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Before presenting the results of 1 year of research,

I would like to thank the people who guided me to realise this thesis.

In particular, I would like to express my gratitude to my supervisor, Ms. Dumas, for her availability, patience and constructive assistance throughout the year. There are no enough words to describe the recognition, respect and sympathy that I address to her for the know-how and inspiration that she transmitted to me.

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My gratitude also goes to my mother, Benoît, Idesbald, Veerle, Stefano, Christian and William for their critical proofreading but more importantly for their supports and guidance throughout my studies. Thank you for your listening and enthusiasm for all the projects that I have undertaken.

I also take the opportunity to thank many other friends who, from near or far, influenced positively my five years of studies and probably the rest of my life.

Table of content

List of abbreviations

3-D	3-dimensional (graphs, spectra, etc.)
BEAMA	Association Belge des Asset Managers
BIC	Best-In-Class
CAGR	Compound Annual Growth Rate
CAL	Capital Allocation Line
CAPM	Capital Asset Pricing Model
CSR	Corporate Social Responsibility
DPAM	Degroof Petercam Asset Management
ESG	Environmental, Social and Governance
GIIN	Global Impact Investing Network
GIIRS	Global Impact Investing Rating System
GRI	Global Reporting Initiative
GSIA	Global Sustainable Investment Alliance
ILO	International Labour Organisation
IRIS	Impact Reporting and Investment Standards
MPT	Modern Portfolio Theory
MSCI	Morgan Stanley Capital International
Multi-D	Multi-dimensional (graphs, Spectra, etc.)
N.A.	Not Available
OECD	Organisation for Economic Co-operation and Development
SDGs	Sustainable Development Goals
SDGI	Dutch SDG Investing
SRDD	Shareholders Rights Directive
SRI	Socially Responsible Investments
SROI	Social Return On Investments
SRSI	Socially Responsible and Sustainable Investments
UK	United Kingdom
UN	United Nations
UNEP	United Nations Environment Program
UNPRI	United Nations Principles for Responsible Investment
US	United States
VBDO	Vereniging van Beleggers voor Duurzame Ontwikkeling

List of figures

List of tables

General introduction

Knowing that, in 2015, 2 billion people were still living in poverty, that 1.2 billion people were lacking access to electricity and that more than 800 million were severely undernourished, many sustainable initiatives have been taken by governments, companies and households. Among the initiatives, the United Nations launched 17 Sustainable Development Goals (SDGs) in 2015 (Duiker, Bijleveled and Ipenburg, 2016). But according to the United Nations Environment Program (UNEP), up to $7 trillion in annual investments in infrastructure, green energy, water and sanitation will be needed to meet those 17 SDGs by 2030 (quoted by RobecoSAM, 2016).

Consequently, more and more investors want to take their responsibilities and look for Socially Responsible Investments (SRI), especially since the crisis of 2008 during which unethical financial behaviours were unmasked.

To meet those new investors' demand, many financial institutions are now offering responsible funds with various strategies. And one strategy that currently emerges and that answers the best to the SDGs, is "Impact Investing". Seeing this new trend, KBC Asset Management has also launched his owned Impact Investing fund in 2014 but:

"Do the characteristics of the KBC ECO Impact Investing fund satisfy investors' demand in comparison with the supply of other Belgian Socially Responsible funds and of other worldwide Impact Investing funds, mainly in terms of return, risk and Impact?"

In other words, are the return-risk-Impact characteristics of the supply well aligned to the return-risk-Impact demand of investors?

To answer this research question, the thesis will be divided in two parts.

The first part with a contextualisation of Impact Investing will describe Impact Investing supply and demand.
Concerning the supply, Impact Investing represents 0,60% of total investments in SRI at the worldwide level and this amount is expected to grow at a Compound Annual Growth Rate of 17,86% from 2015 to 2020.
Concerning the demand, Impact Investors' decisions are based on 3-dimensions: Return, Risk and Impact. Regarding the Impact expectations, Impact Investors prefer social investments to environmental investments and prefer country-specific Impact or emerging market Impact.
Regarding the financial expectations, a majority of investors looks for competitive, risk-adjusted returns, above 7%. In addition, there is a tendency that investors are moving from Impact-First to Finance-First investors.
However, to date, Impact Investing is still very young; mostly present in the private market and driven by foundations, philanthropic institutions and more recently also by some institutional investors ready to bear higher risks. To secure the growth of Impact Investing, it is therefore important to include retail investors and to launch new products on the public market along a wider return-risk-Impact spectrum to better satisfy investors' expectations.

The second part with a positioning of Impact Investing in the SRI investment was built on basis of the literature review.
Regarding the performance dimension, several factors leading to positive and negative relationships between SRI and returns were firstly highlighted. Secondly, several methodological biases to avoid were described.

Then, regarding the risk dimension, several factors leading to additional risks for Impact Investments compared to traditional investments were firstly listed. However, ESG (Environmental, Social and Governance) and other extra-financial information were also pointed out as factors to mitigate those risks. And secondly, Modern Portfolio theory of Markowitz were also introduced in order to build our methodology.
Finally, regarding the Impact dimension, firstly, several factors to take into account in WHAT to measure were described. And secondly, different Impact frameworks were presented to know HOW to measure the Impact.

After having selected 27 funds on basis of key words, asset managers, asset allocation, geographic allocation and period of study, 2 return-risk-Impact spectra were built: one simplified 3-dimensional spectrum and one more nuanced multi-dimensional spectrum.
For the 3-dimensional spectrum, the annualised daily return represents the return dimension, the annualised volatility represents the risk dimension and the ESG score represents the Impact dimension. For the multi-dimensional spectrum, the Sharpe ratio, Treynor ratio and Jensen's Alpha were added to represent the performance dimension; the Beta was added to represent the risk dimension and the individual E, S and G scores but also the SDGs addressed by the Impact funds were added to represent the Impact dimension.
In addition, each dimension was converted on a range from 0 to 10, in order to chart a Kiviat diagram and in order to visualise the position of the KBC Impact Investing fund in the SRI environment. And finally, total ratings aggregating each dimension were also added in order to simplify the comparison.

The results of the research are that KBC Impact Investing fund 12-dimensional rating is 7,278 on 10 and that it is ranked 4th for all Impact Investing funds. In addition, KBC Impact Investing fund has a 10-dimensional rating of 7,501 which is above the Impact Investing average. The Impact Investing strategy 10-dimensional score is 6,934 and it is ranked 2th after the Best-In-Class strategy with 7,129. As a result, an investor will be more satisfied if he invests in Best-In-Class strategy. But if he still wants to stick to Impact Investing, then he should rather invest in RobecoSAM Child Impact fund with 7,549.

In addition, some recommendations were addressed to KBC and to other Impact Investing asset managers. KBC should improve the volatility, the Beta, the Environmental score and the SDG depth of its Impact Investing fund. Whereas Impact Investing asset managers should improve in priority the volatility, the Social and the Governmental scores of their funds.

Thanks to the contribution of this thesis, investors are better able to visualise the position of each fund according to each dimension taken individually and according to the total scores of all dimensions in sum. In addition, financial institutions are now able to reposition themselves on the return-risk-Impact spectra and on the gaps between the supply and demand.

To conclude this thesis offers a broad exploratory research on Impact Investing and paves the way to improve its public market potential.

Before getting to the heart of the matter, bear in mind two things. First, this thesis has been built progressively during the course of my study. Indeed, thanks to my master in finance and my extra-curriculum activities, my interest for sustainable investments grew. This explains why I have applied for an internship at KBC Asset Management in their SRI team and why this thesis will focus on their funds and especially their Impact Investing fund which is, for the moment, unique in Belgium. And second, bear in mind that the results presented should not be applied at face value. It is indeed difficult to capture everything in numbers, especially for qualitative data as the ESG or SDGs scores. However, it is still important to measure the multi-dimensional spectrum in order to allow comparison and improvements and in order to simplify a given reality.

Part I: Contextualisation of Impact Investing

Before answering the research question, it is important to present Impact Investing. Therefore, this first part will begin with a definition and contextualisation of Impact Investing within the evolution of Socially Responsible Investments. Then, the current state of the supply as well as the demand of Impact Investing will be presented.

1. Definition

This first point will be divided in two sub-points: the first to present the historic evolution of SRI and definitions of some important terms and the second to present the characteristics of Impact Investing.

1.1. Historic evolution

The evolution of SRI is usually classified into 4 generations (B the change, 2016; Demoustiez, 2007; Dumas, 2015; Micilotta, 2017; Peeters, Mattan, Nijs, Uwase and Van den broeck, 2016).

The first generation of investments emerged in the United States during the 19th century under the influence of American Quakers who refused to invest in the two most profitable markets of the time: armament and the slave trade. Then, the movement was perpetuated thanks to religious congregations that refused to invest in "sin stocks", and excluded investments in alcohol, tobacco, gambling, weapons and pornography. Progressively, the exclusionary fields have been extended to other sectors, to other geographical areas and to other investors from various origins: the Vietnam War and its refusal to finance the armament industry; the South African boycott of investments in the name of anti-racism; Chernobyl and Exxon Valdez disasters and their emerging fights for the environmental protection.
This first generation gave the origin of the term **"ethic investments"** thanks to a **"negative screening".** The portfolio manager bans individual companies or even complete sectors whenever any unethical behaviours are to be noticed.

The second generation of funds works on the basis of positive criteria, focusing on a specific sector or theme, hence the name **"positive screening".** In the 1980s, on the initiative of an American activist, Léon Sullivan, and also thanks to the Brundtland Report (1987) and the Rio Earth Summit (1992), the concept entered a new logic: instead of excluding companies according to their activities, investors are more interested in including companies according to their management practices and their true commitments to society. Active investors are looking for companies that score high in a particular field, for example through remarkable efforts for ecologic production or for social policies.
As the companies are screened for only one or a few aspects of sustainable business, this strategy is also called **"thematic"** and was, at that time, mostly focused on **"green investments".**

The third generation goes beyond just environmental criteria by introducing the ESG criteria; acronym which stands for "**E**nvironmental, **S**ocial and **G**overnance" criteria. The investments moved from "green" to broader **"responsible investments".** The portfolio managers took ESG factors into account to better analyse the "ESG risks" of the investments. Then, the investments moved from "responsible" to **"sustainable".** Portfolio managers focused on "ESG opportunities" and chooses companies that are among the best in their business area in terms of ESG.
This strategy is also named **"Best-In-Class".**

To better understand the **ESG criteria**, here are some examples (United Nation Principles for Responsible Investment, 2016). Regarding Environment, investments must minimise climate change by reducing greenhouse gas emissions, avoiding waste and avoiding deforestation. In terms of Social criteria, investments must respect good working conditions (e.g.: no slavery or child labour), protect

employees with a health and safety plan, promote diversity, etc. Regarding Governance criteria, the way the companies are managed must be fair, avoid corruption, avoid lobbying, have a diversified board of directors, etc.

The fourth generation distinguishes itself from the third generation by focusing on the quality of the research and of the evaluation method. Some financial scandals have indeed reinforced the importance of the responsibility in financial acts as well as the importance of the role of shareholders. In the eyes of the investors from the fourth generation, it is crucial to have an active dialogue with companies enlarged to all their stakeholders (employees, unions, customers, suppliers, Non-Governmental Organisations, shareholders, management, ...). This strategy is also named **"shareholder engagement".** Parallel to that **"Impact Investing"** emerged. Impact Investing investors wanted to engage more in investments that have a real social and environmental Impact. To do this, they use venture capital or private debt to fund projects or businesses that solve societal problems and that create benefits for the planet and its people.

In a nutshell, ethical investment has given way to green investments, then to Socially Responsible Investments and even, in the last years, to "**S**ocially **R**esponsible and **S**ustainable **I**nvestments" (SRSI). Out of the learning above, it is indisputable that the concept of SRI is evolving and will continue to evolve. However, we will here remember the definition of the UNPRI (2016, para. 1) for which **"Responsible investment is an approach to investing that aims to incorporate environmental, social and governance (ESG) factors into investment decisions, to better manage risk and generate sustainable, long-term returns".**

To be more specific, the Global Sustainable Investment Alliance (GSIA, 2016, p.6) published a sustainable investment classification in 2012 in which they differentiate 7 different strategies:

1. **Negative / exclusionary screening**: exclusion of certain sectors, companies or projects from the portfolio or the fund because they do not comply with the ESG criteria (e.g.: exclusion because of nuclear weapons or violation of human rights).
2. **Positive / best-in-class screening**: which consists of investing in sectors, companies or projects that have a good ESG performance compared to its competitors.
3. **Norms-based screening:** investments that meet minimum and international standards (defined by the UN Global Compact for instance).
4. **ESG integration:** the systematic and explicit inclusion of ESG criteria in all financial analyses.
5. **Sustainability themed investment / thematic investment:** investments in specific sustainable assets or themes such as renewable energy, drinking water, etc.
6. **Impact / community investing:** aimed at investments that solve social or environmental problems such as agriculture, health, green energy, etc.
7. **Corporate, commitment and shareholder action / engagement / proxy**: which uses the power of shareholders to influence the behaviour of companies.

Of course, all those concepts have many similarities: combining financial returns with ethical added values. But although they are similar on principles, methods can differentiate.

Note also that some investments may end up in several categories as they may satisfy several strategies and methods at the same time.

In the following thesis, only Best-In-Class, Thematic and Impact Investing will be analysed and will be collectively named under the abbreviation SRI, which stands for Socially Responsible Investments.

1.2. Impact Investing

In this sub-point, the characteristics of Impact Investing will be presented in order to better understand how it differentiates from other SRI strategies.

The term "Impact Investment" was initially used in 2007 at the Bellagio Summit organised by the Rockefeller Foundation in the United States where it has been defined as **"(…) capital that is placed outside of public equities markets and generates social and environment value in addition to financial return"**(quoted by Niggemann and Brägger, 2011, p.1).

Since then it has undergone many evolutions. In 2009, the Global Impact Investing Network (GIIN) was launched by the Rockefeller Foundation, dedicated to increase the scale and effectiveness of Impact Investing. Then, two important events took place in 2013: The World Economic Forum Annual Meeting in Switzerland and the G8 Social Impact Investment Forum in England (quoted by Eurosif, 2014). Those developments show the growing interest in Impact Investing.

Despite this growing interest, its definition is still unclear and could be misleading. As definition, we will remember the one of the Global Impact Investing Network (GIIN, 2014, para. 1) for which **"Impact Investments are investments made into companies, organisations, and funds with the intention to generate social and environmental Impact alongside a financial return".** According to the GIIN, Impact Investments have 4 characteristics (GIIN, 2014, para. 2):

1. **Intentionality**: Investor's intention to have a positive social or environmental Impact through investments is key to Impact Investing.
2. **Investment with return expectations**: Impact Investments are expected to generate a financial return **on** capital or, at minimum, a return **of** capital.
3. **Range of return expectations and of asset classes**: Impact Investments target financial returns that range from below market to risk-adjusted market rate and they can be made across various asset classes.
4. **Impact measurement:** which is the commitment of the investors to measure and report the social and environmental performance and progress of their investments. Investors' approaches to Impact measurement will vary based on their objectives and capacities.

According to a study made in the Netherlands by VBDO (the Vereniging van Beleggers voor Duurzame Ontwikkeling which is Dutch Association of Investors for Sustainable Development) a last characteristic can be added which is **"Long Term Horizon"**. Indeed, 55% of the 80 Dutch institutional Impact Investors surveyed identified "long-term horizon" as a key characteristic of Impact Investing. According to them, "achieving social or environmental goals often benefits from a long-term commitment from investors" (Duiker, Bijleveld and van Ipenburg, 2016, p. 20).

According to a new study from Willis Towers Watson and Thinking Ahead Institute (2017), long-horizon investors may earn "long-term premium" of 0,5 to 1,5% in additional returns annually. Indeed, the short-term investors might sell assets below "fair value" in exchange for liquidity during market stress while long-term approach means less trading and thus significant savings on transaction costs. In addition, corporate active engagement and ownership of long-term oriented firms also lead to higher returns. "Engagements with investee companies on average generate positive abnormal returns of 2,3% over the year following the initial engagement" (Willis Towers Watson, 2017, p. 6).

