BANQUE DE LUXEMBOURG INVESTMENTS

SUSTAINABLE AND RESPONSIBLE INVESTMENT

Fixed Income Assets

Contents

1 Introduction

BLI - Banque de Luxembourg Investments ("BLI") has over 10 years of experience in sustainable and responsible investment in the bond markets, particularly through impact investing and microfinance.

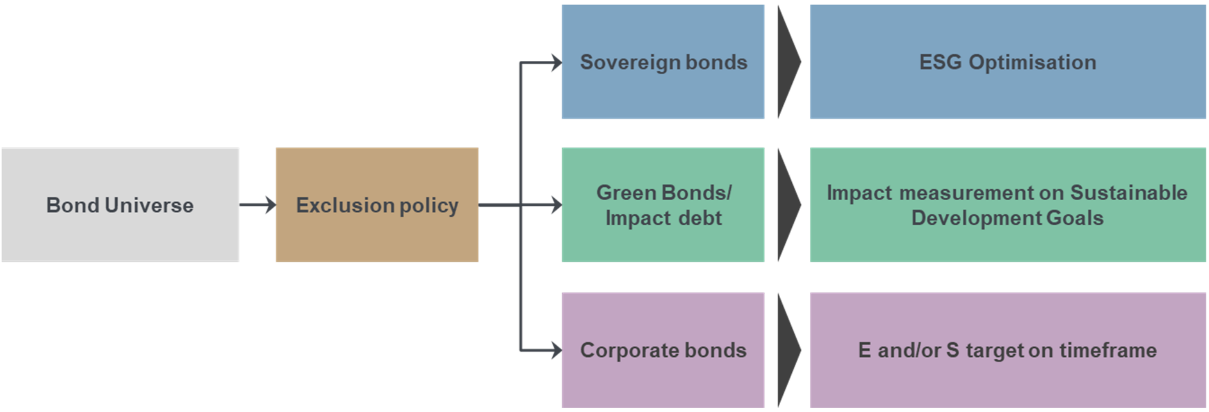
In 2010, BLI decided to support the United Nations Millennium Development Goals[1] by launching its first closed-end microfinance fund, with the aim of tackling the poverty challenge head on. Two other microfinance funds were subsequently created.

Ever since BLI signed the United Nations PRI in 2017, the bond management team has been working to establish an investment strategy that takes ESG factors on board and steers its open-end investment funds towards impact investing.

To this end, an ESG optimisation strategy for sovereign issuers, based on a purely proprietary approach, was implemented in 2019. At the same time, BLI developed an approach to incorporate impact strategies into its fund management: liquid impact strategies via green bonds and alternative impact strategies via microfinance.

In early 2020, an ESG strategy for corporate issuers was defined and implemented.

The chart below provides an overview of the **framework** that BLI currently applies to optimise and assess the ESG rankings of its bond portfolios.



[1] These goals were replaced in 2015 by the UN's Sustainable Development Goals (SDGs).

2 Organisation

The research process is coordinated by the Head of Fixed Income, Jean-Philippe Donge, and underpinned by a variety of different participants / sources:

- Internal participants:
  - Jean-Philippe Donge, Head of Fixed Income
  - Maxime Smekens, Bond Strategist for Emerging Markets
  - Jean-Albert Carnevali, Corporate Analyst
  - SRI Analysts.

- External sources:
  - Publicly available sources (FAO, INFORM, UNDESA, World Bank) for quantitative data on sovereign issuers
  - MSCI ESG Research is the main source of companies' reported data for the analysis of corporate issuers
  - Prospectuses and second party opinions for analysing the impact generated by green instruments
  - BLI calls on specialist investment advisers for alternative impact management, chief among them being SIMA – Social Investment Managers & Advisors

3 Methodology and promotion of ESG factors

The methodology set out below applies to the following bond funds:
- BL Bond Emerging Markets Euro
- BL Bond Emerging Markets Sustainable
- BL Bond Euro
- BL Corporate Bond Opportunities
- BL Global Bond Opportunities

3.1 Exclusion policy

The exclusion policy applied to bonds is taken from *BLI's Exclusion Policy* which is available on BLI's website in the section on *Responsible Investing*.

Some of the exclusions applied to the corporate bond universe are shown below.

