European Research Studies Journal
Volume XXVIII, Issue 2, 2025

pp. 1178-1194

Financing Sustainable Logistics Investments Using Selected Sustainable Finance Instruments

Submitted 05/05/25, 1st revision 21/05/25, 2nd revision 18/06/25, accepted 30/06/25

Dawid Ciężki[1]

Abstract:

Purpose: *The main purpose of the paper is to identify the key factors driving the development of sustainable logistics investments, with particular emphasis on the construction of modern warehouse facilities, including logistics centers. Another objective of the paper is to analyze the determinants underlying environmentally sustainable logistics investments, as well as the financial instruments supporting their implementation that incorporate sustainable development mechanisms. In addition, this research also examines the possibilities of applying dedicated financial instruments in economic practice with particular emphasis on loans secured by export credit agency guarantee.*

Design/Methodology/Approach: *The analysis of literature sources enabled the synthesis of data and information necessary to structure knowledge related to the implementation of sustainable investments and sustainable financial instruments. Based on publicly available materials, the article presents an analysis within a case study framework referring to the investment carried out by Żabka Group. The investment involved the construction of a build-to-suit logistics center in Małopole village nearby Warsaw, with an area of approximately 60,000 square meters, designed to support the delivery operations for around 3,500 'Żabka' stores. The distribution center which has been developed is characterized by its environmentally sustainable design, as proved by BREEAM certification.*

Findings: *The results of the research has been conducted indicate the steadily growing importance of environmental protection, an integral part of which is the design and implementation of sustainable logistics investments, such as warehouse facilities. Within the scope of the topic addressed in the research it is demonstrated how crucial the daily execution of environmentally sustainable investments has become as well as how significant a role is played by financial instruments with embedded sustainability mechanisms, implemented simultaneously by governmental and commercial financial institutions during their realization. The paper highlights key conclusions drawn from the research, namely: the fact that logistics investments are often perceived as more cost-intensive due to their complex nature and the aspect pointing to the necessity of providing financial support by funding institutions through frequently non-standard solutions, designed appropriately to meet specific and individual needs.*

Practical Implications: *The key study focuses on the implementation of a sustainable logistics project, supported by international certifications such as BREEAM and financed through a financial instrument designed to promote such initiatives particularly those incorporating sustainability mechanisms (ESG-linked). This instrument takes the form of an export credit agreement that includes an embedded sustainability component. The research*

[1]*University of Szczecin, Szczecin, Poland, ORCID: 0009-0001-6524-6154,*
e-mail: dawid.ciezki@usz.edu.pl;

describes the practical aspects of using such an instrument, including all documentary and cash flows between the parties involved in the project.
Originality/Value: *This paper contributes to the development of a coherent analysis of sustainable logistics investments that utilize innovative solutions derived from the financial market, understood as the practical application of sustainable financial instruments. The research focuses on the implementation of an export credit secured by an export credit agency guarantee (insurance) to finance a logistics investment aimed at constructing a logistics center with an environmentally sustainable character which has been documented by the possession of a BREEAM certificate as well. The literature review conducted indicates the unique nature of the topic as well as the solution described within the article is one of the first of its kind in whole Europe.*

Keywords: *Build-to-suit (BTS), logistics investments, financial instruments, export credit agency, ECA, ESG, ESG-linked, sustainable finance, environmental logistics technologies, sustainable logistics, sustainable development, sustainable funding.*

JEL Codes: *G15, G21, G23, G32, H3.*

Paper Type: *Book review/Case Study review.*

Acknowledgement: *This research was co-financed by the Minister of Science under the "Regional Excellence Initiative.*

1. Introduction

Logistics plays a key role in the economy, forming an integral part of its structure. The sector accounts for 14% of the total Gross Domestic Product across European Union member states, underscoring its importance in shaping national economies (Pavlic Skender, Zanimovic, and Stefanic, 2020).

Efficient logistics enables the smooth flow of goods and services throughout the supply chain, serving as a key point for trade and industrial development. The continuous evolution of logistics processes would not be possible without the expansion of warehouse infrastructure.

In an era focused on improving operational efficiency, reducing costs, and increasing enterprise value, the search for innovative solutions in warehouse logistics is gaining momentum. One response to these challenges includes the development of build-to-suit warehouse facilities tailored to specific user requirements, alongside

technological solutions that automate warehouse operations in line with Industry 4.0 principles.

Beyond technological advancements, environmental considerations have also become increasingly significant in recent years, driving the emergence of environmentally sustainable logistics investments certified by international standards such as LEED (Leadership in Energy and Environmental Design) and BREEAM (British Research Establishment Environmental Assessment Method).

Constructing modern warehouse facilities requires substantial capital expenditure, often necessitating debt financing. In response, financial institutions operating in the market while pursuing their own sustainability strategies have introduced financial instruments that incorporate sustainability indicators into their structure.