Anyway, a long-term horizon is not necessarily a prerequisite for Impact Investing. There is a believe that **more opportunities for short-term investing will develop when liquidity in the market increases.** Today, according to the TONIIC (2016), 49% of Impact Investments have a liquidity turnover of lower than 30 days while 23% of investments have a liquidity turnover of more than 5 years.

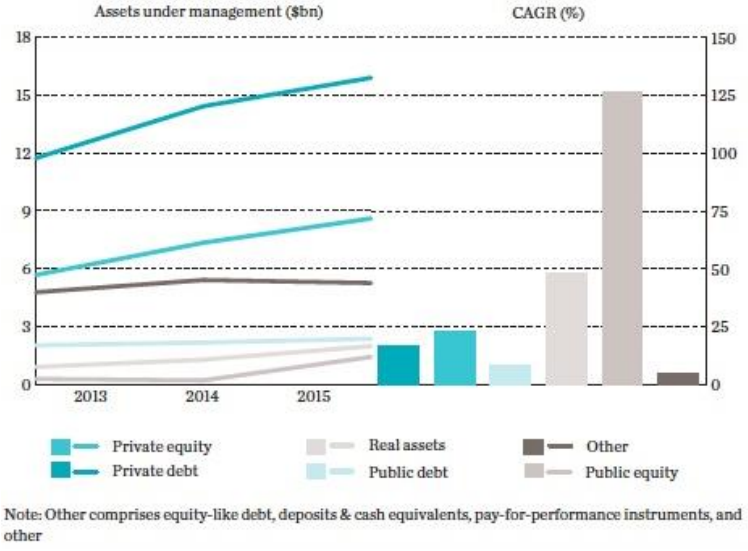
Definition

Currently, **Impact Investing is predominantly found in illiquid asset classes such as private equity and private debt.** But the range of financial products is also extending to more liquid assets with equity, fixed income but also other alternative asset classes as philanthropy, crowd-funding, etc.

In a survey made by the GIIN in 2016, 156 respondents reported $77.4 billion Assets Under Management invested in Impact Investing with 35% in private debt, 25% in real assets, 17% in private equity and only 9% in public equity and 4% in public debt (Mudaliar, Schiff and Bass, 2016).

However, according to a MSCI ESG research, **Impact Investing institutional investors increasingly want "to activate public equity and public debt portfolios"** (Menou and Nishikawa, 2016, p.6). And this can already be noticed in the following graph where public equity had a Compound Annual Growth Rate (the mean annual growth rate of an investment over a specified period of time) of 125% in 2015:

Figure 1: Assets Under Management by instrument (IPE, 2017)



Source: Investment and Pensions Europe. (2017, May). *Impact Investing Market Statistics: Trends and snapshots*. IPE. Retrieved from https://www.ipe.com/reports/special-reports/Impact-investing/Impact-investing-market-statistics-trends-and-snapshots/10018651.article para. 2.

But the core question is whether public markets are real Impactful investments? The public market has the potential to deliver positive Impact and on large scale but it has first to learn from the private Impact Investing approach (for example, the investors' active engagement for constructive dialogue with companies) and to re-think the way investments are made, as it will be developed further on (cf. infra p.1).

2. The supply

After a brief historical evolution and a definition of Impact Investing, this second point will cover the current state of Impact Investing and SRI supply. It is important to understand that this thesis aims to draw a double comparison: to compare the KBC Impact Investing fund with other worldwide Impact Investing funds and to compare the Impact Investing strategy with Belgian Best-In-Class and Thematic SRI strategies. As a result, the first sub-point will present SRI at the worldwide, European and Belgian level while the second sub-point will focus on the SRI at the KBC level.

2.1. Worldwide, European and Belgian SRI supply

To have a better view of the current worldwide, European and Belgium SRI supply, the tables below display the SRI data issued by the GSIA study and the Eurosif Study:

1. **The worldwide numbers** are from the *Global Sustainable Investment Review 2016*, organised by the GSIA, the Global Sustainable Investment Alliance. The data of different regions are collected and then agglomerated in worldwide numbers. Note that the European data are from the Eurosif study of 2016.
2. **The European and Belgian numbers** are from the *Eurosif study of 2016* and are based on data collected end 2015 thanks to quantitative and qualitative questions. The study covers institutional and retail assets from 13 different European markets and covers 278 asset managers and owners (representing €15 trillion, which represents 81% of the market).

Note that each region covered by those reports uses different methods to collect data. For instance, there is a lack of European SRI framework and countries have different understanding of SRI, which leads to a major risk of inconsistency.

The first table represents the top SRI strategies per region. The percentages represent the relative value of SRI investments made per strategy. **We can see that Impact Investing ranks relatively low and represents less only 0,60% of total SRI strategies at the worldwide level.**

Table 1: Top SRI strategies (adapted from Eurosif, 2016 and GSIA, 2016)

TOP SRI	World (2015)		Europe (2015)		Belgium (2015)	
1	Negative	36,13%	Negative	44,34%	Negative	69,03%
2	ESG integration	24,94%	Norms-based	22,23%	Norms-based	13,71%
3	Engagement	20,12%	Engagement	18,65%	Engagement	12,41%
4	Norms-based	14,94%	ESG integration	11,56%	Best-in-Class	4,77%
5	Best-in-Class	2,48%	Best-in-Class	2,16%	***Impact Investing***	***0,09%***
6	Thematic	0,80%	Thematic	0,63%	Thematic	0,07%
7	***Impact Investing***	***0,60%***	***Impact Investing***	***0,43%***	ESG integration	N.A.
Total	$41.576.000,00	100%	€ 22.891.713,00	100%	€458.558,00	100%

Sources : Eurosif. (2016). *European SRI Study 2016*. Brussels : Eurosif. Retrieved from http://www.eurosif.org/sri-study-2016/, p. 56 and p. 63.

Global Sustainable Investment Alliance. (2016). *Global Sustainable Investment Review*. GSIA. Retrieved from http://www.gsi-alliance.org/members-resources/trends-report-2016/

But in the second table underneath showing the top SRI **C**ompound **A**nnual **G**rowth **R**ate (the mean annual growth rate of an investment over a specified period of time) per strategy and per region, we can see that **Impact Investing is the strategy with the highest CAGR of 56,80% at the worldwide level.**

Table 2: Top SRI CAGR (adapted from Eurosif, 2016 and GSIA, 2016)

TOP CAGR	World (2013-2015)		Europe (2013-2015)		Belgium (2013-2015)	
1	***Impact Investing***	***56,80%***	***Impact Investing***	***120%***	***Impact Investing***	***100%***
2	Thematic	55,10%	Thematic	57%	Norms- based	58%
3	Norms- based	19%	Negative	22%	Engagement	10%
4	Engagement	18,90%	Norms- based	18%	Negative	6%
5	ESG integration	17,40%	Best-in-Class	18%	Best-in-Class	1%
6	Negative	11,70%	ESG integration	18%	Thematic	-42%
7	Best-in-Class	7,60%	Engagement	14%	ESG integration	N.A
Average		26,64%		38%		22%

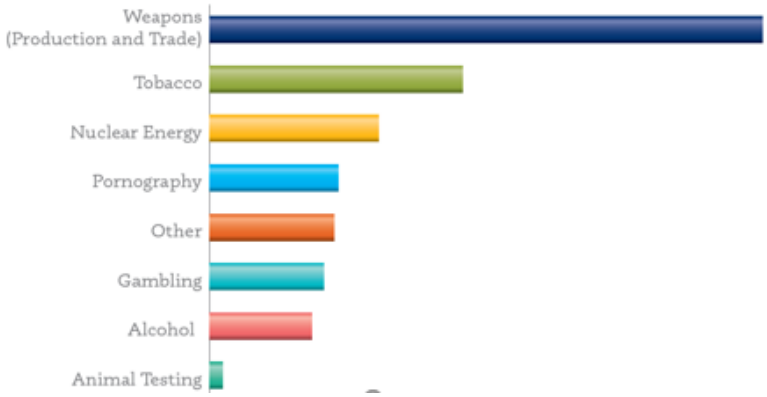
Sources : Eurosif. (2016). *European SRI Study 2016*. Brussels : Eurosif. Retrieved from http://www.eurosif.org/sri-study-2016/, p. 56 and p. 63.
Global Sustainable Investment Alliance. (2016). *Global Sustainable Investment Review*. GSIA. Retrieved from http://www.gsi-alliance.org/members-resources/trends-report-2016/

At worldwide level, the largest sustainable investment strategy globally is negative/exclusionary screening ($15 trillion), followed by ESG integration ($10 trillion) and corporate engagement/shareholder action ($8 trillion) while Impact Investing is the last strategy with $0,248 trillion. All SRI strategies continually experience growth. The fastest growing strategies (although also the smallest in absolute dollar terms) are Impact Investing (56,80%) and sustainability-themed investing (55,10%). In the future, according to a report published on the 11th of July 2017 by MarketsandMarkets, **the global Impact Investing market is expected to grow from $135 billion in 2015 to $307 billion in 2020, at a CAGR of 17,86% from 2015 to 2020.**

At the European level, total assets committed to sustainable and responsible investment strategies grew by 38% CAGR between 2013 and 2015 with a consistent growth across all strategies:

1. **Exclusionary screens** remain the dominant strategy at €10 trillion, with a growth rate of 22%. According to Eurosif (2016, p.25), there is a "willingness to limit potential reputational risks" by negatively screening companies with an evaluation of how much company revenue is generated from the excluded product or activity. Cluster munitions and anti-personnel landmines make up about 80% of total exclusions.

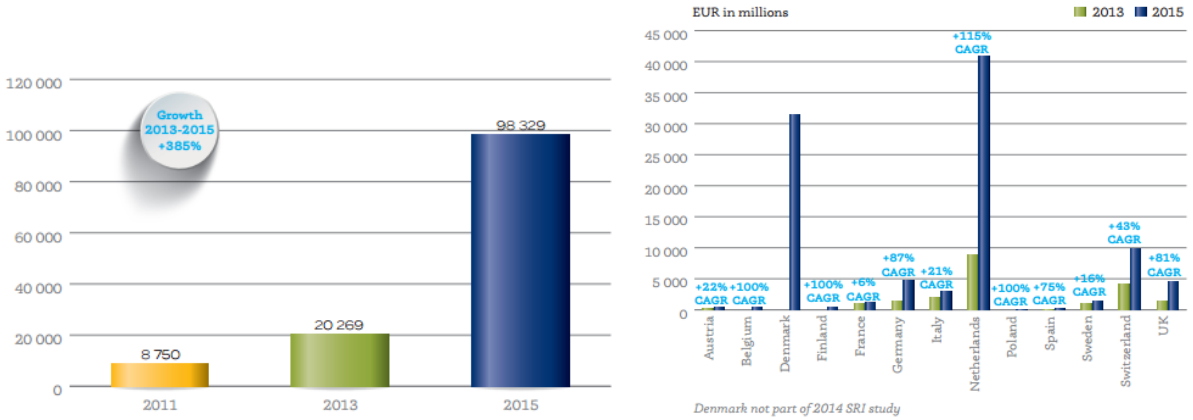
Figure 2: Top exclusion criteria (Eurosif, 2016)



Source : Eurosif. (2016). *European SRI Study 2016*. Brussels : Eurosif. Retrieved from http://www.eurosif.org/sri-study-2016/, p. 26.

2. **Norms-based screening** is the second biggest SRI approach with over €5 trillion in assets and a CAGR of 18%. Some global norms are indeed used to assess the degree to which each company in the portfolio respects and adheres to environmental protection, human rights, labour standards and anti-corruption. The most common norms-based screening according to Eurosif are: UN global compact, ILO conventions (International Labour Organisation) and OECD guidelines (Organisation for Economic Co-operation and Development).
3. **Engagement and voting** follows quite closely in terms of popularity, with over €4 trillion in assets and a 14% CAGR. It has increased thanks to improved fiduciary duty and it will further increased thanks to the modernisation of corporate governance and corporate transparency with the Shareholders Rights Directive (SRD).
4. Using a narrower definition of **ESG integration** in 2016 and recalculating the 2013 ESG integration, Eurosif found that this strategy grew by 18% CAGR to reach nearly €3 trillion.
5. Then comes the **Best-in-Class** strategy with half a trillion investments and a CAGR of 18%.
6. **Sustainability themed** is the second fastest growing strategy with a CAGR of 57% and where: 23,72% is invested in buildings sector;19,68% in renewable energy; 13,3% in water management; 12,49% in other (including multi-theme, climate-related opportunities, healthcare, education, safety, well-being); 10,66% in energy efficiency; 7,29% in waste management; 6,82% in sustainable transport; 6,04% in land use, forestry, agriculture.
7. **Impact Investing** is once again the fastest growing strategy with a CAGR of 120%, although the assets remain small (€98.329 million). Both Impact Investing and sustainability themed investments benefited from increasing concerns about climate change, perhaps driven by key international events such as the 2016 Paris Agreement.
   By the way, the Netherlands, Denmark and Switzerland are the top Impact Investments players in Europe and Impact Investing has a 100% CAGR in Belgium as no recognised Impact Investments were made in 2013.

Figure 3: Growth of Impact Investment in Europe in €million (Eurosif, 2016)
Figure 4: Growth of Impact Investments by country (Eurosif,2016)



Source : Eurosif. (2016). *European SRI Study 2016*. Brussels : Eurosif. Retrieved from http://www.eurosif.org/sri-study-2016/, p. 38.

At the Belgian level, exclusion remains the dominant strategy (€253.946 million) together with norm-based screening (€50.426 million). While there has been a drop (-42% CAGR) in sustainability themed investment, the most striking growth is in Impact Investing (100% CAGR).

In short, figures lead to the obvious conclusion that, although Impact Investing is a very tiny strategy, it is also the strategy with the highest growth prospects. It is undoubtedly the most dynamic and promising approach for investors.

2.2. KBC SRI supply

In 1992, KBC Asset Management was the first to launch a SRI fund in Belgium, the KBC ECO Fund World, aligned with the rise of the concept of Sustainable Development. Indeed, the theme of the environment emerged in the 1990s after disasters such as the Chernobyl nuclear accident or the deforestation of the Amazon forest. Since then, gradually, the essence of sustainable development was broadened to include social and good governance aspects. And KBC therefore wanted to be a leading actor in this new trend by closely monitoring market developments and bringing new funds to the market. In 2014, seeing the new trend towards Impact Investing, KBC created the first Belgian fund that met this concept: KBC ECO Impact Investing fund (KBC Asset Management, 2016).

All in all, KBC has gained more than 15 years of SRI expertise and claims a portfolio under management of approximately €3.1 billion invested in SRI funds in 2017. KBC Asset Management currently manages around 130 SRI funds, making it one of the leaders in the Belgian market. However, it is difficult to determine the global, European or Belgian market share of its SRI funds, as the concept of sustainable investments differs among countries and fund managers (L'Echo, 2017, para. 4).

KBC offers SRI funds in three main categories according to their investment methods (KBC AM, 2016):

2.2.1. *Best-in-class funds*

The KBC Best-In-Class investment funds (or BIC funds) invest in companies and countries (via government bonds) that perform best in comparison with competitors in terms of ESG criteria for companies and in terms of responsibility towards the different stakeholders for the countries:

- **To select companies,** KBC looks at 3 pillars and then excludes the 10% of the lowest performing companies for each pillar, while the 40% of the highest performing companies are admitted in the investment universe. But for some sectors like energy or mining, KBC is more severe and only accepts the 20% of companies that perform the best. The 3 pillars are:
    1. **Environment:** are the products environmentally friendly produced? Were there any environmental scandals occurring?
    2. **Social:** Does it respect the social policy within the company but also within the supply chain?
    3. **Governance:** Are there anti-bribery rules in place as well as transparency policies? Does the Board of Directors respect the diversity of skills and working practices and is not associated with controversy?
- **To select countries,** KBC studies the OECD, Eurozone and Scandinavian countries on the basis of 5 pillars and then excludes the 10% of the lowest performing countries and include the 50% of the highest performing countries. Here are the 5 pillars:
    1. **General economic performance and stability:** macroeconomic figures, future economic prospects, quality of government and public institutions, etc.
    2. **Socio-economic development and public health:** indicators of development, employment, education, public health, etc.
    3. **Population equality, liberty and rights:** prevention of inequalities, respect for human rights, etc.
    4. **Environment:** via the Environmental Performance Index, the Climate Change Performance Index and the Ecological Footprint.
    5. **Security, peace and international relations:** via the Global Peace Index, co-operation and Globalization index.