The following companies are automatically excluded from the investment universe:
- Companies involved in **manufacturing controversial weapons** (anti-personnel mines, cluster bombs, depleted uranium and white phosphorus munitions, chemical and biological weapons)
- Companies involved in **serious controversies**, i.e. those placed on MSCI ESG Research's "red list" based on its analysis of controversies
- Companies that do not comply with the **Principles of the United Nations Global Compact**
- **Exposure to the coal industry**: companies on the Global Coal Exit List[2] have been completely excluded from BLI's portfolios since 30 June 2021. An exception may be made by BLI's SRI Committee for green bonds issued by these companies (where they have sustainable transition objectives).

3.2 Corporate bonds

3.2.1 ESG analysis and optimisation

In addition to applying the exclusion strategies described above, and prior to optimising the portfolio with the best mix of traditional bonds and green bonds, **ESG considerations are also factored into each investment recommendation prepared[3] by the analysts.** If the issuer does not have ESG data

[2] The list of excluded companies and the methodology are available at https://coalexit.org/

[3] Where standardised ESG data are not available, an ESG risk check is carried out for the issuer on a public search engine, in company reports or with data providers to verify that the issuer does not have a significant ESG risk (e.g. on controversies).

and has quasi-sovereign status[4], it will be assigned the ESG rating of its associated country. BLI's approach to analysing corporate bond issuers takes into consideration operating, solvency and liquidity parameters enabling it to gauge whether or not a bond is attractive from a 'buy & hold' perspective. **A company is therefore appraised from two distinct angles (financial and non-financial) in order to arrive at an investment recommendation.**

In practice, the Fixed Income team takes a range of indicators into account including

- MSCI ESG Research scores
- Carbon emission intensity per unit of turnover (scope 1 & 2)
- MSCI's Controversies Indicator (red, orange, yellow, green)
- Exposure to certain sensitive sectors (tobacco, alcohol or fossil fuels)
- ESG momentum and MSCI's ESG opinion.

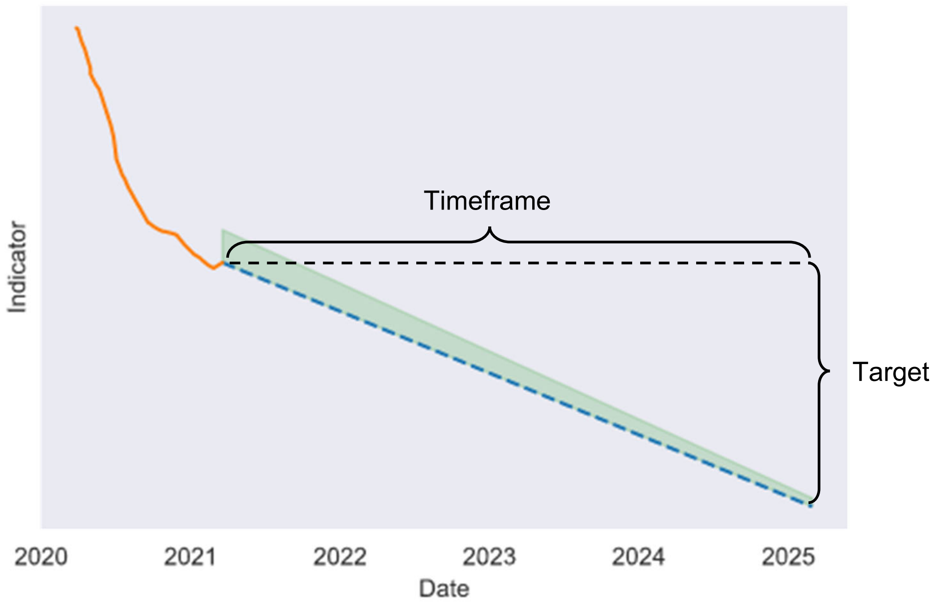
This qualitative analysis of an issuer's ESG profile is weighted when assigning its rating, in the same way as its financial indicators. These elements are documented in the recommendation and taken into account in the analysis of an issue's risk/return ratio. If an issuer is deemed too risky from an ESG perspective, it will not be considered an investment candidate.

3.2.2 Improvement targets set for E and/or S factors

If a corporate bond is not classified as either a green bond or a positive impact bond, **the investment management team will set targets for each portfolio aimed at improving an indicator within a specific timeframe** (e.g. a target to improve carbon intensity within a period of 5 years).