In recent years, the range of available financial instruments has steadily expanded. In addition to traditional financing products such as bank loans and bonds, more sophisticated structures have emerged, including export credit facilities and derivatives with embedded ESG-linked mechanisms.

2. Literature Review

2.1 Origins and Essence of the Concept of Sustainable Development

Environmental protection has become a serious global concern. In today's era of globalisation and industrial expansion, the rise in atmospheric pollution poses a number of undesirable consequences — most notably climate warming and severe air contamination (Ciężki, 218). As a result of various international climate initiatives — such as the First World Climate Conference held in 1979 — the topic of sustainable investment has gained increasing prominence. It is now closely linked to the implementation of both sector-specific and cross-sectoral investment projects.

The origins of the term sustainable development can be traced back through literature spanning more than two centuries. However, it was during the 1960s and 1970s an era of rapid growth in the environmental movement that a pivotal debate emerged, weighing environmental quality against economic growth (Davidson, 2005).

In 1798, the demographer and economist T.R. Malthus published "An Essay on the Principle of Population", in which he argued that the world's population would eventually face starvation or subsist at minimal levels, as food production would fail to keep pace with population growth (Rogers, 2008).

Malthus's theory was gradually developed over the following decades, and key discussions around poverty, social inequality, environmental crises, and the limited availability of natural resources gained prominence during the 1972 United Nations

Conference on the Human Environment in Stockholm. In 1987, the Brundtland Report also known as "Our Common Future" was published, offering the first formal definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In 1992, the first United Nations Conference on Environment and Development was held in Rio de Janeiro, resulting in the adoption of Agenda 21, a comprehensive action plan for sustainable development in the 21st century, along with the Rio Declaration on Environment and Development. This document emphasised that sustainable development requires the integration of three pillars: economic, social, and environmental.

A decade later, the 2002 World Summit on Sustainable Development in Johannesburg reaffirmed the global commitment to sustainability. In June 2012, the UN held the Rio+20 Conference, which focused on institutional frameworks for sustainable development and the green economy, particularly in relation to poverty eradication.

Rio+20 marked the beginning of a new global phase of sustainability efforts, anchored by three key initiatives: the 2030 Agenda (2015) with its 17 Sustainable Development Goals, the Paris Agreement (2015) on climate change, and the High-Level Political Forum tasked with monitoring global progress.

Whenever sustainable development is discussed, it is important to consider the dimensions that give meaning to the term. Rogers (2008) identifies three core approaches:

- Economic – focused on maximising income while maintaining or increasing capital stock.
- Ecological – centred on preserving the resilience and integrity of biological and physical systems.
- Socio-cultural – aimed at maintaining the stability of social and cultural systems.

In his work, Rogers illustrates the interconnections between these dimensions, noting that: "The economic perspective seeks to improve human welfare, primarily through increased consumption of goods and services. The environmental domain focuses on protecting the integrity and resilience of ecosystems. The social domain emphasises enriching human relationships and fulfilling individual and collective aspirations. Interactions between these domains are essential for assessing trade-offs and synergies that may exist among them. Issues such as poverty can be placed at the centre of this triangle to highlight their links to all three dimensions" (Munasinghe, 2002).

Years of effort have laid the groundwork for increasingly precise definitions of sustainable development. As P. Trzepacz argues, the concept should be viewed not only as an abstract idea but as a framework for shaping socio-economic development as well. According to Trzepacz, sustainable development focuses not only on maintaining the current quality of the natural environment but also on preventive and restorative actions to recover what has been lost due to human activity (Trzepacz, 2012).

The complexity of the term has led to its redefinition in academic literature, often with emphasis on different aspects. Despite these variations, most definitions share a common structure built around the three pillars of sustainable development: environmental, social and governance (ESG). These non-financial factors increasingly complement traditional economic and financial assessments of business performance. The essence of the ESG concept and its foundation lies in its meaningful application by organisations committed to responsible and sustainable growth.

2.2 Selected Aspects of Sustainable Logistics Investments

The preceding attempt to define sustainable development provides a foundation for classifying logistics investments that align with this guiding principle. This connection allows us to assert that sustainable logistics investments are strategic actions and projects undertaken within the logistics chain, focused on decreasing the negative impact of human activity on the natural environment, while simultaneously supporting business growth, creating value for stakeholders, and fulfilling core commercial objectives.

Preserving existing natural resources requires businesses to actively implement this concept, given their considerable environmental footprint. In this context, sustainable business development involves proactively nurturing the external environment in a way that replenishes and where possible, enhances its resource capacity, while also maintaining and developing internal subsystems to ensure the regeneration and expansion of internal resources (Mirski, 2014).