2.2.2. Thematic funds

KBC thematic investment funds (or eco-funds) invest in companies that contribute to social or environmental progress. A company is elected if:

- It generates at least 50% of its turnover in this theme.
- Or if it generates at least 10% of its turnover in this theme **and** is market leader.

These themes are grouped into 3 categories:

1. **Climate change:** financial assets that commit more to recycle, reduce waste, conserve energy, reduce CO2, etc.
2. **Water:** financial assets that seek to provide drinking water (via water treatment and distribution).
3. **Alternative energy:** financial assets that seek to meet electricity demand but with low Impact (wind, sun, hydro, biofuels) or with a good energy efficiency (LED producers, insulation, etc.).

2.2.3. Impact Investing fund

KBC Impact Investing fund (or II fund) invests at least 75% of its assets in companies that contribute to sustainable development. The difference with the other categories is that investments are not chosen based on **HOW** the companies operate, but rather on **WHAT** their activities are, what the Impact of their products and services, or of their outputs is. This fund includes companies that tailor homes for the elderly, companies that recycle and reduce waste, fight obesity, offer micro-credits or payment services, produce electric cars, and so on.

The KBC Impact Investing fund has been restructured on 29th September 2014. Since then, it mainly invests in global public equity and especially small to medium capitalisations. The fund owns 45 assets and has a relatively well-balanced diversification of sectors, of regions and of market capitalisations:

Table 3: KBC Impact Investing fund's allocation (Bloomberg, 1st June, 2017)

Sector		Region		Market capitalisation		Asset class	
Basic Materials	7,225%	**North America**	31,217%	**Small-cap**	52,621%	**Government**	0,000%
Communications	7,834%	**South & Central America**	1,750%	**Mid-cap**	27,198%	**Corporate**	0,000%
Consumer, Cyclical	4,978%	**Western Europe**	58,844%	**Large-cap**	20,181%	**Mortgage**	0,000%
Consumer, Non-cyclical	31,517%	**Asia Pacific**	4,704%			**Preferred**	0,000%
Energy	3,482%	**Central Asia**	3,486%			**Municipal**	0,000%
Financial	10,164%					**Equity**	**100,000%**
Industrial	24,778%					**Cash and Other**	0,000%
Technology	3,828%						
Utilities	6,194%						

Source: Bloomberg (1st of June 2017).

As the KBC Impact Investing fund is only composed of **public equities**, the following thesis focuses only on Impact Investing in the public market.

By the way, KBC defends the interests of the investors of the funds by voting, in their name, at the General Meetings' of companies. KBC uses their **voting rights for all companies in the KBC ECO Impact Investing fund** but also for all companies in the BEL20, and for all companies in which KBC holds voting rights of minimum 0,8%.

3. The demand

After having covered the supply side, this part will cover the demand side for Impact Investing. Firstly, the common expectations of Impact Investors will be explored. Then, the level of financial and non-financial satisfactions will be analysed. And finally, some future challenges that Impact Investing has to face in order to insure its growth will be covered. The aim of this part is to understand how Impact Investors differ from SRI investors and from conventional investors. To do this, results of 3 main studies will be analysed:

1. **The GIIN** is a survey- based study conducted from December 2015 to February 2016. The study covers 158 respondents mainly based in North America and Europe and consists mainly of fund managers, foundations and financial institutions. Together, they invested $15 billion in Impact Investments in 2015 (Mudaliar, Schiff and Bass, 2016).
2. **The Australian study,** organised by the association "Impact Investing Australia", is also a survey conducted from September to October 2015 and it covers 123 Australian investors (mainly foundations and institutions). 93 of the investors represent A$333 billion of which institutions dominate clearly with A$331 billion (Dembek, Madhavan, Michaux and Potter, 2016)
3. **The Netherlands study,** made by VBDO and published in February 2016, gather the data of surveys and interviews from 80 Dutch institutional respondents. The Dutch Impact Investments represent 1,7% (€24 billion) of total Dutch investments (€1.000 billion) (Duiker, Bijleveled and van Ipenburg, 2016).

As a matter of complementary information, according to the Eurosif study of 2016, the Netherlands is the European country with the highest involvement in Impact Investments. Also, according to GSIA (2016), Australia counts for 1,1% of the global Impact Investments worldwide.

3.1. Financial and non-financial expectations

In this sub-point, it is interesting to understand the decision process and the rational behaviour of Impact Investors and SRI investors. Therefore, the current type of Impact Investors will be positioned among the categorisation of other type of investors.

3.1.1. Categorisation of Impact Investors

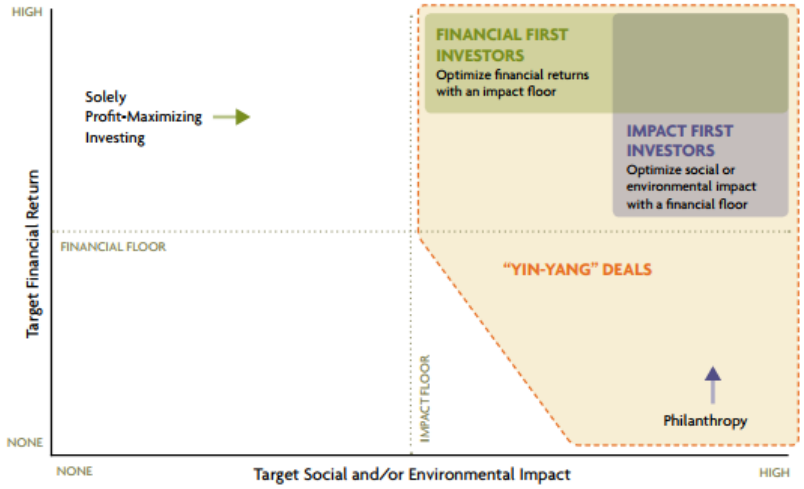
According to financial theory, a rational investor would only behave according to risk and return. He would only expect to maximise profit without consideration of personal values. What about SRI investors? Are they willing to tolerate poorer financial performance in order to satisfy their personal values? To answer this, it is better to understand the 3 types of SRI investors defined by Kinder (2005) or 2 types of Impact Investors defined by the Monitor Institute (Freireich and Fulton, 2009):

1. **Value-based investor** (also called mission driven investor or concessionary investor): who bases his choices on non-economical and non-financial backgrounds as moral, ethical or religious convictions. **He is ready to get less reward to reach greater collective well-being.** The investor would be **non-elastic** or not flexible, meaning that he would not accept higher profit if it satisfies less requirements. He is a **long-term and buy-and-hold** investor. Experience shows that he is **more conservative and risk-averse** than others. Consequently, he tends to involve himself in the portfolio screening process and operates as a **loyal and activist** shareholder through proxy voting. In short, he is a SRI investor seeking to align his portfolio holdings with his beliefs.
   He is comparable to **Impact-First investor who seeks to optimise social or environmental Impact with a floor for financial returns.** He primarily aims to generate Impact and is often willing to give up some financial returns if he has to (so called the price to pay for ethics).

2. **Value-seeking investor** (also called profit driven investor or non-concessionary investor): who seeks to identify **extra social and environmental criteria without affecting financial performance** and therefore share price. The objective is the **maximisation of risk-adjusted returns**. A value-seeking investor thinks in terms of risk and ethical behaviour is part of the **reputational risk**. In his eyes, a good ESG management would then bring a competitive **advantage on the long term**. He would agree to sacrify short term returns only to get less risk or high returns in the long term.
   In short, he is a SRI investor identifying social and environmental criteria that may affect financial performance.
   He is comparable to **Financial-First investor who seeks to optimise financial returns with a floor of social or environmental Impact**. He seeks to diversify his portfolio with assets that offer market-rate returns while achieving some social or environmental goals.
3. **Value-enhancing investor:** who, in his own eyes, is not a SRI investor but rather a shareholder activist who almost only decides in terms of **corporate governance**. He employs **shareholder activism** to maintain and increase the value of his investments.

Furthermore, according to the Monitor Institute (Freireich and Fulton, 2009), Impact-First and Finance-First investors can work together in what they called **"Ying-Yang deals"** which here describes two elements that are different but are still complementary when put together. This way, more capital can flow to the deal than to the Impact-First alone and more Impact can occur through the deal than through the Finance-First alone.

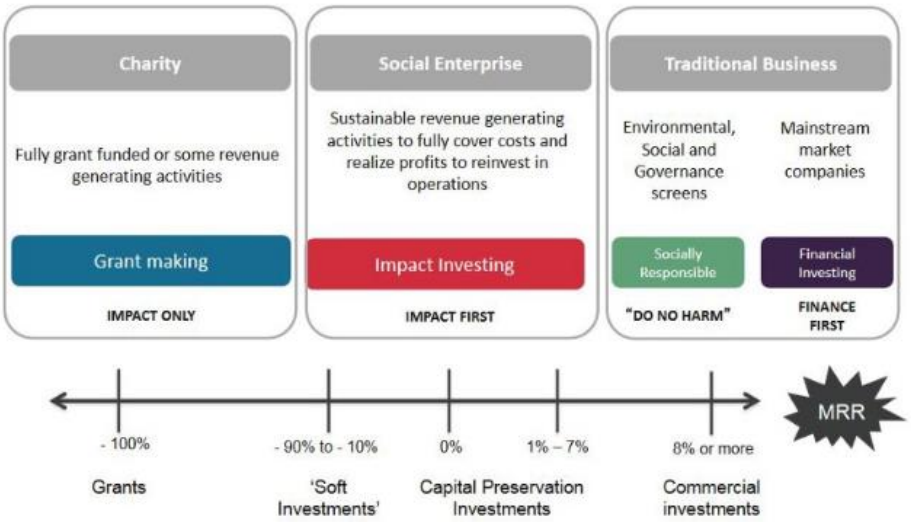
Figure 5: Segments of Impact Investors (Freireich, and Fulton, 2009)



Source: Freireich, J. and Fulton, K. (2009). *Investing for Social and Environmental Impact: a design for catalysing an emerging industry*. New York: Monitor Institute. Retrieved from http://www.monitorinstitute.com/downloads/what-we-think/Impact-investing/Impact_Investing.pdf. p.33.

But what does this categorisation really mean in terms of returns? During the Second Vatican Impact Investing conference in 2016, John Kohler suggested an investor return expectations' spectrum going from "Impact only" through charitable donations and philanthropy (which have a 100% loss of capital, with **no return of capital**) to "Impact first" (with **return of capital** from -10% to 7%) and to "finance first" (with **return on capital** from 7% to 8%) and "traditional investments" (with return on capital above 8%). But of course, he added that those return expectations should be adapted to the Market Rate Return at the time of the study.

Figure 6: Investor return expectations (Kohler, 2016)



Source: Kohler, J. (2016, 25 July). *Second Vatican Conference on Impact Investing: sources of capital and the enterprises in which they invest*. {Online video}. Catholic Relief Services. Retrieved from https://youtu.be/ehG_mygXVO0

In addition, as characterised in the definition of Impact Investments (cf. supra p. 5), Impact Investments are expected to generate a financial return **on** capital or, at minimum, a return **of** capital (also called capital preservation).

Consequently, for the purpose of the thesis, we will hypothesise that Impact-First investors expect returns from 0 to 7% and that Finance-First investors expect returns above 7%.

3.1.2. Current type of Impact Investors

According to the Australian study (Dembek, Madhavan, Michaux and Potter, 2016), 35,4% of respondents look for mission alignment and 11,8% for financial returns. This shows that **non-financial expectations come before financial expectations** for some Impact Investors. Therefore, we are to conclude that Impact Investors are closer to the first type of investors, namely "value-based investors" or **"Impact-First" investors.**

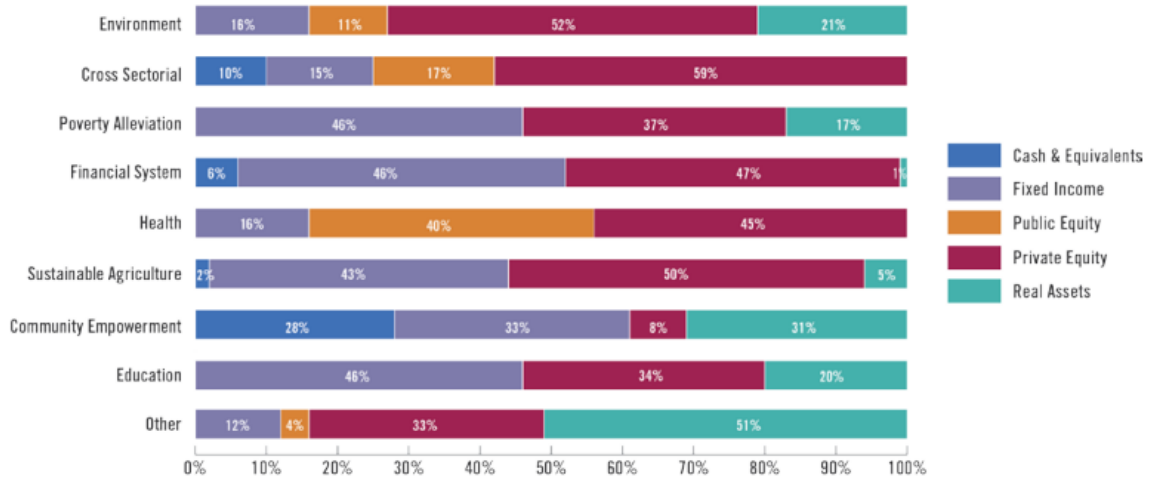
But, if we dig deeper into **the financial expectations-side**, 59% of respondents according to the GIIN study (Mudaliar, Schiff and Bass, 2016); 56% of respondents according to the Australian study (Dembek, Madhavan, Michaux and Potter, 2016) and 67% of respondents according to the VBDO study in the Netherlands (Duiker, Bijleveld and van Ipenburg, 2016), look for **competitive, risk-adjusted returns** while a rather small percentage of investors agree to earn **below market returns**.
In other words, the vast majority of Impact Investors only accepts Impact Investments with a competitive risk-return profile and they are then closer to the second type of investors, namely "value-seeking investors" or **"Finance-First" investors.**

A possible explanation behind this contradiction might be the fact that early Impact pioneers were ready to earn below-market returns but afterwards, with Impact Investing mainstreaming, Impact Investors are now seeking for better risk-adjusted returns. **Impact Investors might thus be moving from value-based investors to value-seeking investors, from Impact-First to Finance-First investors.**
For the purpose of the thesis, we will hypothesise than Impact Investors willing to invest in the public market are Finance-First investors, looking for risk-adjusted market returns with a floor of social or environmental Impact.

Concerning the Impact expectations-side, surprisingly only 5% of Impact Investors prefer having an environmental Impact only, compared to 48% of Impact Investors who **prefer social Impact** only and 47% of Impact Investors who prefer both social and environmental Impact (Mudaliar, Schiff and Bass, 2016).

This repartition is surprising but aligned with The TONIIC's graph showing the Impact Themes preferred by asset classes. According to their 51 portfolios analysis, 40% of the public equities address "Health" theme which can be considered as a social Impact.

Figure 7: Aggregated asset classes across Impact Themes of 51 portfolios (TONIIC, 2016)



Source: TONIIC. (2016). *Insights from the frontier of Impact Investing: 2016.* San Francisco: TONIIC. Retrieved from http://www.toniic.com/t100/insights-from-the-frontier-of-Impact-investing/ p. 34.

Furthermore, according to the GIIN, o**n the social Impact side**, the following themes are preferred: employment generation (94,6%), health improvement (82,52%), access to finance (68%) followed by education and income growth. **On the environmental Impact side**, the following themes are preferred: energy efficiency (66,42%), clean technology (61,39%), renewable energy (47%) followed by climate change mitigation and sustainable consumption (Mudaliar, Schiff and Bass, 2016). However, the Netherlands and Australian studies issued a different repartition that are shown in the appendix 1 together with the themes preferences of SRI and non-SRI investors. For the SRI and non-SRI investors, the study made by Berry and Junkus in 2012 with 5000 investors aims to classify and compare the ESG categories and themes that were the most important according to SRI and non-SRI investors.