By setting a target and trajectory for one or more indicators, as shown in the chart below, BLI is able to ensure that its portfolio promotes environmental (E) and/or social (S) values in tangible terms. These targets are also applied across the investment universe, which will have already been filtered by the strict exclusion strategy (described above).

The chart below shows an example of targets set for E/S indicators. The dotted line indicates the targeted trajectory set for the weighted average value of a given indicator in a portfolio. A 10% degree of tolerance is accepted in efforts to achieve this target (shown by the shaded area on the chart).



The indicator's real value relative to the target is assessed on a half-yearly basis.
If a half-yearly intermediate target has not been achieved, the fund manager will have 3 months to align the indicator with the next target. The portfolio indicator is calculated according to the following formula:

[4] Issuer with "Government-owned" status according to Bloomberg's level 4 classification.

$$\frac{\sum_{i=1}^{n} w_i X_i}{\sum_{i=1}^{n} w_i}$$

Where

w is the weight of the exposure of a security for which the indicator is available (if the indicator is not available, the weight is set to 0)
X is the value of the indicator for a security.

As data collection on the ESG aspects of companies is relatively recent, there are disparities in the data provided and it is not possible to be exhaustive in the ESG analysis. For each portfolio, a tolerance is defined in terms of securities not providing data on the indicator to be optimised within the 'Corporate Bonds' segment (impact issues excluded). The value of the tolerance for each portfolio is defined in Appendix 4.1. The threshold is calculated as follows

$$Tolerance = \frac{i}{d+i}$$

Where
i is the sum of the weights of the unavailable securities
d is the sum of the weights of the available securities.

3.3 Sovereign bonds

3.3.1 Optimising the ESG score

Issuers are subject to a non-financial analysis on the basis of which they will be assigned an ESG score that the investment team will incorporate into its own analytical process and selection of individual issuers. The aim is to **obtain an average ESG score above that of an index representative of the universe**.

3.3.2 Proprietary methodology for rating sovereign issuers

A proprietary approach aimed at monitoring an issuer's sustainability risks and promoting its ESG attributes has been developed for sovereign bonds. As the raw data on which the ESG model is based are already aggregated at country level, this ESG rating system only applies to sovereign entities (using the methodology described below).

The aim of BLI's sovereign ESG rating system is to assess the sustainability factors of a country's government, its economy, and the reforms it introduces.
A robust framework has been established for this purpose and includes:

- A fundamental score based on quantitative ESG data (level 1) and
- A momentum score which is assigned based on the continuous analysis of each country's qualitative data (level 2).

The approach used to calculate the overall ESG rating thus involves **combining a fundamental score, which remains relatively stable over time, with a momentum score that is designed to reflect the trend within the countries analysed**.

The strategist cross-references the proprietary rating assigned to the financial data with the ESG rating in order to identify which issuers are of the best quality from both a financial and ESG perspective. If two issuers offer similar fundamentals and returns, the investment team will opt for the issuer with the better ESG score.

Level 1: fundamental ESG score

Level 1 corresponds to a country's quantitative fundamental ESG score. In other words, this refers to **how well a country ranks in environmental, social and governance terms**.

The investment team uses various databases[5] to identify the different indicators (aggregated or raw) that it considers most relevant. These indicators are selected based on how reliable their sources are, how relevant they are to an ESG analysis, and how frequently they are updated[6].

Level 2: ESG momentum score

To obtain the most comprehensive overview possible of a country's ESG profile (and associated risks) it is essential to be able to **factor in all the ongoing trends, whether favourable or unfavourable**. **As there is often a considerable delay in obtaining the quantitative data required for the analysis. BLI has decided to supplement its analysis with the continuous and systematic monitoring of qualitative information** (recent events, articles, etc.) **for each country, ensuring this is obtained from specific sources that are deemed reliable**.