The most critical logistics processes linked to sustainable development consist of raw material sourcing, production and processing, transportation, warehousing, and packaging management. The application of sustainable principles within these processes primarily involves the use of environmental technologies aimed at reducing their ecological impact (Płaczek, 2012).

Moreover, cost reductions achieved through improved efficiency and rational management of logistics processes contribute to competitive advantage and accelerate growth (Dyczkowska, 2012). This approach enables tangible economic benefits alongside the long-term restoration of the utility and quality of natural resources (Pearce and Turner, 1990).

In the context of this paper, it is important to highlight that sustainable development in business practice requires a proactive mindset, continuous learning, adaptability to changing conditions, and strategic reorientation to establish a unique market position by delivering value to business partners. Stakeholder influence is crucial in implementing sustainable development within an organisation.

External partners and entities assess a company's reputation and make decisions on key matters such as access to external financing particularly from financial institutions that base funding decisions on the borrower's defined sustainability goals or whether to engage in collaboration at all.

The following table presents a classification of key areas related to the concept of sustainable logistics investments:

Table 1. *Classification of key areas referring to the concept of sustainable logistics investments within the supply chain*

Name of the logistics process	**Sub-process**	**Description**
Sustainable Transport	Fleet Management	Equipping the fleet with electric or hybrid vehicles and investing in the development of hydrogen technologies.
	Route Optimisation	Optimising transport routes, for example through the use of logistics management software such as a Transport Management System (TMS).
	Intermodal Transport	Ongoing development of intermodal transport by combining different modes of transport, such as rail and road, to reduce greenhouse gas emissions.
	Eco-Friendly Deliveries	Implementing environmentally friendly delivery solutions in urban areas, for example using cargo bikes or electric vehicles.
Sustainable Warehousing	Warehouse Buildings	Using low-emission construction materials and zero- or low-emission technologies, certified by schemes such as LEED or BREEAM.
	Energy Management	Equipping buildings with installations based on renewable energy sources and applying energy-efficient technologies (e.g. LED lighting).
	Building Management Systems	Implementing smart building management systems to reduce utility consumption.
	Industry 4.0 Technologies	Applying modern warehouse management technologies, including automation and robotics, to reduce electricity and heating consumption.
	Process Digitalisation	Introducing digital technologies, supported by solutions such as blockchain, to improve process efficiency and transparency while reducing paper-based documentation.
	Waste	Designing buildings and storage technologies to

	Reduction	increase waste reduction level and enable circular wastewater management.
Corporate Social Responsibility	Working Condition	Ensuring decent working conditions for employees, with respect for diversity and inclusivity.
	Fair Business Practice	Conducting business ethically, transparently and in accordance with the law, fostering trust among customers, partners and employees.
	Transparency	Promoting openness and clarity in the disclosure of information in a clear, understandable and honest manner

Source: *Own elaboration based on (Pishvaee, 2012), (Schulte, 2018), (www1), (www2).*

In recent years, there has been a profound shift in the approach to implementing social, environmental, and governance-oriented solutions within logistics. The presence of such measures is no longer merely a reputational advantage for companies operating in the logistics sector it has become a standard expectation. Under the current regulatory landscape, shaped by financial institutions, investors, and growing consumer awareness, sustainable development is gaining traction as a daily reality and a genuine obligation.

In the age of globalisation, supported by rapid advancements in technologies that facilitate both the management and organisation of logistics processes and investments, the logistics sector is undergoing a transformative evolution. Despite the substantial capital investment required, these changes are increasingly viewed as an integral part of the industry's collective effort to achieve climate neutrality.

2.3 Characteristics of Sustainable Financial Instruments

Achieving sustainable development requires robust financial support. Academic literature frequently highlights the high costs associated with implementing logistics investments, even though these costs can often be offset by efficiency gains and savings realised shortly after deployment (Tokarski and Fajczak-Kowalska, 2023). The need for substantial capital outlay to implement such solutions drives businesses to seek funding sources well before execution begins.

The foundations of a financial market architecture incorporating ESG pillars were laid in 2004, when the United Nations through its Global Compact platform and in collaboration with leading global financial institutions published the report Who Cares Wins. This document offered guidance to the financial sector on how to integrate ESG considerations into investment decision-making (The Global Compact, 2004).

In line with these recommendations, the European Investment Bank issued the first green bond in 2007 Climate Awareness Bonds worth €600 million. The bond’s margin was linked to the FTSE4Good index, which tracks companies operating in

accordance with sustainable development principles. The proceeds were allocated to renewable energy and energy efficiency projects.

A key development in this area has been the European Union's strategy for sustainable development, which outlines initiatives aimed at tackling environmental challenges within the financial sector (Strategy for Financing the Transition to a Sustainable Economy, 2021).