In conclusion, for the purpose of this study, we will hypothesize that Impact Investors in the public market have social Impact preferences.

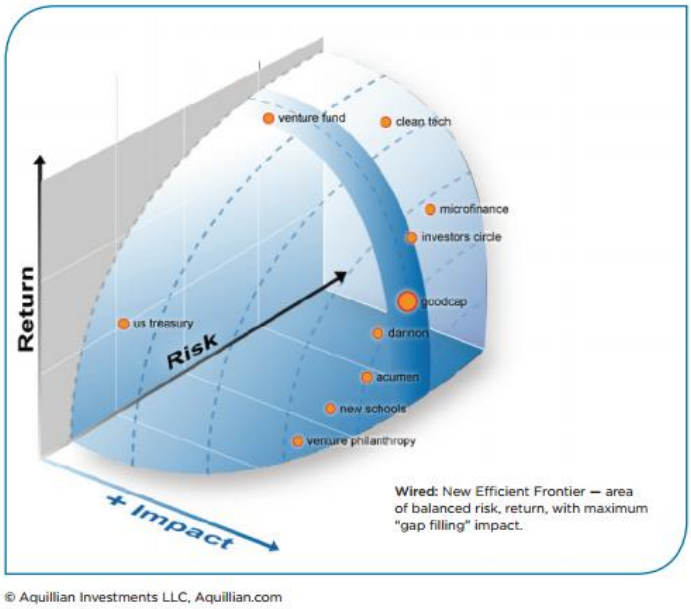
In addition, it is interesting to note that Impact Investors have some **geographic preferences**. According to the Australian study (Dembek, Madhavan, Michaux and Potter, 2016), investors prefer to have country-specific Impact (44%), which means that they prefer investments that have a positive Impact inside their own country instead of outside their country. When investments are made abroad, according to the VBDO study (Duiker, Bijleveld and van Ipenburg, 2016), investors unsurprisingly prefer emerging markets (63%), developed markets (44%) while some prefer multiple geographies (33%), Europe only (30%) or north America only (15%). Also, according to the GIIN study (Mudaliar, Schiff and Bass, 2016), the emerging countries that are preferred are Sub-Saharan Africa (15%) and Latin America and the Caribbean (9%).

For the purpose of the study, we will hypothesise that Impact Investors prefer country-specific Impact.

3.1.3. Return-Risk-Impact spectrum

To be more visual, according to both J.P. Morgan study (Saltuk and Ei Idrissi, 2012) and Aquilian Investments (quoted by Emerson, 2011), Impact Investors add a third expectation to traditional investing, namely **the inclusion of Impact criteria**. There is thus a new efficient frontier (cf. infra p. 31 for the definition) where risk and return are balanced with Impact. Here is an example of a spectrum of players in the new efficient frontier:

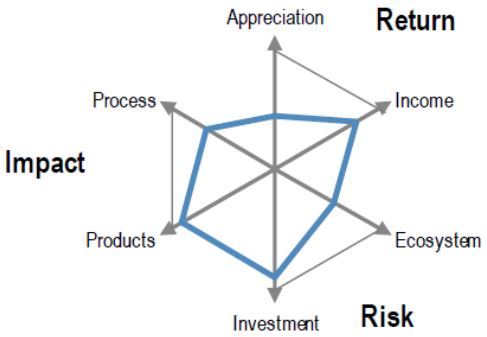
Figure 8: New efficient frontier (Aquilian Investments LLC quoted by J. Emerson, 2011)



Source: Emerson, J. (2011). *Risk, return and Impact: Understanding Diversification and Performance Within an Impact Investing Portfolio.* Bethesda: ImpactAssets. Retrieved from: http://www.Impactassets.org/files/downloads/ImpactAssets_IssueBriefs_2.pdf, p.11.

In addition, J.P. Morgan study (Saltuk and Ei Idrissi, 2012) also mentions the possibility of **expanding the dimensions of the graph**, if desired. For some investors, the simplicity of the 3-dimensional approach might be appropriate, for example, to aggregate large portfolios. Whereas other investors might prefer to use a more nuanced framework, that better reflects the different contributing factors of each dimension. **The Impact dimension**, for instance, could be divided into 2 components. Investors can target businesses that deliver products and services to underserved communities while also meeting a high-standard of employment and resource efficiency practices. Regarding the **return**, investors could seek to balance asset income and asset appreciation. And regarding the **risk**, investors could seek a balance between ecosystem risk and investment risk.

Figure 9: Illustrative graph in six dimensions (J.P. Morgan, 2012)



Source: Saltuk, Y. and Ei Idrissi, A. (2012). *A portfolio approach to Impact Investment*. J.P. Morgan Asset Management. Retrieved from https://www.jpmorganchase.com/corporate/socialfinance/document/121001_A_Portfolio_Approach_to_Impact_Investment.pdf, p.6.

3.2. Financial and non-financial satisfactions

The question now is to see if the Impact Investors are satisfied by their Impact Investments.

For the financial satisfaction, 54% of investors of the Australian study (Dembek, Madhavan, Michaux and Potter, 2016) said the **financial performance were in line with their expectations**. 12% of investments were outperforming and 16% were underperforming. According to the GIIN study (Mudaliar, Schiff and Bass, 2016), 70% of investors said the financial performance were in line with their expectations. 19% of investments were outperforming and 11% underperforming.

For the Impact satisfaction, according to the Australian study, 68% of investors said that their investments delivered **Impact in line with their expectations**. 12% were even outperforming. According to the GIIN study, 72% of investors said that their Impact performances were in line with expectations. 27% were outperforming and 2% were underperforming.

All in all, Impact Investments were in line with both Impact and financial expectations. But do the Impact Investors have higher satisfaction compared to other SRI strategies?

By the way, it is also important to note that the investors considered in the studies are mostly investing in the private market while this thesis focused on the public market. We thus need to see if the satisfaction is the same for the public market.

3.3. Future expectations

Although the total value of Impact Investments and their satisfactions are growing, there are still some challenges to overcome.

Based on the Eurosif study (2016), the GIIN Study (Mudaliar, Schiff and Bass, 2016) and the Australian Study (Dembek, Madhavan, Michaux and Potter, 2016), the following main challenges can be identified:

1. lack of viable Impact Investments products along the return-risk spectrum;
2. lack of evidence of real Impact and greenwashing concerns;
3. lack of Impact measurement framework and of research data;
4. lack of evidence of financial performance and of track record;
5. risks concerns as for instance suitable exit options and
6. lack of expertise and of common understanding of the Impact Investing definition.

The reason behind those challenges is that Impact Investing market is still very young and unfamiliar to many investors. Historically, the early players of Impact Investments were foundations, philanthropic institutions and governments. Nowadays, **the market is moving from niche to more mainstream institutional (as pension funds, insurance companies) and retail investors.** However, the inclusion of the wider public and especially of retail investors is slow as the supply is not aligned and the market not yet mature.

In order to broaden the market to a wider public, Triodos Investment Management for example suggests that **"funds should be well-diversified, generally lower risk, and very transparent in terms of their investment portfolio"** (Vaccaro, 2014, p. 17). Also, according to the VBDO study in the Netherlands (Duiker, Bijleveld and van Ipenburg, 2016), as the market matures, barriers to Impact Investing will become less imposing thanks to regulatory drivers, organisational drivers and market drivers:

Firstly, concerning **regulatory drivers**, public authorities have to learn lessons from other countries where examples exist of favourable regulations for Impact Investing. For instance, they could implement incentives to mitigate risk (to reduce adverse effects), transfer risk (to provide guarantees for investments that have a positive social Impact) or compensate risk (e.g.: price premiums, tax incentives, and revenues from carbon offsets).

Then, there are **organisational drivers**. Impact Investors have to reconsider commonly accepted investment beliefs such as the "short-termism", which does not adequately consider the long-term interests of stakeholders nor the long-term Impact of investments. Consequently, some Impact Investments are advocating the return to a long-term focus, which "would lead to better risk-adjusted returns and lessen procyclical investment behaviour". Another illustration is the perception of the market. It appears that Impact Investing is often associated with charity and donations. This can discourage institutional investors with a 'Finance-First' investment approach. Then, the lack of liquidity is often a major constraint for Impact Investments. However, it could be offset by increasing diversification, or by taking into account a longer investment horizon. In addition, when Impact Investments become more mainstream, liquidity is likely to improve automatically. And a last example is to select a benchmark consistent with the investment beliefs comparing a long-term investment policy with a short-term benchmark will not produce relevant information.

Furthermore, there are also **market drivers** to take into account. The market needs to become more efficient as currently there are difficulties matching supply and demand for. A significant weakness is lack of expertise and know-how for defining, measuring, managing and monetising the Impact. But there are also other weaknesses such as the fact that the market is dominated by a few large investors. Institutional investors typically make large-sized investments in mainstream capital markets and the small deal-size of Impact Investments does not coincide with the investment universe of institutional investors. There is thus a need to reorganise the capacity of the market. And finally, there is a need to standardise Impact measurement. The screening, management and evaluation of an Impact Investment require highly specialised information but information on Impact is often missing or lacks accuracy. An increasing number of organisations and initiatives provide data on track records, ratings, process guidelines, certifications and benchmarks. But data-providers all have their own definitions of Impact themes and, for now, the focus is very much on processes (e.g.: no child labour) rather than results (e.g.: improved well-being of children).

All in all, many different actors (asset managers, investees, intermediaries, public authorities, etc.) can play a role in the growth and development of Impact Investing. Besides, Impact Investors already indicated improvements in the **sophistication of Impact Investing** industry. According to the GIIN, areas with the greatest progress include: Professionals with relevant skill sets; Research and data on products and performance and Sophistication of Impact measurement practice.

Therefore, according to the Australian study (Dembek, Madhavan, Michaux and Potter, 2016), a majority of respondents, both investing and not investing in Impact Investments (72,5% and 72,2% respectively), agrees that **Impact Investing will represent a more significant part of the investment landscape** over the next five years.

4. Conclusion on part I

In this contextualisation of Impact Investing, a first definition was given by the Global Impact Investing Network for which **"Impact Investments are investments made into companies, organisations, and funds with the intention to generate social and environmental Impact alongside a financial return".** To avoid confusion with other SRI strategies, 5 main characteristics were also highlighted: Intentionality; Investment with return expectations; Range of return expectations and asset classes; Impact measurement and Long term horizon.

The supply of Impact Investments satisfying those characteristics is still modest and represents only 0,60% of all SRI investments at the worldwide level, 0,43% at the European level and 0.09% at the Belgian level. However, it is expected to grow rapidly at a CAGR of 17,86% from 2015 to 2020, at the worldwide level. It is expected to grow as there is a high interest from investors who agree that Impact Investing will become a more significant part of the investment landscape over the next five years and who increasingly want "to activate public equity and public debt portfolios".

Regarding the demand, Impact Investors have 3 axes of motivations: Impact, return and risk. On the Impact side, Impact Investors prefer social investments to environmental investments and prefer country-specific Impact or emerging market Impact. On the financial side, the three studies highlighted that a majority of investors looks for competitive, risk adjusted returns. We therefore hypothesised that Impact Investors in the public market are moving from Impact-First to Finance-First investors who seeks returns above 7% with a floor of social or environmental Impact.

Although Impact Investments are growing and in line with Impact and financial expectations, there are still some challenges to overcome. It remains a peripheral strategy within SRI that has not yet realised its full potential as Impact Investing is still very young; mostly present in the private market and driven by investors ready to bear higher risks. To secure the growth of Impact Investing, it is thus important to include retail investors, to activate public market and to see how well the supply and demand are matched; **are the return-risk-Impact characteristics of the supply well aligned to the return-risk-Impact demand of investors?** and how to improve by for example launching new products on the public market with for instance higher diversification, lower risk and more transparency to better satisfy investors' expectations?

Part II: Comparison of Impact Investing with other SRI strategies

In the first part, the characteristics of Impact Investing demand were confronted against the supply. The results were that Impact Investors' decisions are based on 3 dimensions: Return, Risk and Impact. And that the funds' supply will thus have to meet those expectations. Therefore, a question was raised: **are the return-risk-Impact characteristics of the supply well aligned to the return-risk-Impact demand of investors?**

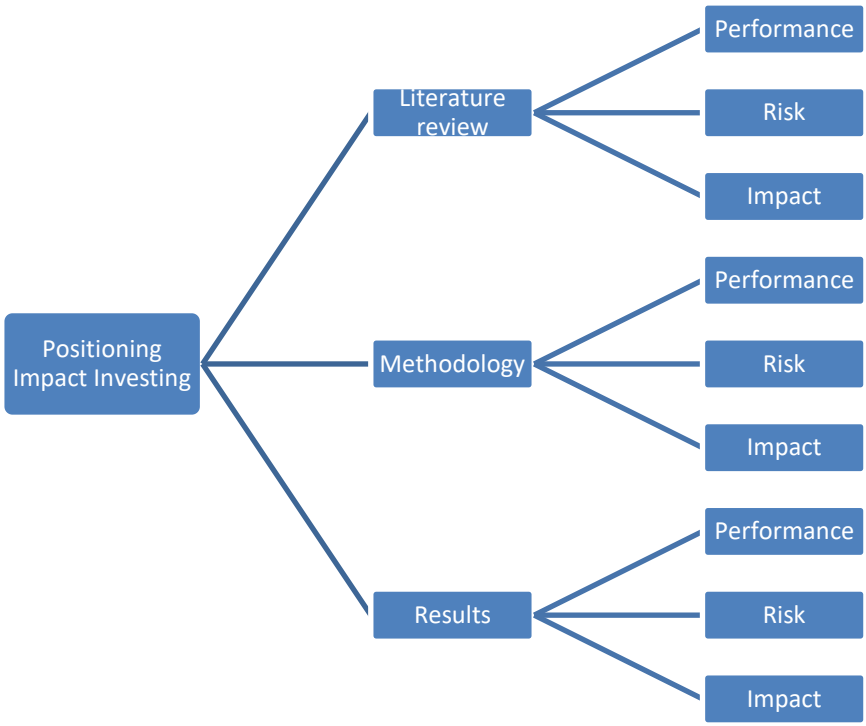
In particular, the research question will be applied to the case of the KBC Impact Investing fund and it can thus be rephrased: "**Do the characteristics of the KBC Impact Investing fund satisfy the investors' demand in comparison with the supply of other Belgian Socially Responsible funds and of other worldwide Impact Investing funds mainly in terms of returns, risk and Impact?"**

In other words, within this thesis, a double comparison will be conducted: the KBC Impact Investing fund with other worldwide Impact Investing funds and the Impact Investing strategy with Belgian Best-In-Class and Thematic SRI strategies.

To answer the research question, the second part of the thesis is structured as follows:

1. **Literature:** The literature review will present each dimension individually from the point of view of Impact Investors but also of SRI investors.
2. **Methodology:** Thanks to the literature, a framework will be developed to start data collection and to score investments on our 3 scales.
3. **Results:** In the last part, Best-In-Class, Thematic and Impact Investing SRI strategies as well as the KBC Impact Investing fund will be positioned on the created framework to visualise the return-risk-Impact spectrum.

Figure 10: Structure of the thesis



1. Literature review

The literature review will focus on three key elements of Impact Investing: financial performance, risk and social/environmental Impact. Concerning the performance, different factors leading to outperformance or underperformance are presented. Concerning the risk, the factors leading to additional risk and the factors mitigating the risk are covered. And concerning Impact, the factors to take into account in WHAT to measure and HOW will be defined.

1.1. Performance

This point on performance will be divided in 3 parts: the factors leading to outperformance, the factors leading to underperformance and finally, some "methodological biases" will be unveiled by Revelli and Viviani (2011).

A large number of studies focused on the financial returns of SRI investments. "Studies show that **the fear of lower returns remains the main reason investors do not opt for SRI funds**," said Mr. De Bruycker, the coordinator of sustainable investments at KBC. "They are wrong. If we compare the performance of the SRI funds that we manage with KBC Asset Management to those of conventional funds over the last ten years, we see equivalent returns. Companies included in SRI funds are subjected to further analysis focused on sustainable development. This stricter screening than conventional funds produces a safer portfolio of companies. These companies have a lower expected return but also a lower risk. The risk-return ratio therefore remains identical. The portfolio manager has a universe offering enough opportunities to build a successful portfolio. As a result, returns over longer periods are identical to those of conventional funds "(translated from L'Echo, 2017, para.1).

