Green" bonds: historical aspects of implementation

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Abstract. The article provides an overview and chronological analysis of the development of green bonds from their inception to the present day. The article examines the first experiences with green bonds since the end of the 20th century and their evolution into an important instrument for financing sustainable and environmental projects. The authors focus on the key events, standards and regulations that have shaped the modern green bond market. The impact of green bonds on sustainable finance and the fight against climate change is also examined. The article explores the important role of green bonds in today's financial industry and their impact on sustainable development. Green bonds are a financial instrument that aims to raise funds for projects and initiatives that promote environmental sustainability and combat climate change. The article analyses the basic principles and standards of green bonds, their effectiveness for investors and their contribution to sustainable finance. It also examines the global experience of the development of the green bond market and its importance in the context of global climate challenges. There is no doubt that green bonds play a key role in sustainable finance and contribute to achieving the Sustainable Development Goals.

1 Introduction

The modern world is facing global environmental problems and is heading for an ecological catastrophe. Leading environmental scientists, geographers and economists are warning us of this. Modern civilisation is on the brink of ecological collapse, and scientists agree that the process of environmental degradation is accelerating daily [1,2,3,4]. Consequently, the creation and development of initiatives linked to environmental protection or aimed at minimising the damage already caused to the environment are of paramount importance in the modern path of human development. Green bonds are one such instrument. According to the World Bank and the OECD, green bonds are "fixed income securities designed exclusively for the development of sustainable and environmentally friendly projects, such as renewable energy industries". The first green bonds were issued by the European...
Investment Bank in 2007 [5]. In recent years, green finance has become popular in developing countries such as China. According to recent studies, the global green bond market is estimated to exceed USD 430 billion by 2022. According to a study [6], investors are increasingly aware of the need for sustainable investments: according to a Statista survey, the European Union issued the largest number of green bonds, worth USD 11.8 billion, in the first half of 2022. In second place was the Bank of China, with USD 8.13 billion worth of green bonds issued.

Green bonds play an important role in achieving sustainable development goals by financing projects and initiatives aimed at environmental sustainability and social development. First and foremost, green bonds finance projects that can include the deployment of renewable energy, improving energy efficiency, restoring ecosystems, improving access to drinking water and sanitation, reducing greenhouse gas emissions, and much more. These projects are directly linked to the objectives of sustainable development.

Green bonds also help to reduce the ecological footprint: financing environmentally sustainable projects reduces the negative impact on the environment. For example, energy efficiency projects can reduce carbon emissions, and projects to improve water supply and sanitation systems can improve water quality and the health of local communities [7].

Green bonds also help to attract investors who are specifically looking for opportunities to invest in projects that comply with sustainability principles, thereby increasing access to capital for sustainable development projects [8]. Some green bonds also finance projects that have a social impact, such as creating jobs or improving access to education or healthcare. These projects contribute to social development and the reduction of inequalities [9,10].

It is also worth noting that green bonds often attract international attention and help to strengthen cooperation between countries. Investments in sustainable development projects can have a global reach, as many environmental and social problems are not limited to the borders of a single country.

Green bonds are therefore a powerful financing tool that helps meet the challenges of sustainable development and contributes to the achievement of sustainable development and environmental objectives.

2 Materials and Methods

In the process of the research the system approach, evolutionary approach, approaches of the theory of sustainable development were used. The methods of analysis and synthesis, grouping and comparison were used as a methodological technique of the research.

3 Results and Discussion

Key moments in the history of green bonds, which bear witness to their establishment and growth on financial markets around the world, can be summarised in the table below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Berlin Declaration - organisations from the green banking sector have begun discussing the concept of green bonds.</td>
</tr>
<tr>
<td>2008</td>
<td>Verdict on climate bonds - The Climate Bonds Initiative has begun work on creating a standard for green bonds.</td>
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</tbody>
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Table 1. Historical stages in the development of green bonds
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>First green bond - The World Bank has issued its first green bond for $174 million.</td>
</tr>
<tr>
<td>2013</td>
<td>Companies are getting in on the act - Major companies such as EDF and Toyota have started to issue green bonds.</td>
</tr>
<tr>
<td>2014</td>
<td>First perfect green government bond - Poland has issued the first perfect green government bond.</td>
</tr>
<tr>
<td>2015</td>
<td>Creation of the Green Commission - The Green Bond Commission is set up to standardise green bonds.</td>
</tr>
<tr>
<td>2016</td>
<td>Market growth - The green bond market has reached $81 billion.</td>
</tr>
<tr>
<td>2017</td>
<td>Green bonds around the world - Organisations and governments around the world have started to issue green bonds.</td>
</tr>
<tr>
<td>2018</td>
<td>First green bond - Apple has issued its first billion-dollar green bond to finance sustainable projects.</td>
</tr>
<tr>
<td>2020</td>
<td>Record year - In 2020, the green bond market reached $269 billion.</td>
</tr>
</tbody>
</table>