This strategy is recognised as a cornerstone for stimulating private investment in support of the EU's financial transformation, particularly within the climate regulation package Fit for 55 and the Sustainable and Smart Mobility Strategy (Sustainable and Smart Mobility Strategy, 2020). It indicates three core frameworks for sustainable finance:

1. A classification system or taxonomy for sustainable activities.
2. Disclosure frameworks for financial and non-financial companies.
3. Investment tools, including benchmarks, standards, and labelling schemes (Action Plan: Financing Sustainable Growth, 2018).

The strategy's implementation is intended to revitalise funding for environmentally and socially sustainable investments. It also introduced the European Green Bond Standard.

This direction marks a departure from the traditional investment paradigm, which focused solely on estimating the economic return of capital based on cost and risk. A new financial paradigm of sustainable finance is gaining ground, defined as financing that simultaneously mitigates environmental harm and promotes positive social and governance outcomes. In essence, sustainable finance involves making financial decisions that account for three non-financial ESG targets. Its goal is to support economic growth while reducing environmental impact and incorporating social and governance considerations (Kiertowicz, Węgrzyn, and Zaremba-Janukowicz, 2025).

In the era of environmentally sustainable investment, commercial banks play a key role alongside multilateral development banks (established by multiple countries to support economic development) and national development banks (such as Bank Gospodarstwa Krajowego in Poland). Commercial banks, in pursuit of their own sustainability strategies, are increasingly offering instruments that support the green transition.

According to a PWC report, ESG considerations are now embedded in the operational reality of financial institutions. The "Green Deal" and other political commitments are paving the way for the EU economy to achieve climate neutrality defined as net-zero emissions by 2050. The report notes that meeting these goals requires redirecting capital flows towards sustainable investments.

Current regulatory requirements and guidelines for the European financial sector are placing growing pressure on institutions to engage in this transformation alongside businesses. According to PWC's 2024 survey, 75% of banks planned to implement supervisory regulations and guidelines, 67% aimed to expand their sustainable finance offerings, and 58% had committed to executing an ESG strategy. All respondents confirmed that ESG strategies were integrated into their lending processes, and 83% had incorporated them into strategic or business model updates.

Furthermore, 83% of respondents stated they had expanded their product portfolios to include sustainable finance instruments for projects aimed at reducing carbon dioxide and other greenhouse gas emissions aligned with the EU taxonomy's[2] climate mitigation and adaptation objectives (PWC, 2024).

The first green bond issuance has been conducted by the European Investment Bank, a multilateral institution. In 2013 a commercial entity called Vasakronan issued green bonds for the first time. This marked the beginning of sustainable development financing by private sector entities. In addition to sovereign green bond issuances (Poland was the first country in the world to issue five-year sovereign green bonds worth €750 million in 2016), the financial market has since seen the acceleration of green credit transactions using loan agreements as a form of sustainable finance[3].

Momentum continued in 2017 with the signing of the first two Sustainability-Linked Loan (SLL) agreements, where commercial terms were tied to the borrower's achievement of sustainability targets[4]. These initial transactions paved the way for a broader range of financial instruments, including Sustainability-Linked Bonds and Loans (SLB/SLL) for general investment purposes and use of proceeds instruments

---

[2]The European Union Taxonomy is a framework designed to classify economic activities based on their environmental sustainability. The regulation aims to support businesses and investors in making informed decisions that redirect capital away from environmentally harmful operations towards investments that contribute to climate and environmental protection. Under the taxonomy, an activity may be deemed sustainable if it contributes to one of the following objectives: climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, transition to a circular economy, pollution prevention and control, protection and restoration of biodiversity and ecosystems. Additionally, the activity must not significantly harm any of the other objectives.

[3]In 2014, the British supermarket chain Sainsbury's entered into one of the first loan agreements classified as sustainable finance, partnering with Lloyds Bank and Rabobank. Under this arrangement, Sainsbury's secured funding of up to £200 million to support projects focused on electricity generation, including those based on renewable energy sources.

[4]The first loan agreement, worth €650 million, was signed by Unibail-Rodamco and Lloyds Bank, with the interest margin linked to the achievement of three sustainability indicators defined in the contract. The second agreement, signed in 2017 by Philips and a consortium of 16 banks, was valued at €1 billion. In this case, the loan margin was tied to the company's sustainability rating, which is periodically assessed by the rating agency Sustainalytics.

with clearly defined revenue applications. Alongside these developments, organisations responsible for setting and overseeing sustainable finance standards have emerged. Table 2 below provides an overview of selected sustainable financial instruments.