Even though Mr. De Bruycker believes than SRI returns equal non-SRI returns, there seems to be some disagreements in academic literature. In a literature review of Wallis and Klein (2014), 35 studies that compare SRI to conventional performance were gathered. 43% of those studies found that SRI performed the same, 40% outperformed and 17% underperformed compared to conventional benchmarks. Those studies are listed in appendix 2, 3, 4. Wallis and Klein (2014, p. 80) summarised their research by saying that "**the relationship between social responsibility and returns has not been conclusive".**

When it comes to measuring performance of Impact Investments over conventional investments, Cambridge Associates and the GIIN (Bouri, Mudaliar, Schiff, Matthews and Sternlicht, 2015) concluded in their study that private equity and venture capital funds with Impact missions produce the same returns as conventional funds. Their 51 Impact funds booked an average return of 6,9% per year versus 8,1% for their 705 non-Impact funds. However, note that this study only concerned private equity and venture capital funds while our thesis is aiming to public equities funds.

One of the three aims of this thesis is to see if Impact Investing funds have higher returns than other SRI funds. If the thesis demonstrates higher financial returns for Impact Investing, then savings should better be transferred to such funds. But before that, it is important to understand the factors influencing performance. In 2011, Revelli and Viviani analysed 75 studies and highlighted 5 arguments in favour of outperformance and in favour of underperformance. As a summary, the list of the 5 factors and their empirical validations are presented in appendix 5.

1.1.1. Factors leading to outperformance

1) Shareholder engagement

According to the stakeholder theory (Freeman, 1984) and according to Igalens and Point (2009) (quoted by Revelli and Viviani, 2011, p.38), "the stakeholder approach creates value". More specifically, **shareholder activism makes it possible to modify the behaviour of the companies by orienting it to the values shareholders are defending and this is reflected in the price of equities** (Ryan and Schneider, 2002) (quoted by Revelli and Viviani, 2011). At support of this hypothesis, three studies from Gompers, Ishii and Metrick (2003); Core, Guay and Rusticus (2006); and Smith (1996) (all quoted by Revelli and Viviani, 2011) showed that 183 companies targeted by the US pension fund activist CalPERS have seen the price of their shares increase once they have accepted the resolutions of their governance structure. In addition, a study on 2,152 highly-intensive engagements with 613 US public firms by Dimson, Karakas and Li (2015) show that "engagements with investee companies on average generate positive abnormal returns of 2.3% over the year following the initial engagement" (quoted by Willis Towers Watson, 2017, p. 6).

This factor can be assumed valuable for Impact Investors as they are usually long-term investors and operate as activist shareholders through proxy voting (cf. supra p.12).

2) Learning effect on the long term

The "learning effect" is presented by Bauer, Koedijk and Otten (2005) and Bauer, Otten and Tourani Rad (2006) (quoted by Revelli and Viviani, 2011). They quoted that **SRI would tend to underperform conventional investments in the short term, then to reduce this gap in the medium term until reversing it in the long term.** A long-term horizon would therefore be a performance factor probably, because, on the longer term, the societal risks are reduced. The study of Cummings (2000) (quoted by Revelli and Viviani, 2011), comparing the returns of 7 SRI funds in Australia against 3 indexes, confirmed that its oldest funds have higher performance than its youngest funds.

Currently, the public Impact Investments market is still young and might consequently underperform conventional investments in the short term. However, this learning effect will probably appear for public Impact Investments once they improve over time.

3) Market (in-)efficiencies and information effect

Believers in the efficient market hypothesis argue that it is impossible that SRI funds outperform their conventional peers. Screenings based on public information such as Corporate Social Responsibility (CSR) issues cannot generate abnormal returns as that information are already included in the price.

Whereas some authors argue that a key assumption underlying the "outperformance" hypothesis is that stock markets actually misprice information on CSR and that market are, on the contrary, inefficient. According to them, **SRI screenings generate additional information otherwise not available to investors. This helps funds managers to select "safe" securities and consequently generate better risk-adjusted returns than conventional funds.**

This theory of the **"information effect"** is developed by Kurtz (2002) (quoted by Revelli and Viviani, 2011, saying that extra-financial information can be interpreted as a way of controlling the risks faced by the company. Firstly, social and environmental performances signal good management quality translated into favourable financial performance. And secondly, social and environmental screenings reduce the possibility of incurring high costs during corporate social crises or environmental disasters. Companies are thus expected to outperform competitors who do not care about it.

1.1.2. Factors leading to underperformance

However, there are also some factors leading to underperformance of SRI funds:

1) Diversification effect

Critics of SRI base their arguments in Modern Portfolio Theory of Markowitz (1952). According to Gezey, Stambaugh and Levin (2003) and Girard, Rahman and Stone (2007) (quoted by Revelli and Viviani, 2011), the screening processes of the SRI approach impose a constraint on the investment universe available. **SRI screens may therefore reduce investment opportunities, "limit the diversification possibilities and consequently shift the mean-variance frontier towards less favourable risk-return trade-offs than those of conventional portfolios**" (Renneboog, Ter Horst, Zhang, 2007, p.27).

This is in line with the argument of Clow (1999) (quoted by Revelli and Viviani, 2011) that SRI, through its selective approach, would cause a "sectoral bias" by restricting itself to a smaller number of investment sectors, thus increasing its risk while decreasing its profitability.

This diversification effect might also apply to Impact Investments which do not only screens companies on basis of their sustainable processes but also on basis of their sustainable products (cf. infra p. 34).

2) Supplementary monitoring costs

Milton Friedman, in his book Capitalism and Freedom (1962) or in the New York Times Magazine (1970) argues there is no compatibility between investing in a socially responsible way and profitability. The only social responsibility that can prevail is to increase the profits of the company. In addition, according to him, **addressing social and environmental concerns generate additional external costs that need to be internalised and which will inevitably lead to a loss of the value of the company** (quoted by Revelli and Viviani, 2011)**.**

Besides, according to Rudd (1981) (quoted by Revelli and Viviani, 2011), any transaction generates costs represented either by a brokerage commission or by the expenses incurred in including or excluding shares in or out the portfolios. This is what Luther, Matatko and Corner (1992, p.57) (quoted by Revelli and Viviani, 2011) defined as **"monitoring costs"**. SRI filtering would lead to more complex and expensive asset management, generating more research for whether or not a security meets the SRI criteria. And all these costs would ultimately reduce performance.

Regarding Impact Investing, there is also prohibitive search and transaction costs because there is a lack of efficient intermediation between the demand and supply; because those investments are complex deals with lack of understand of risks. Consequently, intermediaries conclude small deals but with high fees. However, it is likely that the costs will go down and that new investment structures will appear, making Impact Investing more accessible to a broader range of investors (Freireich and Fulton, 2009).

Although the measurement of fees is critical for having a proper comparison with conventional funds, the literature does not systematically consider the fees contents. Actually, only 37% of the 41 SRI studies analysed by Chegut, Schenk and Scholtens (2011) explicitly mention the transaction costs and management fee. Explanations behind this fact are that fees vary between countries and that there are still no agreements if those costs significantly reduce or not the risk-adjusted returns. **For the purpose of this study, only return contents without taking the fee contents into account will be covered.**

1.1.3. Methodological biases

In addition to the factors leading to outperformance or underperformance, Revelli and Viviani (2011) also tried to demonstrate whether the link between SRI and performance is reliable and robust. In their view, **the more the nature of the SRI Impact on financial performance depends on the method used, the less reliable the link between SRI and financial performance.**

Their results reveal dependencies between certain methodological criteria and the SRI / financial performance relationship. According to them, there are some methodological biases such as: measurement of performance, comparison methodology, period of observation, sample size, geographic market, type of investments and type of screenings. **Within this thesis, we will thus try to avoid the following 7 methodological biases:**

1) Measurement of performance

Derwall, Guenster, Bauer and Koedelijk (2005) and Galema, Plantinga and Scholtens (2008) (quoted by Revelli and Viviani, 2011) argue that financial performance of SRI can be influenced by the financial performance measure used. A performance measured by gross returns will not have the same Impact as a performance measured more precisely by mono-factorial or multifactorial model type.

Revelli and Viviani (2011) confirmed this hypothesis. Their results showed that studies using **standard performance measures (such as gross average returns) show a more systematic positive Impact** on financial performance. **But when these performance measures are risk-adjusted** (Jensen's Alpha 1968, Treynor Ratio (1965) **or multifactorial models** (Fama-French 1993 or Carhart 1997), **the Impact is mostly neutral.**

By the way, Wallis and Klein (2014) mentioned that the **Jensen's alpha is used in 58% of their 53 SRI studies, average returns in 26% of studies, the Sharpe ratio in 26% of studies and the Treynor ratio in 11% of studies**. Besides, Wallis and Klein (2014) also quoted that 51% of studies provide an explanatory contribution on different factors that influence returns with the help of one-, three-, or four-factor models such as CAPM, Fama–French, and Carhart.

For the purpose of this study, only monofactorial risk-adjusted models such as Jensen's Alpha, Sharpe ratio and Treynor ratio will be used (cf. infra p. 50-52 for definitions).

2) Comparison method

According to Revelli and Viviani (2011), there is no one type of performance but several: performance of SRI securities, SRI indices, SRI portfolios composed of securities or SRI funds, performance of SRI managers. Therefore, **comparing different combinations of SRI products will lead to divergent performance.** It is thus misleading to compare the performance of a SRI fund with that of an SRI Index.

In addition, inspired by Diltz's study (1995), the results of Revelli and Viviani (2011) showed that when researchers construct their own SRI portfolio, there is a greater probability to obtain a positive SRI Impact. Conversely, **studies comparing the performance of already existing SRI funds conclude to neutral Impact of SRI on financial performance.** According to Revelli and Viviani, this means that either the SRI managers (of funds already existing) are not able to select the "right" SRI values as they did not outperform; either the SRI securities selected by the SRI managers are not as ethic as SRI managers pretend; either it is possible to doubt the veracity of the SRI researchers (of portfolio that they constructed) since it is difficult to do better than SRI managers.

For the purpose of this study, we will only compare currently available funds with each other and not with indices or other types of SRI instruments.

3) Period of observation

The period of observation is also a factor that can influence the nature of the performance of SRI. Core, Guay and Rusticus (2006) as well as Amenc and Le Sourd (2008) (quoted by Revelli and Viviani, 2011) empirically demonstrated that the longer the observation period is, the more significant the results are and the higher the SRI effect on the observed positive or negative performance rather than neutral.

But the results of Revelli and Viviani (2011) differ as **"short-term" SRI (less than 5 years) is linked to negative, less stable returns while "medium-long-term" SRI (10 and 19 years) is linked to neutral performance of the SRI.** These observations confirm the "learning effect" theory of Bauer et al. (2005, 2006) (quoted by Revelli and Viviani, 2011) that SRI underperforms conventional investment in the short term before achieving similar performance over the medium term.

However, as our thesis focuses on Impact Investments in the public market through young funds (cf. appendix 12 for the 4 Impact funds created in 2015), there will thus be a methodological bias regarding the period of observation.

4) Sample size

According to Clow (1999) (quoted by Revelli and Viviani, 2011), large samples should have more significant performance than small samples, due to the diversification effect and a lower presence of possible sectoral biases. Revelli and Viviani have confirmed this. Their results showed that **small samples (less than 20 securities) are more often associated with a neutral Impact of SRI while studies evaluating large-scale securities (more than 100 securities) are more linked to a positive effect of the SRI.**

As a matter of complementary information, according to Wallis and Klein (2014), 83% of performance studies focus on small sample size (below 100 funds) and that the average size of performance studies is a sample of 125 funds.

In this study, we will analyse 27 SRI funds (cf. appendix 12). Although this sample might be considered as too small, it is representative of the Belgian SRI market and worldwide Impact market. In addition, it avoids the methodological bias of large sample that lead to a positive effect of the SRI on the performance instead of a neutral effect.

5) Geography

According to Revelli and Viviani (2011), the geographical area of SRI investments is important as the strategy adopted and the investment culture are not the same everywhere. For instance, European market are more oriented towards ESG approach while the American market are more oriented towards "ethical" exclusion approach. In addition, certain markets as the UK market will certainly tend to develop a greater learning effect than the younger or emerging SRI markets. Their results showed that the **United States SRI market had positive financial performance relative to the control groups studied while the French and Canadian SRI markets booked neutral performance and while the English and European markets tented more frequently to negative financial performance.**

For the purpose of the thesis, no geographical restriction has been applied for the selection of funds in order to enlarge the sample of Impact Investing funds. Consequently, a geographical bias might occur for the Impact Investing strategy. However, this bias has been limited since we only select Belgian funds for the Best-In-Class strategy and for the Thematic strategy. Since the Belgian market might be considered closed to the French market, the effect of SRI on the performance might be neutral.

6) Asset class

The performance of SRI (as well as non-SRI) investments might vary depending on the investment vehicles. In the literature, Hutton, D'Antonio and Johnsen (1998, 2000) (quoted by Revelli and Viviani, 2011) demonstrate that a **"bond" or "diversified" SRI may outperform an "action"** SRI.

Accordingly, Revelli and Viviani (2011) admit that a SRI oriented on "bond" appears more systematically in the context of a positive SRI Impact on financial performance than an "action". Nevertheless, it is important to balance the interpretations because of the almost exclusive presence of "action" experiments (125 out of 161 or 78%) within the Revelli and Viviani's sample.

In order to avoid the asset class bias, the following thesis will only focus on funds with 90% of equities.

7) Screening methods

Recently, several studies have suggested not to compare the performance of SRI funds with those of conventional funds, but to consider the relative performance between SRI funds. By doing this, these studies provide an analysis of **how the type (e.g. environment, social and corporate governance) and number of screens influence the returns of SRI funds.** Here again, mixed results are the outcome:

a) Type of screens

For Environmental screens, Revelli and Viviani (2011) came to the same conclusion than Butz (2003), Scholtens (2005); Derwall et al. (2005) and Guenster et al. (2005) that an environmental approach has a **positive effect on performance**. This can be explained by Hart (1995), following Porter and Van der Linde (1995), Larson (2000) and Bauer and Hann (2010) (quoted by Revelli and Viviani, 2011) who show that, through cost reduction and innovation, environmental performance can be a source of competitiveness.

For Social screens, there are contradictory results. Butz (2003) (quoted by Revelli and Viviani, 2011) argued that it has **a positive influence.** But Biehl, Hoepner and Wilson (2011) (quoted by Capelle-Blancard, Monjon (2011) showed that portfolios with the highest social ratings **underperform** significantly, while portfolios with the lowest social ratings do not significantly underperform the market.

For Governance screens, it seems that all the studies on governance or oriented towards the actions of the shareholders (Opler and Sokobin, 1995; Smith, 1996; Hillman and Keim, 2001; Gompers, Ishii and Metrick, 2003; Brown and Caylor, 2004; Core, Guay and Rusticus, 2006; Butz, 2003; Scholtens, 2005; Derwall, Guenster, Bauer and Koedijk, 2005; Guenster, Derwall, Bauer, Koedijk, 2005 quoted by Revelli and Viviani, 2011) showed **outperformance** compared to a conventional investment. These results confirm the stakeholder theory and the importance of shareholder engagement (cf. supra p. 22).

b) Number of screens

Barnett and Salomon (2006), who studied 61 US SRI funds over a long period of time (1972-2000), found a **curvilinear relationship between screening intensity and financial performance** and that the best financial performance is at the lowest and highest number of screens. One must thus decide either to follow an intensive SRI investment screening process (and gain extra returns as better managed and more stable firms are selected) or exclude very few firms (to retain the ability to diversify). But note that their funds with a maximum screening of 12 still underperformed by roughly 2,4 % per year compared to the funds that undergone only 1 screening.