**The Berlin Declaration**

The Berlin Declaration is an historic moment in the development of green bonds and sustainable finance. It is a document signed in Berlin in July 2007 by a number of major financial institutions and organisations with an interest in sustainable development and environmentally friendly investment. These financial institutions included commercial banks, investment funds and other financial institutions, as well as organisations interested in sustainable development and environmentally friendly investment.

The main signatories of the "Berlin Declaration" are as follows:

1. Deutsche Bank
2. Barclays Capital
3. European Investment Bank (EIB)
4. Munich Re (Münchener Rückversicherungs-Gesellschaft)
5. WestLB (West Landesbank)

These financial institutions and organisations pioneered green investments and green bonds, and the "Berlin Declaration" expressed their commitment to promoting environmental sustainability and sustainable development through their activities.

Here are the main elements of the "Berlin Declaration" and its commitments in favour of a more sustainable and environmentally-friendly financial system (fig. 1).
The Berlin Declaration led to a number of important results and consequences [11]:

1. Development of the green bond market: The declaration has stimulated growth in the green bond market. Financial institutions and issuers have started to issue more green bonds to finance environmentally friendly projects. This growth has freed up significant amounts of capital for investment in sustainable development.

2. Strengthening environmental responsibility: The declaration stresses the importance of environmental responsibility in the financial sector. Financial institutions have become more aware of the environmental and social aspects of their investments and financial operations.

3. Creation of standards and regulations: Standards and regulations have been developed to increase confidence in green investments and bonds. This has established clear criteria for green projects and bonds, increasing transparency and confidence in the market.

Green Banking: The Declaration emphasises the importance of the active role of the financial sector in achieving sustainable development and environmental responsibility. Banks and financial institutions have expressed their commitment to support sustainability and environmental sustainability in their financial operations.

Green Bonds: The Declaration recognises the importance of creating a market for green bonds. Green bonds are designed to finance projects and initiatives that promote sustainable development and environmental responsibility. This instrument has become an important way to mobilise capital for environmentally sustainable projects.

Environmental Responsibility: The Declaration emphasises the need for financial institutions and companies to be environmentally and socially responsible for their actions and investments.

Cooperation: The Berlin Declaration calls for cooperation between financial institutions, governments, international organisations and other stakeholders to achieve common sustainable development goals.
Global interest in sustainable investment: The Berlin Declaration has focused the world's attention on sustainable investment and the financing of environmentally important projects. This has stimulated the efforts of many countries and organisations to develop green financial strategies and instruments.

Strengthening partnerships: the declaration stresses the importance of partnerships between the various stakeholders, in particular financial institutions, governments, international organisations and civil society, in order to achieve sustainable development. As a result, the "Berlin Declaration" has had a significant impact on the development of green finance and has become the starting point for a wider recognition of the importance of sustainable investment and the financing of projects that promote environmental sustainability.

Following on from the Berlin Declaration, the Paris Declaration on Green Bonds was drawn up and adopted in 2016. This declaration is also of great importance for the development of the green bond market and the establishment of standards in this area. The Paris Declaration commits market participants to enhancing the transparency and accountability of green bonds and to promoting the development of green financial instruments. It stresses the importance of cooperation between governments, the financial sector and international organisations to achieve global sustainable development goals. This declaration complements the Berlin Declaration and promotes the development of the green bond market by making it more structured and organised.

The Paris Declaration on Green Bonds has been signed by a number of major financial institutions, companies and organisations. Organisations that have signed the Paris Declaration include major banks, investment funds, corporates and other market participants. For example, at the end of 2017, signatory organisations included:

1. BNP Paribas: French banking and financial group.
4. HSBC: global banking giant headquartered in the UK.
5. UniCredit: European banking conglomerate.
7. Unilever: multinational consumer goods company.
8. E.ON: German energy company.