Table 2. *Classification of Selected Financial Instruments Linked to Sustainable Development*

Purpose Category	**Type of Financial Instrument**	**Description**	**Name of Guidelines or Standards**	**Organisation**
Designated use of proceeds	Green, Social or Sustainable Loan / Bonds	Green (Green Bond / Loan) – Investments and projects aimed at achieving environmental objectives, such as energy transition, climate change mitigation and adaptation, and the protection of natural resources and biodiversity.	The Green Bond Principles, The Green Loan Principles and EU Green Bond Standard	The International Capital Market Association / Loan Market Association / European Parliament and UE Council
		Social (Social Bond / Loan) – Investments and projects dedicated to societal needs, for example, those addressing social challenges such as unemployment prevention or support for individuals affected by natural disasters.	The Social Bond Principles	The International Capital Market Association
		Sustainable (Sustainable Bond / Loan) – Investments and projects that contribute to both environmental and social goals, combining the characteristics of green and social bonds or loans.	The Sustainability Bond Guidelines	The International Capital Market Association
General purpose financing	Sustainability-Linked Bonds / Loan)	Financial terms (e.g. margin increase or reduction) are contingent upon meeting specific Sustainability Performance Targets (SPTs), which are linked to Key Performance Indicators (KPIs) related to sustainable development.	The Sustainability-Linked Bond Principles and The Sustainability-Linked Loan Principles	The International Capital Market Association / Loan Market Association

Source: *Author's own work basing on Kolasiński, (2024).*

Both the significance and the diversity of financial instruments used across the economy are steadily increasing. This trend is largely driven by the acceleration of climate transition, which is prompting a growing flow of capital into the financing of sustainable investments.

In this context, all types of sustainable financial instruments those already established as well as those newly developed to support unconventional and forward-looking projects are gaining in importance.

2.4 Characteristics of a Long-Term Loan Secured by an Export Credit Agency Policy with an ESG-linked Mechanism

The growing number of investment projects requiring funding, and the corresponding demand for capital, has encouraged the development of new financial instruments such as the previously mentioned long-term loan secured by an export credit agency policy and featuring an ESG-linked mechanism.

Government support for exporters is available, among other channels, through the activities of Export Credit Agencies (ECAs), which typically provide loans, guarantees, or credit insurance (Dankiewicz and Tompalska, 2019). Depending on the nature of the project, an export credit is a medium- or long-term purpose-specific loan granted by a bank, most commonly used to finance an export-related project or contract. It is a solution aimed at businesses seeking to expand their trade operations internationally.

The mechanics of this instrument involve the participation of an export credit agency a private or quasi-governmental institution whose primary role is to assist clients in securing financing and to act as a partner in insuring and funding foreign trade by transferring risk away from the banks providing export finance. Commercial banks and insurers operating in the financial market often lack sufficient credit limits to fund large-scale projects or face challenges related to extended payment terms and relatively high risk of non-payment (Blackmon, 2017).

In recent years, banks have increasingly incorporated financing structures such as buyer credits or supplier credit arrangements where receivables arising from a supplier's credit under an export contract are purchased. The main objective of cooperation between the financing bank and the export credit agency is to offer the client more favourable financing terms, not only in the form of lower interest rates but also through extended repayment periods or support for export activities in markets with elevated credit risk.

Export credits are a specific tool for supporting exports, particularly because they help level the playing field for exporters from different countries competing for the same contracts under varying credit conditions. This approach stems from restrictions imposed by the "Arrangement on Officially Supported Export Credits" and the "Agreement on Subsidies and Countervailing Measures" negotiated during the Uruguay Round (1986–1994), which define acceptable forms of export subsidies.

These are deemed permissible provided that the insurer's remuneration for the allocated risk is proportionate to the level of risk over the medium or long term. The aim of these provisions is to ensure that exporters' competitive advantage is not based on the terms of debt financing backed by state guarantees (Wymysłowska and Stolarczyk, 2018).

A specific type of export credit defined above is the ECA-backed loan with an embedded sustainability mechanism, which qualifies it as a sustainable finance instrument. The ESG-linked component closely resembles previously described sustainability-linked loans or bonds, where financial terms are contingent upon the future achievement of predefined sustainability performance targets.

3. Research Methodology

This publication is based on the use of a qualitative approach, focusing on an in-depth understanding of experiences, phenomena, and meanings underlying the financing of sustainable logistics investments. As part of the secondary research conducted, a synthesis of concepts related to sustainable logistics investments and sustainable financing sources was carried out, as their definitions in the literature often differ and lack mutual connection.

Mentioned in the paper secondary research was based on a review and analysis of the literature (Kawa, 2013). The aspect of environmentally sustainable logistics investments constitutes the foundation of the paper around which the topic of implementing sustainable financial instruments is centered.

Furthermore, the article employs a descriptive research design referring to a case study analysis, which involves the use of a sustainable financial instrument—an export credit secured by an export credit agency guarantee for the construction of a sustainable development logistics center. The environmentally sustainable nature of this center was confirmed by obtaining a BREEAM certificate.