Then, Capelle- Blancard, Monjon (2011), with a sample of 116 French SRI funds over the period 2004-2007 and Lee, Humphrey, Benson and Ahn (2010) with 61 US SRI funds over the period 1989-2006, confirmed that **a greater screening intensity slightly reduces financial performance but also results in lower systematic risk.**

To go further, Renneboog, Ter Horst and Zhang in 2008 (and 2011) (quoted by Capelle- Blancard, Monjon, 2011), with a sample of 440 (321) SRI funds in 17 (23) countries over the period 1991-2003 (1992-2003), showed that the number of **social screens** reduces significantly the financial performance of the SRI funds, while the number of **ethical screens**, the number of **sin screens**, or the number of **environmental screens** do not have any significant Impact.

Unfortunately, they do not test for a curvilinear relationship.

For the purpose of the study, it will be assumed that funds focusing on environmental and governance screens have a positive effect and social screens a negative effect on performance. This might lead to a methodological bias for 4 of the Impact funds selected, with 2 funds focusing on social companies and 2 funds focusing on environmental companies (cf. appendix 12).

1.1.4. Conclusion on Performance

In conclusion, the link between SRI and financial performance is difficult to quantify because it is very influenced by the research methodologies used and by certain management choices listed hereunder:

Table 4: Factors influencing the relationship between SRI and financial performance (adapted from Revelli and Viviani, 2011)

	Positive Impact	Neutral Impact	Negative Impact
Arguments	Shareholder engagement. Learning effect. Information effect.		Diversification effect. CSR and monitoring costs.
Measurement of performance	Standard performance as average returns	Risk-adjusted monofactorial models and multifactorial models	
Comparison methodology	Own SRI portfolio compared to conventional indices	Already existing SRI funds compared to conventional funds and compared to conventional indices	
Period		Medium Term (10-19 years)	Short term (-5 years)
Sample size	Large sample (more than 100 securities)	Small sample (less than 20 securities)	
Geography	US SRI market	French and Canadian SRI market	English and European SRI market
Asset Class	Bonds or diversified allocation		
Type of screens	Environment and Governance screens	Social screens	
Number of screens	At lowest and highest number of screens	Number of ethical screens, sin screens, environmental screens	Number of social screens

Source: Revelli, C. and Viviani, J.-L. (2011). Les déterminants de l'effet de l'ISR sur la performance financière : une analyse statistique de la littérature empirique. *Management & Avenir*, 4 (44). 34-59. DOI: 10.3917/mav.044.003, p.50.

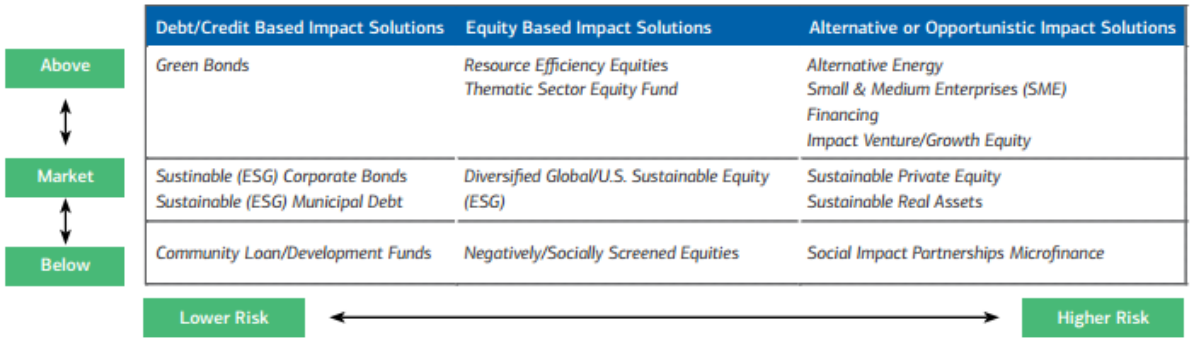
Although this literature review was mostly based on publications describing SRI and not Impact Investments specifically, some factors influencing the performance can also be applied to Impact Investments. This is why they will be taken into consideration during the creation of our sample and of our framework, except for the period of observation and for the type and number of screens.

1.2. Risk

When talking about SRI, an additional and obvious question arises: Do non-financial data lead to better risk characteristics of a portfolio? The same question holds for Impact Investing too. To answer this question, factors that lead to additional risks and then, factors that mitigate the risks of Impact Investment will be presented. In addition, risk-adjusted returns will be also quickly introduced thanks to the Minimum-Variance portfolio theory of Markowitz.

While some Impact Investors believe that Impact Investments require lower returns, the others believe that they are generally riskier than traditional investments (Snider, 2016). This perception is partially justified because, until now, Impact Investments have focused on higher risk opportunities since early players and pioneers in Impact Investing were ready to bear the risk that no one else were willing to bear. However, this need for high risk does not exclude the opportunity to broaden the market and create Impact through lower-risk investments. As showed in the representation below (Snider, 2016), **Impact Investing universe across public and private investments has a broad range of potential investments' risks and returns.** For example, investors in alternative energy are expecting a higher return because it is a high growth sector. Conversely, there are investors who accept a below-market rate of return or who opt for an undeveloped sector which creates risk but may also produce huge social Impact like investments in microfinance. In the second column of the table, we can see that Snider (2016) ranks thematic equities followed by diversified ESG equities and finally negative screened equities from above to below returns but with the same level of risks.

Figure 11: Range of risk and return profiles for Impact Investments (Snider, 2016)



Source: Snider, A. (2016). Impact Investing: the performance realities. Bank of America Merrill Lynch. Retrieved from https://mlaem.fs.ml.com/content/dam/ML/Articles/pdf/ml_Impact-Investing-the-Performance-Realities-Whitepaper.pdf, p. 11.

1.2.1. Risk taxonomy of Impact Investing

In an investment context, risk is **the probability that the performance of an investment will be different than expected** (translated from Van Wynendaele, 2016, p.40). This is why the most common measure of risk is the standard deviation or the volatility, which is the propensity of the unexpected to deviate from the expected average return. The more we deviate from the expected average, the higher the volatility, the less returns are predictable and therefore the greater the risk of an investment.

After a brief definition of the volatility (cf. infra p. 53 for the measurement method), let's cover the factors that lead to higher risks for Impact Investments. According to J.P. Morgan (Saltuk and Ei Idrissi, 2012, p.7), "on an individual investment basis, the risks that arise for Impact Investments are often the same risks that would arise for a traditional investment in the same sector, region or instrument". The risks that Impact Investments bear are therefore not necessarily greater than traditional investments (in regard to financial risk, market risk, currency risks, etc.). But they often are different, and understanding what those risks are is critical.

The traditional risks of an investment are presented in appendix 6 and some additional risks of an Impact Investment are presented in appendix 7. Barby and Gan (2014) listed five risk factors Impact Investors are to face:

1) Capital risk

Capital risk is the risk of losing some of the original invested amount. Impact Investors are more concerned about the loss of principal (downside risk) than about the return potential (risk of not generating upside). Indeed, some are behaving as Impact-First investors (willing to sacrifice some or all yield for the sake of high Impact) but only if their principal, or a significant portion of their principal, is protected.

In short, expectation for Impact Investors is: **Capital preservation**.

2) Exit risk

Since Impact Investments are less established and unfamiliar, smaller and more "specialised", Impact Investment fund managers face greater challenges selling or transferring their Impact assets. Nevertheless, this risk is actually a core principle for the early pioneers of Impact Investing: the principle of "patient capital". Indeed, Impact Investors pioneers argue that building successful Impact business models often require investors to wait longer, with greater patience, to realise their returns. However, with Impact mainstreaming, many investors now wish more flexibility to sell their investments, for example, to better manage cash flow needs on the short-term.

In short, expectation for Impact Investors is**: Sufficiently liquid investments to meet uncertain cash flow demands.**

3) Unquantifiable risk

Risk is usually perceived as something "quantifiable". When asset owners consider an investment product, they will look at a variety of data-points (such as historical performance or volatility) in order to estimate how an investment will perform over time. What an asset owner cannot quantify, however, is the probability of risk factors to occur. We call this "unquantifiable risk".

Unquantifiable risk applies to situations in which the world is not well-charted. Since Impact Investment is not yet a mainstream strategy, asset owners can find quantifying the level and type of risks involved particularly challenging. Risk is a matter of understanding. And today, there is a "black box" when it comes to Impact Investing.

In short, expectation for Impact Investors is: **Minimal "unknowns" and an understanding of risk factors that are relevant to an investment.**

4) Transaction cost risk

Asset owner usually incurs transaction costs for each investment made (the time and money spent on monitoring the asset). And institutional investors typically make large-sized investments in mainstream capital markets. But the current small deal-size of Impact Investments does not coincide with the investment universe of institutional investors. There is thus a transaction cost risk, knowing that the smaller the transaction, the greater the risk that these costs will be out of proportion compared to returns.

So, expectation for Impact Investors is: **Transaction costs in proportion with potential returns.**

5) Impact risk

Impact risks can take various forms. For example, the GIIN (Mudaliar, Schiff and Bass, 2016) defined this risk as the possibility that the investment does not achieve the desired social or environmental Impact. Impact risk is then slightly comparable to **ESG risk** which is the risk derived from noncompliance with environmental, social, or governance criteria. Another example is the fact that the investment may create positive change for its target beneficiary but a negative change for other stakeholders, which reduces its "net Impact" (cf. infra p. 34). Besides, given the difficulties in measuring social and environmental Impact, investors may be exposed to inaccurate assessment of social and environmental Impact. This is called **Measurement and Reporting Risk.**

In addition, the Impact Investments need to demonstrate that the investor's sacrificed financial return will generate equivalent or superior positive outcomes relative to other alternative investments.

In other words, the expectation of Impact Investors is: **Impact evidence that is sufficiently robust to justify diversion of funds from other opportunities.**

Although those 5 typical Impact Investing risks are not all financial and measurable, we can consider that there are implicitly include in the volatility measure of the investments. By the way, improvements are also in this matter with, for example, the apparition of the Climate Value-At-Risk, which helps investors to assess future costs related to climate change and to understand what those future costs could mean regarding the current valuation of securities (Carbon Delta, 2017).

1.2.2. Extra-financial data mitigate risk

Besides the 5 factors leading to more risks, there are also factors that mitigate risks. Some Impact Investors believe that the use of Impact data reduces portfolio volatility. It seems that Impact data help managers to identify risks beyond the balance sheet, as for other SRI Strategies (Snider, 2016). Indeed, forty years ago, tangible assets (e.g. property, factories and equipment) made up more than 80% of the value of the S&P 500 companies. Today, that ratio has been reversed, with 80% of value being intangible assets (e.g. intellectual property, human capital, Research & Development, reputation, brand awareness and perceptions of a company's effect on society and the environment). Consequently, non-financial measures are key to the evaluation of any company.

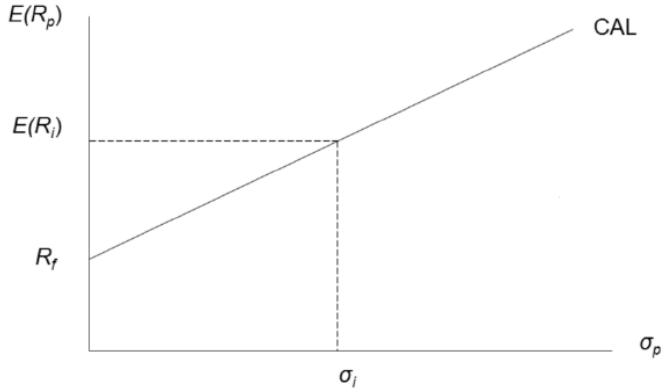
And ESG-related criteria also help to improve traditional financial analysis by increasing an investor's ability to assess risks outside of the balance sheet. There is a wide range of ESG-related risks that companies face. Issues such as climate change, health and safety concerns, and issues with transparency or governance can have a direct financial Impact, as the scandal of Volkswagen in 2015. Its loss of reputation has translated into lower sales and lower valuation. Therefore, **when used alongside traditional financial and risk analysis, this extra-financial data can lead to better investment decisions.**

The managerial literature also empowers this. For Sharfman and Fernando (2008) (quoted by Revelli and Viviani, 2011), taking into account SRI criteria leads to better risk management which in turn leads to better financial performance. A study by Breckenridge (n.d.) (quoted by Snider, 2016) claimed that companies managing their ESG risks tended to have more stable credit risks and lower earnings volatility. Another study published by Deutsche Bank Climate Change Advisors (2012) (quoted by Snider, 2016) argued that companies identified as having high CSR or ESG rankings have had a strong correlation with superior risk-adjusted securities returns.

1.2.3. Risk-adjusted returns

As we have seen in the contextualisation, Finance-First Impact Investors are risk-averse investors looking for competitive risk-adjusted returns (cf. supra p. 14). According to Markowitz and his 1952 minimum-variance portfolio selection theory or **M**odern **P**ortfolio **T**heory (MPT), the higher the return, the higher the risk and vice-versa. This is illustrated by a straight **C**apital **A**llocation **L**ine:

Figure 12: The Capital Allocation Line (Piret, 2016)

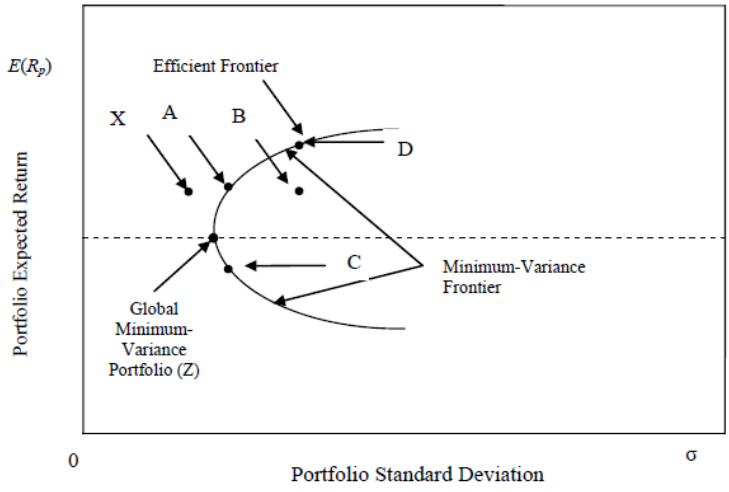


Source: Piret, X. (2016). *Portfolio risk and return*. Powerpoint. Université Catholique de Louvain, Mons, p. 25.

The **C**apital **A**llocation **L**ine (CAL) displays the risk of risky and risk-free assets and the return that an investor might possibly earn by assuming a certain level of risk with its investment. The slope of the Capital Allocation Line is called the reward-to-variability ratio as the expected return increases continually with the increase of risk (Piret, 2016).

In addition, according to Markowitz, the investor is expected to maximise the return expected from his investment for a given risk or, conversely, to minimise the risk of his investment for a given expected return (quoted by Hull, 2007). The decision will depend on the risk aversion of the investor, on his efficient frontier. The **"efficient frontier"** presents the expected risk-return for each fund or portfolio and presents the optimum return for a given level of risk. In other words, it is 'the optimal trade-offs for an investor between expected return and standard deviation of return" (Hull, 2007, p. 518).

Figure 13: Minimum- Variance Frontier (Piret, 2016)



Source: Piret, X. (2016). *Portfolio risk and return*. Powerpoint. Université Catholique de Louvain, Mons, p. 31.

Firstly, thanks to figure 13, we will illustrate the fact that risk-averse investors seek to minimise risk for a given return. Consider points A, B, and X and assume that they are on the same horizontal line as they have the same expected return. Then, an investor will choose the point with a minimum risk,

which is point X. Point X and all points left to A, however, are unachievable because they do not belong to the investment universe. Thus, the minimum risk that we can reach for the same return is at point A. Point B and all points right to A are feasible but they have higher risk. Therefore, a risk-averse investor will choose only point A, prior to any other portfolio with the same return.

Similarly, **investors seek to maximise return for a given risk.** Consider points A and C and assume that they are on the same vertical line and that they bear the same risk. Then, points to the right of C and to the right of A share higher risk. Here, the investor will prefer the point A to C, as A has higher return for the same level of risk.

We can extend the above analysis to all possible returns and we can find that all minimum variance portfolios are on the curve referred as the *minimum-variance frontier*. **The minimum-variance frontier defines the smaller set of portfolios in which investors would want to invest (Piret, 2016).**

The very left point on the minimum-variance frontier is **the portfolio with the minimum variance among all portfolios of risky assets, and is referred to as the *global minimum-variance portfolio***. An investor cannot hold a portfolio less risky than the global minimum-variance portfolio. Portfolios on the lower curve and to the right of the global minimum-variance portfolio are not profitable and are not efficient portfolios for any investor.