To streamline its research and, above all, enable it to carry out objective comparisons of the data on recent events/reforms/population sentiment, **the management team draws on advances made in the fields of artificial intelligence and language processing**. For example, BLI applies a universal language model that is fine-tuned to each ESG criterion (ULMFIT[7] and RoBERTa[8]).
Every week, country-specific analyses focusing on ESG criteria are incorporated into the ULMFIT model, which will then classify them as being more or less positive according to the analyst's opinion based on an assessment of the ESG criteria involved

This level 2 analysis makes it possible to continually monitor a country's relative sustainability and to see if a lasting trend – positive or negative – in a given country might lead to an improvement or deterioration in its fundamentals in the medium term.
This method assists with understanding why a given country's ESG score has improved or deteriorated. This framework allows BLI to construct its own interpretation of a country's situation and to make a medium-term investment or divestment decision.

Establishing an aggregate ESG rating by country

Each country's final score for each of the pillars analysed (Environmental, Social and Governance) is calculated as the weighted sum of the two scores (fundamental and qualitative/momentum) obtained for each pillar.

The qualitative score tends to be volatile as ESG themes cover a wide range of topics and the amount of data available for analysis may differ from one period to the next. To factor in this aspect, the weighting assigned to the qualitative score for each pillar (E, S and G) depends on the number of sentences analysed over the period, with the score updated monthly.
To determine this weighting, the number of sentences recorded over the period for a given country and a specific theme (E, S or G) is compared with the number of sentences identified over the period for the region (e.g. in Argentina's case, BLI looks at Latin America) and the pillar in question.
If the number of sentences recorded for a given pillar exceeds that of the reference sample, the qualitative score will carry a heavier weighting, and vice versa.

Once the scores have been aggregated for each pillar (E, S and G), a final rating is then calculated for each country. The sovereign ESG rating must also reflect any risks that may arise

[5] Sources vary depending on the purpose of the indicator in question. Below is a list of the sources most frequently used: United Nations Office for Disaster Risk Reduction / United Nations Food and Agriculture Organization / International Labour Organization, WHO-UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene / Global Health Observatory, WHO / Databank of World Development Indicators, World Bank / Skills Towards Employability and Productivity (STEP), World Bank / National Statistics Bureau.
[6] A detailed list of the indicators used for each E / S and G factor is available on request.
[7] The ULMFIT model was developed by Jeremy Howard and Sebastian Ruder. The researchers introduce their model with the following words:
"We propose Universal Language Model Fine-tuning (ULMFiT), an effective transfer learning method that can be applied to any task in NLP, and introduce techniques that are key for fine-tuning a language model."
Further information is available on: https://arxiv.org/abs/1801.06146. It has been implemented through the Python Fastai library.
[8] The neural network RoBERTa is a BERT-enhanced (Google) Facebook model. Further information is available on: https://ai.facebook.com/blog/roberta-an-optimized-method-for-pretraining-self-supervised-nlp-systems/. It was implemented thanks to the Python HuggingFace transformers library.

in the future. So, when aggregating the three scores (E, S and G), BLI assigns a higher weighting to the Governance pillar while the Environmental and Social pillars will be weighted equally

The management team overweights the Governance pillar as it considers that the key requirements for each country are political stability and the creation (and maintenance) of infrastructures (a viable road network, an energy distribution grid) in order to be able to implement lasting social or environmental reforms.

BLI thus arrives at an aggregate score corresponding to a country's relative sustainability.

3.4 Impact investing

3.4.1 Investment process

BLI distinguishes between the following types of impact bonds:

- **Alternative impact instruments** such as investments in microfinance bonds or in bonds issued by micro, small and medium-sized enterprises (MSME) in developing countries
- **Liquid impact bonds** which help to promote awareness of social, climate and environmental issues.