The study aimed to answer the following questions:

1. What are the key objectives underlying the implementation of sustainable logistics investments?
2. Which financial instruments can be considered consistent with the concept of sustainable finance?
3. Is there a set of instruments available on the financial market dedicated to financing the aforementioned investments?
4. What are the main determinants influencing the implementation of sustainable financial instruments in economic practice — in particular, how does the financing process work, what advantages does it bring, and how is cooperation between all entities involved in the financing transaction structured?

Using available data and information, the article presents a case study referring to the construction of a logistics center in Małopole near Warsaw by the Żabka Group, where one of the financing sources was an export credit guaranteed by an export agency. The article provides a detailed description of how the export component (warehouse mechanics) purchased from a foreign market and contributing to the construction of a sustainable logistics center can be supported by the export credit agency native to its manufacturer (Euler Hermes), thus constituting an instrument utilizing the ESG-linked methodology.

The purpose of the research is to verify the possibility of using similar instruments in economic practice and to propose a universal description of the financing mechanism for investments using the instrument mentioned in the article and its derivatives.

5. Research Results and Discussion

In 2023 Żabka Group, together with its subsidiary Żabka Polska sp. z o.o. the owner of Poland's largest modern convenience store chain opened a next-generation logistics centre in Małopole village nearby Warsaw. The newly opened warehouse facility spanning approximately 60,000 square metres, serves as Żabka Polska's logistics hub and ranks among the most advanced centres of this type in Europe. It was also the largest and most technologically sophisticated logistics site within Żabka Group's infrastructure.

The facility features a high-bay automated warehouse reaching nearly 40 metres in height, an automated internal transport system that streamlines store delivery logistics, a pallet silo, and "Goods-to-Person" picking stations that significantly boost operational efficiency. The centre was developed as a Build-to-Suit (BTS) project, meaning it was designed and constructed to meet the specific requirements of the investor.

During the design and construction phases, biodiversity was prioritised, with green landscaping including trees, shrubs and wildflower meadows implemented in line with BREEAM certification standards. Electricity for the facility is generated via rooftop solar panels, and the adjacent car park features anti-smog paving. These measures contributed to the building achieving high energy efficiency and earning a BREEAM International New Construction certificate at the "Excellent" level, underscoring its status as a sustainable logistics investment.

Even before the project was completed, Żabka Group announced in a February 2022 press release that it had signed its first ESG-linked loan agreement with Santander Group. The loan is tied to decarbonisation targets, which have been validated by the Science Based Targets initiative (SBTi). According to the release, the loan margin is

contingent upon meeting ESG targets defined in Żabka's Responsibility Strategy adopted in 2021. The targets mentioned above include[5]:

1. Sustainable Development Target 1 – Scope 1 (direct) and Scope 2 (indirect) emissions.
2. Sustainable Development Target 2 – Emissions intensity related to franchisees (Żabka Polska).
3. Sustainable Development Target 3 – Sales value of products promoting sustainable lifestyles.

This financing approach was intended not only to enhance the credibility of the company's sustainability commitments but also to demonstrate that its declarations are backed by concrete actions.

As previously mentioned, automation was a cornerstone of the investment. To streamline the order picking process for store deliveries, Żabka Group partnered with Dematic a leading innovator in the intralogistics sector. Dematic designs and builds intelligent, automated solutions tailored to clients operating in manufacturing, warehousing, and logistics, setting the direction for the future of retail. The scope of work included importing components from Germany Market to build the final solution.

This export element enabled Żabka to initiate cooperation with Euler Hermes Aktiengesellschaft, the German export credit agency to obtain insurance cover for the long-term loan granted by Banco Santander S.A., secured by an export credit agency policy.

Furthermore, the ECA-backed loan incorporated an ESG-linked mechanism, meaning the agreement was tied to the achievement of predefined sustainability targets, validated by a well-recognised rating agency which in Żabka Group's case was the Science Based Targets initiative. The structure of the ESG-linked ECA loan has been illustrated in Figure 1 below.

In line with the agreed assumptions, the structure of the instrument enabled by the involvement of the export credit agency called Euler Hermes Aktiengesellschaft and its provision of a loan repayment guarantee allowed a portion of the risk to be transferred away from the financing bank, Banco Santander S.A.