Consequently, the curve above and to the right of the global minimum-variance portfolio is referred to as the ***Markowitz efficient frontier*** **because it contains all portfolios of risky assets that rational, risk-averse investors will choose (Piret, 2016)**.

Within this thesis, the global minimum-variance fund (which is thus the fund that lies the most northwest on the line) and the efficient frontier will be used in order to visualise where the SRI funds lie and where the asset managers can fill in the gaps on the efficient frontier. In addition, risk-adjusted return measurement will be used as the Sharpe ratio, the Treynor ratio and the Jensen's Alpha (cf. infra p. 50-52).

1.2.4. Conclusion on Risk

In conclusion, the risk of Impact Investments is often misunderstood. It is believed that such assets are generally risky while there is actually a broad range of assets along the complete risk/return spectrum.

It is true anyway that some factors lead to additional risks for Impact Investments compared to traditional investments (capital risk, exit risk, unquantifiable risk, transaction risk and Impact risk) but also that extra-financial data exist to mitigate those risks. Indeed, Impact and ESG data allow a broader holistic view beyond the balance sheet and thus lead to better risk management.

The challenge now is to find which SRI strategy has the best volatility, the best risk-adjusted returns, the best Global Minimum Variance and the best efficient frontier in order to satisfy risk-averse and Finance-First Impact Investors.

It is also important for investors to acknowledge that Impact Investing is still in its early stage and that thus has poor performance history. However, data availability and standardised frameworks are still evolving and Impact Investing is to undergo multiple improvements in coming years. While some of the risks factors will remain true, investors are likely to develop better processes for recognising and dealing with these risks factors. In the end, Impact Investing's development over time should erode some of the risks associated with its early stage and ecosystem.

1.3. Impact

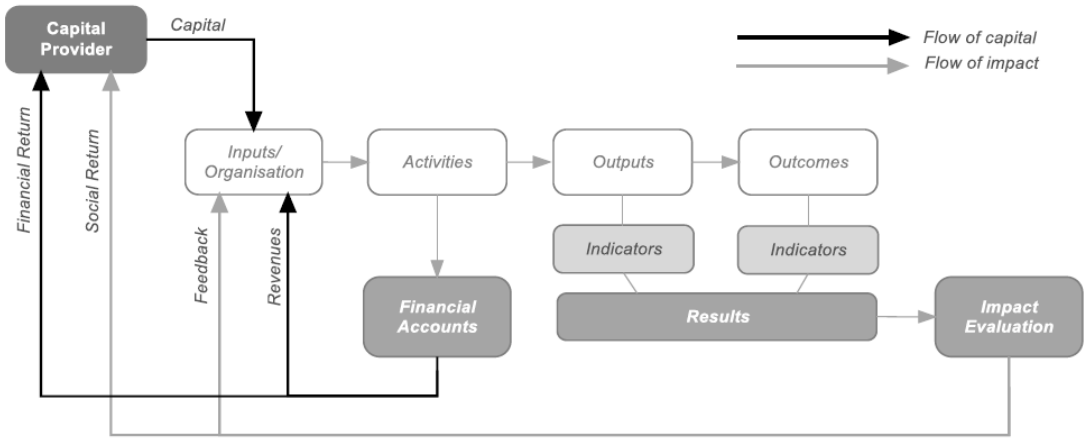
One of the key principles of Impact Investing is the measurability of the social and environmental Impact of investments. However, even if there have been significant developments in measurement standards, it remains challenging to develop comparable measures across projects and companies. Nearly no Impact frameworks are used globally. Impact Investors are challenged by defining WHAT to measure and HOW to measure the identified parameters?

1.3.1. WHAT to measure?

To provide a simplified overview of what needs to be measured, the picture below, adapted from Hornsby (2012) (quoted by Brandstetter and Lehner, 2014), illustrates the main connections along the "Impact Value Chain", where each element is defined as follows:

1. **Inputs**: resources invested in the activities (e.g. 50.000 capital invested, 5 people working on the project, etc.)
2. **Activities**: concrete operational actions (e.g. land bought, school built)
3. **Outputs**: Tangible products and services produced from the activities (e.g. new school built with 32 places and courses)
4. **Outcome**: changes resulting from the outputs, the effect of outputs on improving people's lives (e.g.: 24 students gaining better numeracy and literacy skills)
5. **Impact**: needs to be assessed in terms of outputs and outcomes adjusted for what could have happened anyway (e.g. New school in the area and a number of students gaining better education)

Figure 14: Measurement needs along the Impact Value Chain (adapted from Hornsby, 2012)



Source: Brandstetter, L., Lehner, O. M. (2014), *Impact Investment Portfolios: Including Social Risks and Returns*. Oxford: ACRN Oxford Publishing House. Retrieved from http://ssrn.com/abstract=2519671, p. 28.

In addition, in an article "When can Impact Investing create real Impact?"(Brest and Born, 2013), a distinction has been made between three parameters of the Impact:

1. **Investment Impact:** which is the financial contribution of the investor to the social value created by a company. To have an investment Impact, investment must lead to a quantity or quality of social output that the company would not have achieved without.
2. **Non-monetary Impact**: which is the various contributions that the investor can make to the social value, as for example: sharing expertise, providing technical and governance assistance to companies, helping them to build strategic relationships or securing and protecting the company's social mission.

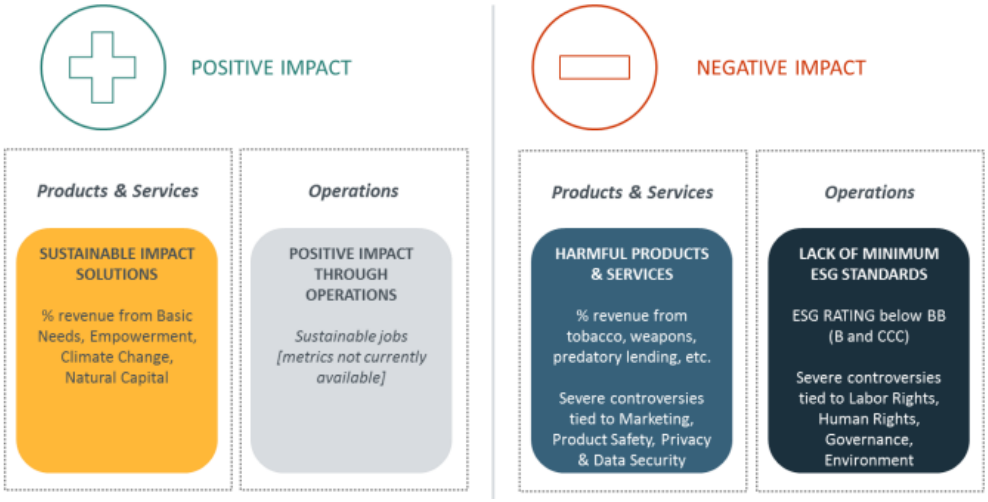
3. **Enterprise Impact:** which is the social value of the products or services offered by a company. We will then have Impact as: greenhouse gas emissions, water consumption, waste generation, energy consumption, etc. A company can have an Impact in 2 ways:
    - **Product Impact:** the Impact of goods and services produced by the company.
    - **Operational Impact:** the Impact of the company through its management practices on employees' health, on the community, on the environment, etc.

This distinction between products and operations is important and is also supported by KBC and the MSCI ESG Research (Menou and Nishikawa, 2016). According to KBC, companies included in their Impact Investing fund are selected on basis of WHAT the companies produce and not on HOW the companies produces (cf. supra p.11).

Then, according to the MSCI ESG Research, few publicly listed companies are "pure players" and exclusively focused on providing social or environmental solutions. Consequently, the MSCI outlines a framework to measure "**net sustainable Impact"** and to help identifying companies whose core business model is linked to sustainable Impact themes while, at the same time, aiming to limit negative Impacts:

1. **Sustainable Impact solutions:** Investors may choose to apply different revenue thresholds to define a sample of companies exposed to sustainable Impact solutions. For instance, some investors may require a company to derive the majority of its revenues (more than 50%) from Impact themes in order to be considered as an eligible candidate. Whereas other investors may be comfortable lowering the threshold to 20% in order to widen the opportunity set.
2. **Positive Impact through operations:** Investors may also take into account the positive Impacts generated by companies through their operations, for instance through the provision of sustainable jobs.
3. **Harmful products and services:** When dealing with diversified companies, thus not pure player companies, it may be important to consider the potentially offsetting negative Impacts of their remaining products and services. For instance, the provision of treatments for major diseases may be offset by the provision of harmful products such as tobacco.
4. **Minimum ESG standards:** Investors may offset negative Impacts generated through companies' operations by requiring that they adhere to minimum ESG standards. Here again, some may apply more restrictive standards than others.

Figure 15: Key Considerations to measuring Net Sustainable Impact (MSCI ESG Research, 2016)



Source: Menou, V. and Nishikawa, L. (2016). *Toward sustainable Impact through public markets: A Framework to Align Investments with the UN Sustainable Development Goals*. MSCI ESG Research. Retrieved from https://www.msci.com/documents/10199/23bf87bc-df61-4d2d-8e17-468c92c26b38, p.17.

However, this kind of framework is not used by every asset manager mainly because of **3 challenges for Impact Investing through public equities** (Menou and Nishikawa, 2016)**:**

1. **Intentionality:** It is difficult to select and weight equities with high exposure to sustainable Impact solutions.
2. **Measurability:** While measuring company exposure to Impact themes can be a first difficult step measuring its outcomes may be more challenging, given current data availability.
3. **Additionality:** It is difficult to measure the investment Impact as stock typically is purchased from existing shareholders and may not directly provide new working capital to companies. However, non-monetary Impact can still be possible through active ownership and engagement.

In the article on "How can the sustainability Impact of SRI be measured?" (Vakhidova, 2012), additional challenges are presented:

1. Measures are on outputs and not outcomes.
2. How can the Impact be attributed to investment? It is indeed difficult to identify what would have happened without this investment.
3. Financial and non-financial reporting lacks "consistency, materiality, standardisation, accountability, transparency and comparability of data". (Vakhidova, 2012, p. 22).
4. It seems to be feasible for small-scale enterprises, but what about multinationals?

Overall, techniques are very limited and this last article suggests to wait for best-practices. However since 2012, many initiatives were launched.

1.3.2. HOW to measure?

According to the GIIN study (Mudaliar, Schiff and Bass, 2016), 95% of the 158 respondents expressed that it is "very important" to measure the Impact. The problem is that information on Impact is often missing or lacks accuracy. increasing number of data-providers all set their own definitions and methodologies which makes the comparison difficult. This is why, according to the GIIN (Mudaliar, Schiff and Bass, 2016), 65% respondents reported using **their own proprietary metrics and frameworks** instead. Another 65% respondents reported using metrics that are aligned with **IRIS** framework and 37% of respondents use standard frameworks such as **GIIRS, GRI, Social Return on Investment**.

1) Impact frameworks

As introduced here above, there are some new initiatives for Impact measurement and Impact reporting here presented:

1. **IRIS**, the Impact Reporting and Investment Standards of the GIIN, was developed to provide a standardised **catalogue of Impact metrics** describing the social, environmental and financial performance of both outputs (products, services or facilities resulting from activities such as the number of toilets built per school) and outcomes (the changes, the benefits or learnings resulting from activities such as improved education). Each IRIS metric is set with a definition and user guidance, enabling investors to compare performance indicators across a portfolio, within specific sectors or investment objectives (IRIS, 2017 and Brandstetter and Lehner, 2014).
2. **SROI**, the Social Return On Investment nowadays promoted by the SROI Network, lists principles for **assigning a dollar value to the social, economic and environmental outcomes** of an activity or organisation. In order to weaken the argument that value is subjective, the concept

suggests taking into account perceptions of different stakeholders. Capturing the value of an activity or outcome from those stakeholders' perspectives equals the valuation principle of stock markets where buyers and sellers agree on a price. Moreover, if appropriate financial values for the outcomes cannot be easily identified, SROI uses proxies for detecting positive social change and potential negative consequences. However, from a technical point of view, Arvidson, Lyon, McKay, and Moro (2010) (quoted by Brandstetter and Lehner, 2014) argue that there are no considerable differences between classical cost-benefit analysis and SROI.

3. In addition, the **GRI,** the Global Reporting Initiative, provides **guidelines for measuring and reporting economic, environmental, social and governance performance** (GRI, n.d.).

However, IRIS, SROI, GRI initiatives are limited to the creation of a metric framework. But in terms of the data collection, analysis and reporting of performance, other tools are needed as for example the GIIRS, the ImpactBase, the ImpactAssets 50 or the new Climetrics:

1. **GIIRS**, the Global Impact Investing Rating System, is a **rating agency and analytics platform** powered by the B Impact Ratings System. Using key performance indicators and the IRIS taxonomy, they **assess the social and environmental Impact of companies and funds** on four performance areas: governance, workers, community and environment.
    - For companies, a GIIRS rating is comprised of an overall score and two ratings: one for its Impact models (business models that are specifically designed to solve social and environmental problems) and one for its operations (the Impact of the business in how it operates).
    - For funds, a GIIRS rating is comprised of a fund manager assessment rating and two investment ratings. The fund manager assessment covers fund's policies and practices in deploying and managing its capital. The investment ratings are weighted averages of the portfolio companies' Impact business model and operations ratings based on the amount invested in each company **(**Brandstetter and Lehner, 2014**).**
2. Thanks to the **ImpactBase**, investors can seek for funds and products across Impact themes, asset classes, geographies, and other criteria via an online platform. The investors then get the fund profile that includes key attributes such as fund Impact objectives, investment style/stage, fundraising status, committed capital, minimum investment size, etc. It includes Public Equity portfolios where Impact is at the core of the portfolio and can be demonstrated beyond SRI or ESG screening (ImpactBase, 2017).
3. The **ImpactAssets 50** is a database of Impact Investing fund managers allowing investors to begin research on the Impact Investing sector and to discover 50 Impact Investing firms, both private debt and equity fund managers. Those 50 firms are selected according to a set of criteria such as managers' scale in terms of Asset Under Management; the commitment to Impact; the representation of a range of approaches, of asset classes and of Impact areas, etc. (ImpactAssets, 2014).
4. And finally, on the 6th of July 2017, Climate-KIC, CDP and ISS-Ethix Climate Solutions launched the world's first climate Impact rating for equity funds called "**Climetrics**". In the future, this will allow investors to compare the climate Impact of funds thanks to a rating from 1 to 5, symbolised by green leaves. This rating is produced thanks to a three-level score: the **fund's portfolio score** (measuring the climate Impact of all individual companies in which the fund is invested); an **asset manager score** (identifying asset manager action on integrating climate change into their governance and investment processes) and **a fund policy score** (identifying funds with a specific ESG mandate). Currently, Climetrics covers more than 55% of the assets invested in equity funds that are currently for sale in Europe and 2500 funds are already rated by Climetrics (Climate-KIC,

2017). For example, Triodos Pioneer Fund has a rating of 4 and Triodos Equity Fund has a rating of 5.

Unfortunately, for now, very few companies and funds report their Impact performance and it is difficult to access to such databases. Therefore, in the future, MSCI ESG Research (Menou and Nishikawa, 2016) suggests to embrace following considerations:

1. **Simplicity:** Simple metrics enables communication with a broader audience.
2. **Comparability**: Investors are interested in measuring outcomes at a portfolio level, making it important to use metrics that are comparable across sectors.
3. **Relevance**: The desire for comparison should not outweigh the specific aspects of each sector and the need to use metrics that are relevant for a particular industry or region.
4. **Aggregation**: Companies tend to report performance metrics at the project level. But for Impacts to reach scale, metrics should be consolidated at company and portfolio levels.

2) SDG frameworks

In addition to those frameworks and following a market consultation with 23 of the world's leading asset owners and managers, **"the UN Sustainable Development Goals (SDGs) emerged as the most credible external framework for defining Impact"** (Menou and Nishikawa, 2016, p.6). The SDGs, adopted by 193 member states of the United Nations on September 25th, 2015 and built on the Millennium Development Goals, comprise 17 core goals that all togehter provide a roadmap to a sustainable future and more prosperous world. Those goals range from ending hunger to combatting climate change, with a total of 169 targets to be reached in 2030 (Sustainable Development, 2015).