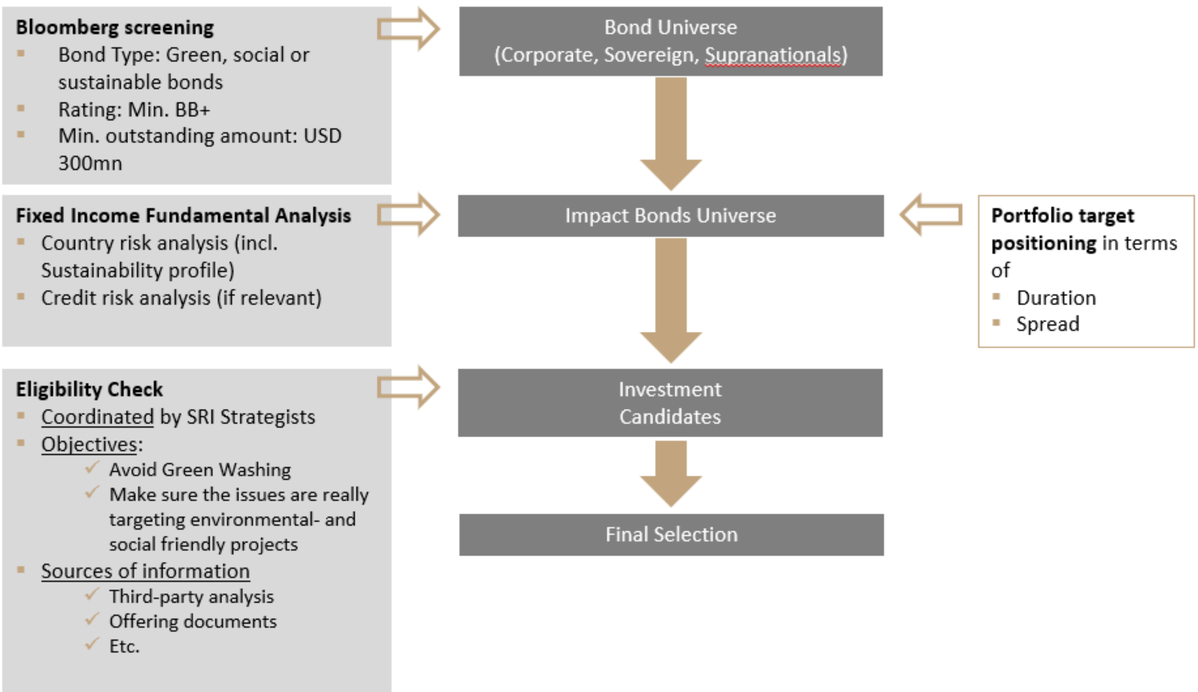
3.4.2 Liquid impact: impact bonds

Definition: impact bonds are issues that aim to finance one or more environmental and/or social projects and have a framework that meets the principles established by the International Capital Markets Association (ICMA) such as the Green Bond Principles, Social Bond Principles, Sustainability-linked Bond Principles and Sustainable Bond Principles.

Although this asset class only emerged relatively recently, the investment universe is beginning to increase in scale worldwide. Issuers are mainly governments and supranational entities which issue this type of bond to fund large-scale projects, but companies also issue them to fund energy transition projects. These bonds tend to be denominated in strong currencies (EUR or USD).

It is essential to dedicate enough time and resources to carry out a thorough analysis of these bond issues to ensure they do actually meet impact investing criteria and are consistent with the portfolio's targeted positioning.

BLI's current methodology is summarised below:



3.4.3 Alternative impact

It is beneficial to include alternative impact issues (financial inclusion, access to housing, access to clean energy, agriculture etc.) in a portfolio as the **asset class offers the combination of a steady return with a social and environmental impact**. Alternative impact sectors have proved their worth as a **real source of diversification and they improve a portfolio's risk-return profile** because:

- Alternative impact issues tend to be less volatile than the market (decorrelation effect)

- The micro-entrepreneur business model is more resilient (lower default rate).

Before investing in microfinance, it is essential to analyse the issuers, beneficiaries and underlying projects involved. BLI therefore works alongside specialised external advisers who factor in the key criteria for investment (minimum issuance amount, rating, type of project, region, etc.) and then present BLI with a list of eligible bond issues and continually monitor the selected investments.