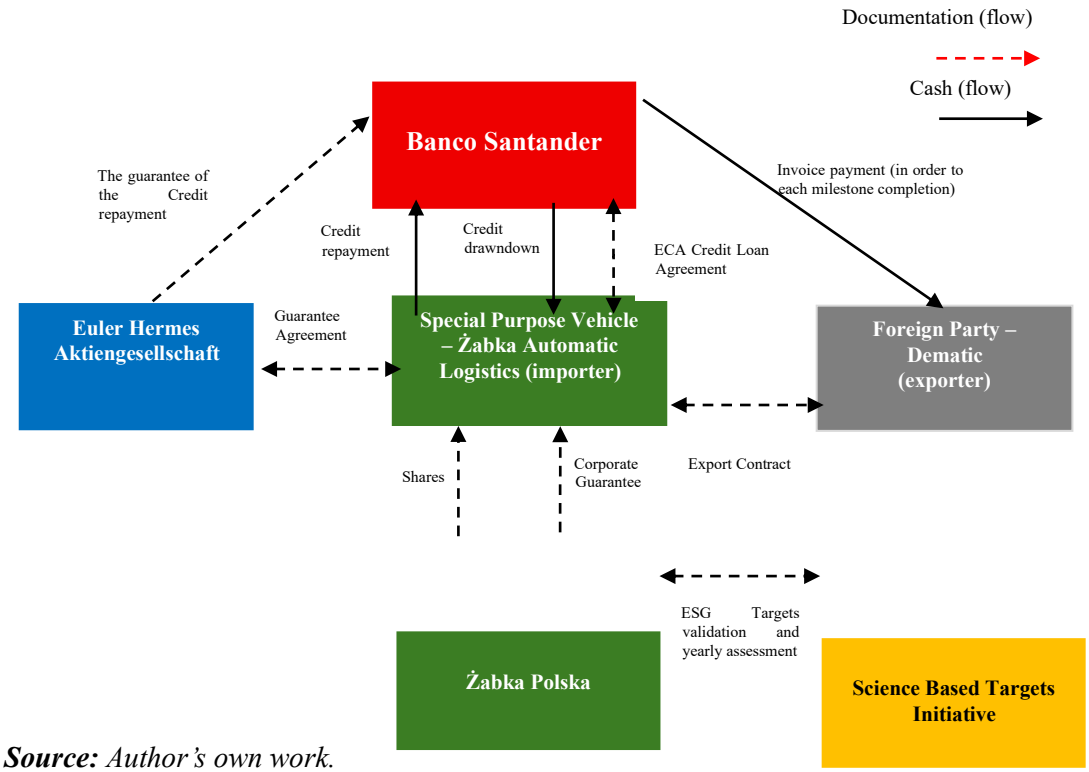
As a result, not only the financing was made accessible to the special purpose vehicle, but it also enabled more preferable financial terms and conditions, including

[5]*The whole Zabka's Sustainability Report is available in the following website: https://zabkagroup.azureedge.net/wp-content/uploads/2022/06/Raport-Odpowiedzialnosci-2021.pdf?t=1760992486*

e.g. the lower loan margin comparing to the typical cost of commercial financing for a comparable project.

The inclusion of an ESG-linked mechanism within the instrument's structure allowed both - the borrower (Żabka Group) and the financing bank (Banco Santander S.A.) - to classify it as a sustainable financial instrument, delivering also tangible benefits to all parties involved in the transaction.

Figure 1. *Transaction overview diagram.*



Source: *Author's own work.*

6. Conclusions, Proposals and Recommendations

The degradation of the natural environment can largely be attributed to ongoing economic development, which is driven by the ever-increasing demand for consumption.

In this context, taking rational and responsible action to protect the environment and mitigate negative impacts is becoming increasingly important and is now a key consideration in how logistics companies allocate investment capital.

Financing sustainable logistics investments is often capital-intensive and typically requires stable sources of funding from financial institutions. Linking the sustainability goals set by logistics enterprises to the availability and cost of financing plays a crucial role in validating their operations and aligning their financial activities with broader social, environmental, and governance initiatives.

As financial needs continue to evolve, this is enabling the way for innovative products such as the long-term loan described in this article, secured by an export credit agency policy and featuring an ESG-linked mechanism.

References:

Action Plan: Financing Sustainable Growth. 2018. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. COM (2018) 97.

Blackmon, P. 2017. The Political Economy of Trade Finance Export Credit Agencies, the Paris Club and the IMF. Routledge, New York, 27-29.

Ciężki, D. 2018. Organizacja handlu emisjami gazów cieplarnianych – geneza powstania oraz model organizacyjny. Zeszyty Naukowe Instytutu Gospodarki Surowcami Mineralnymi i Energią Polskiej Akademii Nauk. Nr 107, 136.

Dankiewicz, R., Tompalska, K. 2019. Agencje kredytów eksportowych jako instrument wspierania międzynarodowej wymiany handlowej przez państwa. Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach. Nr 387, 10-11.

Davidson, K. 2005. Will the Concept of 'Sustainable Development' provide any Solutions for the 21C, the Social Change in the 21st Century Conference. Queensland University.

Dyczkowska, J. 2012. Zarządzanie procesami logistycznymi – studium przypadku. Zarządzanie i Finanse, 10/1/3, 73.

Kawa, J. 2013. Metodologia, metodyka, metoda jako podstawa wywodu naukowego. Studia Prawnoustrojowe, nr 21, 177.