The Paris Declaration on Green Bonds introduced a number of innovations and established key elements and characteristics of green bonds that are important for the development of a sustainable financial market. These include:

1. The statement stresses the need to create standards for green bonds and transparency in reporting on projects financed by green bond proceeds. This allows investors to understand which specific projects are being financed by their investment.
2. The declaration states that the proceeds from the sale of green bonds must be used exclusively to finance projects that promote environmental sustainability and combat climate change.
3. The declaration calls on governments, regulators and international organisations to support the development of a green bond market. This includes the development of appropriate legislation and regulation.
4. The declaration encourages the development of the green bond market outside member countries and promotes its international dissemination.
5. The declaration supports cooperation between the various sectors of the economy and governments in order to accelerate sustainable investment.
These elements and features contribute to the structure and rules of green bonds, making them more attractive to investors and facilitating the financing of projects that address environmental and climate issues.

The Paris Declaration on Green Bonds was followed by a document that extends and builds on it. This document is called the Green Bond Principles (GBP).

The Green Bond Handbook is a set of principles and guidelines developed by the International Capital Market Association (ICMA) and adopted in 2014. This document defines standards and criteria for green bonds and provides the market with a clear methodology for evaluating projects financed with green bonds, thereby increasing transparency and investor confidence in green financial instruments.

The Green Bond Handbook includes four basic principles:

1. Use. Green Bond funds must be used exclusively for projects and initiatives that promote environmental sustainability.

2. Transparency. Issuers of green bonds are required to provide detailed information on the projects financed and the use of the funds.

3. Valuation methodology. Sound methodologies should be used to value and report green bonds.

4. Independent verification. Issuers may use independent auditors to confirm that their green bonds comply with the standards.

The Green Bond Guide has become an important tool in the development of the green finance market, encouraging investment in projects that promote sustainable development and combat climate change.

The Green Bond Principles (GBP) were followed by a document called the Social and Sustainable Bond Principles (SBP). This document was developed by the International Capital Market Association (ICMA) and published in 2017 [13].

The Social and Sustainable Bonds Handbook is a set of principles and guidelines similar to the Green Bonds Handbook, but applicable to bonds that finance social and sustainable development projects. These principles also help to increase transparency and confidence in the market for bonds that finance social and sustainable projects.

The Social and Sustainable Bond Handbook incorporates similar principles, such as the use of funds for eligible projects, transparency, valuation methodology and independent verification. This document helps to standardize and regulate the market for bonds dealing with social and sustainable issues.

These two guides, the Green Bond Guide and the Social and Sustainable Bond Guide, contribute to the development of a bond market focused on important social, environmental and sustainable issues.

Following the development and adoption of the green and social bond guides, and given the growing importance of sustainable finance, the international community has continued to work on documents and initiatives to complement and extend the market structure for sustainable bonds. Important international documents and initiatives that have followed the green bond guides include the following:

1. Sustainability Bond Guidelines: these guidelines have been developed to define sustainable bonds that combine environmental and social aspects. The Sustainability Bond Guidelines are a document developed by the International Capital Market Association (ICMA) to facilitate the issuance and management of sustainable bonds [14].

2. Climate Bonds Standard: The Climate Bonds Standard was developed by the Climate Bonds Initiative and defines criteria for bonds that finance projects dealing with climate change and adaptation. This standard helps investors and issuers to determine whether a bond meets environmental standards [15].

3. Sustainable Development Goals (SDGs): The United Nations has drawn up a list of 17 Sustainable Development Goals (SDGs) which represent the world's priorities in terms of sustainable development [16].
4 Conclusion

These international instruments and initiatives provide the structure and standards for the market in sustainable financial instruments and contribute to their development, offering investors greater clarity and certainty when it comes to sustainable investments.

Overall, the continued development of the green bond market demonstrates that sustainability and environmental responsibility are becoming increasingly important aspects of the financial world, as investors and issuers recognise the urgency of addressing climate challenges and improving the planet.

References


12. Paris Declaration on Green Bonds Extract from https://www.climatebonds.net/


15. Standard on climate obligations. Extract from https://www.climatebonds.net/
