those institutions which did not want to risk social ostracization and rejection. Moreover, the rise of the renewable energy projects such as the decarbonization and the shift to the renewable energy sources (RES) opened new horizons for banks and investment companies. One can see how all of a sudden there is a large selection of completely new businesses to be engaged in and making new profits on. This positive trend gave the new hope for financial sector worldwide and opened new horizons for its development and growth.

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