Kiertowicz, S., Węgrzyn, P., Zaremba-Janukowicz, S. 2025. Urząd Komisji Nadzoru Finansowego. Finansowanie zrównoważonego rozwoju – podstawowe zagadnienia i aspekty regulacyjne, 26.

Kolasiński, R. 2024. Finansowanie transformacji gospodarki ku zrównoważonemu rozwojowi. Raport stanowiący część projektu "Zrównoważona transformacja w praktyce" powstały we współpracy z mBank S.A., 9-10.

Mirski, A. 2014. Innowacyjność a zarządzanie zrównoważonym rozwojem przedsiębiorstwa. In: R. Knosala, Innowacje w zarządzaniu i inżynierii produkcji, 1. Opole: Oficyna Wydawnicza Polskiego Towarzystwa Zarządzania Produkcją, 141.

Munasinghe, M. 2002. The Sustainomics Transdisciplinary Meta-framework for making Development more Sustainable: applications to energy issues. International Journal of Sustainable Development, Vol. 4, No. 2, 6-54.

Pavlic Skender, H, Zanimovic, P. A., Stefanic, A. 2020. The logistics performance analysis in European Union – EU-15 vs. EU-13. Economics and Organization of Logistics 5(3), 5-16.

Pearce, D., Turner, R.K. 1990. Economics of Natural Resources and the Environment. New York: Harvester Wheatsheaf.

Pishvaee, M.S., Jolai, F., Razmi, J. 2012. Sustainable supply chain network design: A case study of the agro food industry. Journal of Cleaner Production, 28, 83-98.

Plan działania: finansowanie zrównoważonego wzrostu gospodarczego. 2018. Komunikat Komisji do Parlamentu Europejskiego, Rady Europejskiej, Rady, Komitetu Ekonomiczno-Społecznego i Komitetu Regionów. COM (2018) 97.

Płaczek, E. 2012. Zrównoważony rozwój – nowym wyzwaniem dla współczesnych operatorów logistycznych. Prace Naukowe Politechniki Warszawskiej. Transport, 83.

Rogers Peter, Jalal. K., Boyd. J. 2008. An Introduction to Sustainable Development, Earthscan, London, 20, 23.

Schulte, R., Spilker-Dau, L., Sugathan, P. 2018. Sustainable logistics: A systematic literature review and research agenda. Sustainability, 10(7), 2338.

Strategy for Financing the Transition to a Sustainable Economy. The European Economic and Social Committee and the Committee of the Regions. COM(2021) 390.

PWC. 2024. Zielone finanse po polsku. Banki pozostają na drodze zielonej transformacji, pomimo dodatkowych wyzwań, Trzecia edycja, 2.

Sustainable and Smart Mobility Strategy – European Transport on the Road to the Future. 2020. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions COM(2020) 789.

The Global Compact. 2004. Who Cares Wins. Connecting Financial Markets to a Changing World.

Tokarski, D., Fajczak-Kowalska, A. red. 2023. Paradygmaty zrównoważonego rozwoju przedsiębiorstw logistycznych. E-logistyka. Wydawnictwo Społecznej Akademii Nauk. Łódź, 13.

Trzepacz, P. 2012. Zrównoważony rozwój - wyzwania globalne: podręcznik dla uczestników studiów doktoranckich. Instytut Geografii i Gospodarki Przestrzennej Uniwersytetu Jagiellońskiego, 18.

Wymysłowska, M., Stolarczyk, P. 2018. Kredyty eksportowe zabezpieczone ubezpieczeniem gwarantowanym przez Skarb Państwa a adekwatność kapitałowa banków. Analiza możliwości zastosowania polisy ubezpieczeniowej KUKE SA jako uznanej umowy o ochronie kredytowej nierzeczywistej dla ekspozycji stanowiących oficjalnie wspierane kredyty eksportowe w kontekście wdrożenia pakietu CRD IV/CRR (część I). Myśl Ekonomiczna i Polityczna, nr 2(61), 100.

Internet sources:

https://4values.pl/zrownowazona-logistyka-jakie-ma-znaczenie-dla-wspolczesnego-swiata/.

https://www.grupatransportowa.pl/aktualnosci/ekologia-w-logistyce-zmniejszenie-sladu-weglowego.

https://www.climatebonds.net/news-events/blog/swedish-property-group-vasakronan-issues-sek1-3bn-197m-green-bond-theme-goes-corporate.

https://raportcsr.pl/zabka-otworzyla-centrum-logistyczne-nowej-generacji-w-tle-zrownowazony-rozwoj/.

https://www.zabka.pl/zabka-we-wspolpracy-z-grupa-santander-zawarla-pierwsze-umowy-finansowe-oparte-na-celach-esg/.

https://www.zabka.pl/zabka-pierwsza-firma-w-polsce-z-naukowo-zatwierdzonymi-celami-dekarbonizacji-v1/.