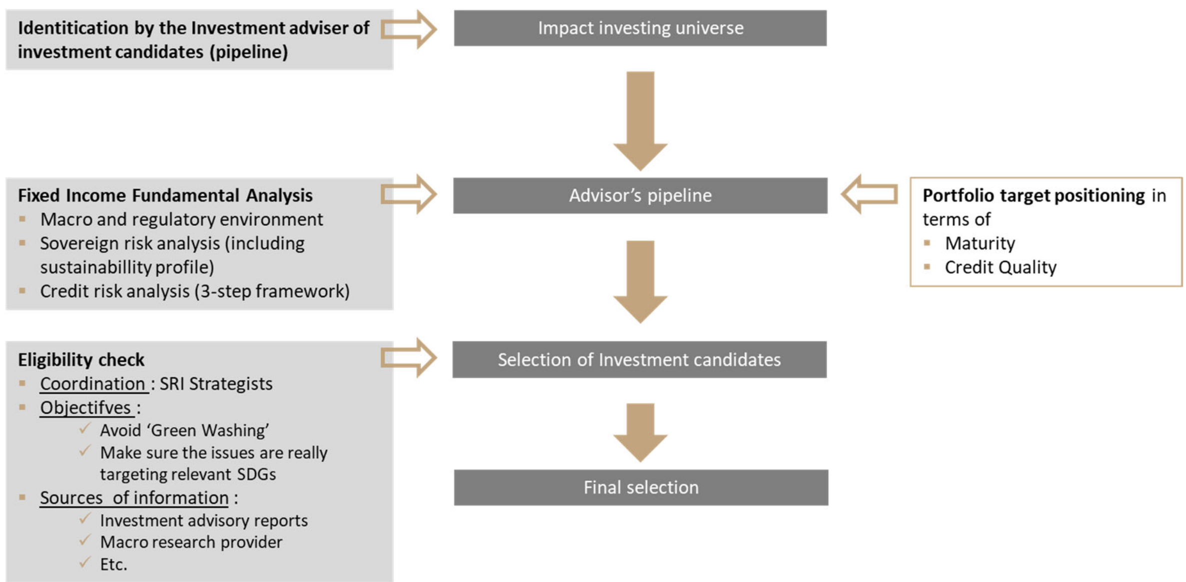
The final portfolio is constructed according to a disciplined investment process that focuses on the quality of the issues in terms of the quality of the projects financed and the credit quality of the issuers selected.

Main criteria

- Countries with a robust legal and regulatory framework
- Stable economies
- Eligible instruments: promissory notes, loan agreements, bonds
- Priority enterprises:
  - Micro, small or medium-sized enterprises
  - Microfinance institutions preferably belonging to a strong network

The selection process begins with the investment adviser shortlisting a pipeline of potentially attractive investment issues based on criteria predefined by BLI and the investment adviser, the impact objectives set for the fund, and the risk/return profile targeted by the fund management team.

Once the adviser has selected the pipeline, BLI's bond management team will then analyse the bond issues to assess their quality in terms of credit risk and to gauge whether they are suited to the current macroeconomic and regulatory environment.
For instance, issuers should preferably be audited independently and publish their financial statements in accordance with international accounting standards (GAAP/IFRS).
Each candidate for investment is assessed according to its intended impact.



Establishing and analysing impact indicators

These instruments uphold the United Nations Sustainable Development Goals (SDGs) and are thus geared towards supporting the energy transition, limiting climate change and/or promoting other SDGs; they are therefore not subject to any other environmental or social optimisation measures applied in the portfolios.

To measure a portfolio's impact, every green bond or alternative impact instrument is considered against the SDG(s) it relates to according to a second party opinion; this is necessary if the portfolio is to meet its impact investing criteria and expectations. This enables BLI to measure the amount of funds allocated to efforts to achieve one or several SDGs

If a bond issue is aligned to more than one SDG, its total exposure will be measured in relation to each targeted SDG. The sum of all exposures to SDGs may exceed the total exposure to the impact investment segment.
This approach is taken because it is impossible to quantify the amount of funds allocated from an impact investment between different SDGs, since every dollar collected from a positive impact bond may benefit several SDGs.

4 Appendices

4.1 Environmental and/or Social objectives

The table below lists the different indicators along with their goal, their timeline, and the portfolio with which they are associated.

Portfolio	*Indicator*	*Starting value*	*Start date*	*Target objective*	*Target value*	*Target date*	*Next value*	*Next date*	*Tolerance for unavailable values*
BL Global Bond Opportunities	Carbon Emissions - Scope 1+2 Intensity (t/USD million sales)	160	30/06/2021	-20%	128.00	30/06/2025	156.00	31/12/2021	20%
BL Corporate Bond Opportunities	Carbon Emissions - Scope 1+2 Intensity (t/USD million sales)	85	30/06/2021	-15%	72.25	30/06/2025	83.39	31/12/2021	20%
BL Bond Emerging Markets Euro	Carbon Emissions - Scope 1+2 Intensity (t/USD million sales)	463	30/06/2021	-20%	370.40	30/06/2025	451.34	31/12/2021	30%