Roughly one year after the SDGs launch, **26% of the 209 Impact Investors responding to the GIIN survey of 2017 reported that they actively track the performance of some or all of their investments with respect to the SDGs and another 34% of respondents plan to do so in the near future.** And here are their reasons for doing so: SDGs help communicate about Impact (78%), there is value in integrating it into the global development paradigm (75%) and SDGs help to set appropriate Impact objectives (45%). Fewer investors cited reasons related to deal-making, such as attracting investors or investees (38%), identifying co-investors or co-investment opportunities (18%) or conceiving new investment opportunities (16%) (Mudaliar, Schiff, Bass and Dithrich, 2017).

Considering this increasing interest, Eurosif even argued that "Impact Investing" will become "**SDG Investing"**. The Eurosif recently launched a survey (2017) asking investors which of the SDGs are the most meaningful in terms of increasing investors' Impact and **which strategy was the most relevant for the SDG objectives.** The result for the latter is that the most relevant SRI strategies are Impact Investing, Sustainability Themed investments and ESG Integration. Impact Investing is SDGs favourite as it offers the possibility to quantify the Impact and outcome of a particular strategy. Sustainability Themed investments are still very much associated with climate objectives and therefore indicate a positive correlation with SDG 13 (climate action). Those in favour of ESG Integration mainly named the importance of taking a holistic approach and consequently to include the SDGs.

Concerning the most relevant SDGs, according to the Eurosif survey (2017), the focus lay with the undisputed SDG 13 (climate action) but also 6 (clean water and sanitation), 5 (gender equality), 7 (affordable and clean energy), 8 (decent work and economic growth), 9 (industry, innovation and infrastructure), to a lesser degree SDG 12 (responsible consumption and production). In terms of percentage, among the 26% of the GIIN respondents that track the performance of their investments with respect to the SDGs, a large majority target **SDG 8: Good jobs and economic growth (82%) but also SDG 7: Renewable energy (62%), SDG 1: No poverty (58%), and SDG 5: Gender equality**

(55%). On average, investors targeting the SDGs tracked about seven of the goals (Mudalia, Schiff, Bass and Dithrich, 2017). The complete list of the SDGs tracked by investors is in appendix 8.

But implementing those SDGs requires breaking the goals down into metrics and having data to measure performance against these. This is not easy and it will require time and effort for meaningful data to be produced. But progress is being made and **MSCI ESG Research, RobecoSAM (both in appendix 9), Morgan Stanley (in appendix 10) and many other institutions have developed new frameworks to support alignment with those SDGs.** For example, the Dutch SDG Investing (SDGI, 2016) confronted private equities, fixed income, public equities funds with SDGs. As illustration, here is reported public equities concerned by our analysis:

Table 5: Illustrative available SDG retail products in the Netherlands (adapted from SDGI, 2016)

Public equity	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
NN global sustainable opportunities	X	X	X			X	X	X	X	X	X	X	X			X	
RobecoSAM Global Child Impact Equities				X													
RobecoSAM Global gender equality Impact equities					X					X							
Triodos Sustainable pioneer fund			X			X	X					X	X				

Source: The Dutch SDG Investing Initiative (2016). *Building highways to SDG investing*. SDGI. Retrieved from https://www.sdgi-nl.org/report/, p. 35.

Note that, as said in the general introduction (cf. supra p.1), to achieve the 17 Sustainable Development Goals by 2030, governments and society will have to raise capital. According to the United Nations Environment Program (UNEP), up to $7 trillion in annual investment in infrastructure, green energy, water and sanitation will be needed to meet the SDGs by 2030 (quoted by RobecoSAM, 2016). However, **the cost of $7 trillion will be offset by opportunities of $12 trillion**. Indeed, a recent report launched by the Business and Sustainable Development Commission (2017) concludes that meeting the goals in just 4 out of 60 sectors (food and agriculture, cities, energy and materials, and health and wellbeing) could open up market opportunities worth up to $12 trillion a year in less than 15 years.

3) ESG frameworks

However, possible SDG frameworks are only emerging and is only valid only for the Impact Investing strategy. For this thesis, we therefore need a more recognised framework and available for Best-In-Class and thematic strategies as well, namely the ESG framework.

Today, according to Sustainable Insight Capital Management (SICM, 2016), investors are putting a lot of faith in Environmental, Social and Governance (ESG) ratings. Consequently, governments, regulators and stock exchanges are encouraging more ESG data disclosure and, crucially, the standardisation and verification of such data.

According to the CFA Institute (2015) (quoted by SICM, 2016), **73% of professional SRI and non-SRI investors say they take ESG factors into account and that they get ESG data through public information (75%), third party research (66%) and company reports (64%).** Today, there are more than 100 third party organisations providing ESG ratings and research. Some of the leading ESG research companies includes **Bloomberg**, MSCI, RepRisk, Sustainalytics and Thomson Reuters. There are also several specialist firms including CDP, Oekom, South Pole Group, Trucost, and VigeoEIRIS. Consequently, it is a fast-evolving and extremely competitive market and the influence of the ESG rating agencies will probably grow.

In the case of **Bloomberg**, it provides data on more than 120 indicators for over 10.000 publicly-listed companies globally. The ESG Disclosure Scores rate companies based on disclosure of quantitative and

policy-related ESG data collected from company-sourced filings such as CSR reports, annual reports, company websites and a proprietary Bloomberg survey that requests corporate data directly. Companies are evaluated annually and are rated on a scale from 0 to 100.

The problem with Bloomberg (and some other ESG rating agencies) is that it gives only ESG scores for public equities and not for funds. An alternative is to use the **Morningstar sustainability rating** (appendix 11) which is "a measure of how well the holdings in a portfolio are managing their environmental, social, and governance, or ESG, risks and opportunities relative to their Morningstar Category peers" (Justice and Hale, p. 1). The rating is calculated based on portfolio ESG score and portfolio involvement in ESG-related controversies. And the portfolio ESG score is an asset-weighted average of company-level ESG scores from Sustainalytics, a leading provider of ESG research.

One must keep in mind that ESG data were initially created to assess the Impact of Best-In-Class strategy and they are therefore not the best measurement of the Impact for the Impact Investments and Thematic investments. For example, the ESG framework does not distinguish the operational Impact and the product Impact. All in all, it is thus necessary to complete the Bloomberg ESG disclosure scores with other analysis such as the SDGs, especially for the Impact-First Impact Investors.

1.3.3. Conclusion on Impact

One of the key principles of Impact Investing is the measurability of the social and environmental Impact of investments. However, even if there have been significant advancements, Impact Investors are still challenged with what to measure and how.

There are indeed important distinctions to make between for example the outputs, the outcome and the Impact or between the investment Impact, the non-monetary Impact or the enterprise Impact or also the product Impact or the operational Impact. Depending on the Impact Investors, its definitions of Impact and its revenues threshold to consider an equity, the "net sustainable Impact" will thus not be same. Moreover, concerning Impact Investing through public equities, there are 3 additional challenges: intentionality, measurability and additionality.

Fortunately, many Impact frameworks have emerged as the IRIS, SROI or GRI. However, it remains a challenge to compare those measures across projects and companies and more importantly to collect those data. This is why the GIIRS, ImpactBase, ImpactAssets and Climetrics databases appear. Unfortunately, for now, very few companies and funds report their performance and it is difficult to have access to such databases. Instead, 65% of Impact Investors in 2016 use their own proprietary metrics and 26% of Impact Investors in 2017 track their performance with respect to the SDGs.

Indeed, the UN Sustainable Development Goals emerged as a credible framework. Eurosif even argues that Impact Investing will become SDG Investing. It seems that the focus lays with the undisputed SDG 13 (climate action) but also SDG 6 (clean water and sanitation), 5 (gender equality), 7 (affordable and clean energy), 8 (decent work and economic growth), 9 (industry, innovation and infrastructure) and to a lesser degree SDG 12 (responsible consumption and production).

But, despite the growing interests for SDGs frameworks in the eyes of Impact Investors, it is still the ESG framework that it is the most used in the eyes of all investors in order to assess the sustainability of an equity. Indeed, 73% of professional investors say that they take ESG factors into account.

In conclusion, although some Impact frameworks have emerged, it is still the ESG framework that it is the most used on the SRI market. Therefore, it become urgent for Impact Investors especially in the public market to build a new framework that allows more simplicity, comparability, accuracy and aggregation.

2. Methodology

This point about the methodology will first present how the selection of funds was made. Then, a simple 3-dimensional return-risk-Impact graph will be presented. However, some investors might need additional information. For example, Finance-First Impact Investors also consider risk-adjusted returns (cf. supra p. 14) and Impact-First Investors also consider SDGs elements (cf. supra p. 37).

The methodology was built on the basis of the literature review described in the last part and on two courses of the Catholic University of Louvain: risk management (given by the professor Mr Pascal Van Wynendaele in 2016) and portfolio management (given by the professor Mr Xavier Piret in 2016). Moreover, some methodological decisions were taken thanks to discussions with Ms. Dumas and other collaborators.

2.1. Selection of 27 funds

To find the funds the most similar to KBC Impact Investing fund, the following screenings were applied in the Morningstar and Bloomberg databases:

1. **Key words:** In order to find Best-In-Class and Thematic funds, several common key words were used. Note that those words were also translated into Dutch and French as there are the official languages practised in Belgium. To find Impact funds, Only the word "Impact" was used both in the title of the funds and in the description of the funds.
2. **Asset managers:** Based on a discussion with KBC Asset Management, 6 Belgian asset managers for Best-In-Class and Thematic funds were selected. KBC considers Axa, BNP Paribas, Candriam, Degroof Petercam, NN, Triodos groups as their main Belgian competitors. In addition, for the Impact Investing strategy, worldwide asset managers were selected.
3. **Asset Allocation**: As explained in the contextualisation, Impact Investing was initially seen as a niche concept that focuses on private market. Subsequently, the range of financial products was extended to more liquid assets with public equities but also other alternative asset classes as crowd-funding (cf. supra p.6). But to avoid the "asset class bias" presented by Revelli and Viviani (cf. supra p. 26), we should only focus on one asset class. And considering that KBC Impact Investing fund is solely composed of public equities, only funds having + 90% equities will be selected.
4. **Geographic allocation:** Considering that the KBC Impact Investing fund has 31,82% of the assets invested in the United States; 25,76% in Eurozone; 18,78% in European countries without euro; 13,50% in United Kingdom; 8,35% in Emerging Asia and 1,78% in Latin America and that according to Revelli and Viviani (cf. supra p. 25), we should avoid the "geographic" bias, we will focus only on funds having a worldwide geographic allocation for the Best-In-Class and Thematic funds. For the Impact funds, we could not apply this same geographic screening due to sample size. Besides, no geographical restriction was applied for the selection of Impact asset managers. Consequently, a geographical bias might apply for the Impact Investing strategy. However, this bias has been limited since we have only selected Belgian managers for the Best-In-Class strategy and for the Thematic strategy.
5. **Period:** We could have used a minimum period of 3 years considering that the KBC Impact Investing fund exists since 2014. However very few Impact funds have operated for so long. Consequently, in order to have a larger sample, the funds must have minimum 1 year of existence. Considering that the youngest fund included (BlackRock Impact US) was created on 5 October, 2015 and that 7 of our selected fund were created in 2015, the risk-return will be assessed only on 1 year.

Table 6: Selection criteria of SRI funds

	For Best-in class and thematic funds in Belgium	**For Impact Investing funds in the world**
Key words (1)	SRI, ESG, sustain, eth, responsib, quality, best, fair, Impact, water, energy, environm, climat, eco, green, clean, food, organic, micro finance, micro credit, renewable, solar, wind, health, women, culture, arts, real estate, property, biotech, bio, social, poverty, hunger, well, education, gender, equality, sanitation, hygiene, human, agri, housing, waste, forestry, infrastructure, transport, carbon, children	Impact
Asset managers (2)	Axa, BNP Paribas, Candriam, Degroof Petercam, KBC, NN, Triodos	No restrictions
Asset Allocation (3)	+90% equities	+90% equities
Geographic allocation (4)	World	No restrictions
Period (5)	Minimum 1 year	Minimum 1 year

However, we have to admit that our selection criteria might be a bit restrictive:

1. **Key words:** By only selecting Impact Investing funds on basis of whether or not they include the word "Impact" in the name of the fund or in the description of the fund, we might have excluded other Impact Investing funds that do not satisfy this criterion such as the "Triodos Organic Growth Fund" or RobecoSAM sustainable water, energy, agribusiness, etc. However, the number of funds omitted is limited and worth the simplicity and objectivity of the selection criteria.
2. **Asset managers:** Many could also stress the fact that KBC actually has other competitors than the 6 cited such as: Argenta, B-Post, Crelan, Van Lanschot, VDK Bank who also promote sustainable investments in Belgium. However, these are smaller players in the SRI field and we can therefore assume that our sample is still representative with the 6 peer asset managers.
3. **Asset Allocation:** In addition, we decided to put an equity threshold at 90% while we could use a threshold at 51% which represent a real "majority". We decided to keep the 90% threshold in order to avoid comparison with bonds that according to Revelli and Viviani are more likely to be linked with outperformance compared to equities (cf. supra p. 26).

After having applied those selection criteria and having suppressed some funds of funds (e.g.: Fundx Sustainable Impact, Candriam Sustainable High), the names of the funds were changed in order to make them shorter and more recognisable. The list of the 27 funds selected (6 Best-in-class,11 Impact and 10 thematic funds) and further information about each fund can be found in appendix 12.

Note that a focus was made on open-end funds with accumulation policies meaning that the incomes are reinvested in the fund, by opposition with distribution policies meaning that the incomes are paid to the investor in cash so that he can use this money for other investments or living expenses.

Only KBC and BNP Paribas offer Impact Investing funds in Belgium that satisfies our selection criteria. However, the other Belgian asset managers do declare having well Impact Investing strategies. Their strategies will be presented in order to position the KBC Impact fund in the Belgian environment:

1. **Axa Investment Managers:** Besides offering different ESG funds, Axa also offers a fund in Impact Investing which aims "to make an intentional, positive and measurable Impact on society" (Axa Investment Managers, para 4). The fund addresses specific themes as education, health, environment and financial inclusion.
   However, this fund was not selected as it is actually made of other funds not all involved in Impact Investments.
2. **BNP Paribas:** "For 12 years, we have developed a range of Impact funds for retail and institutional clients in order to invest all or part of their assets in non-listed social businesses in the field of social inclusion, employment, social and intergenerational housing, microfinance or environment" (BNP Paribas Asset Manager, para 6).
   However, many of those funds focus on non-listed businesses and were therefore not selected except the Parvest Climate Impact fund. This fund has a "thematic Impact" approach while KBC Impact Investing fund does not focus on a particular theme or sector.
3. **Candriam:** Despite having 20% of their total assets invested in SRI, they actually only promote a Best-In-Class approach which has an Impact, defined by Candriam as "direct investments in projects aiming to generate social and environmental benefits".
   Consequently, Candriam has no individual Impact Investing strategy but rather has Impact through their Best-In-Class strategy.
4. **Degroof Petercam:** They are 'Impact Investing advisor" as "we advise you on microcredit, social real estate companies and funds in renewable energies" (translated from Degroof Petercam, para 3).
   So, Degroof-Petercam do not own Impact Investing fund themselves.
5. **NN Investment Partners:** NN does offer an Impact Investing fund called "Global Impact Opportunities". Thanks to it "clients can achieve their financial, social and environmental goals in one investment product" (NN Investment Partners, p. 2). And it does include listed equities. Which means that the fund has "the advantage of being scalable and able to offer accessibility, good liquidity and better transparency".
   In addition, "The type of Impact exposure we are looking for is inspired by the UN Sustainability Development Goals and our own NN corporate values". This shows again how important SDGs are for Impact Investing.
   However, to the best of our knowledge, this fund is currently not available in Belgium (not present on BEAMA OPC list).
6. **Triodos Investment Management:** Triodos is "a globally recognised leader in Impact Investing". "We manage direct investments on behalf of private and institutional investors, ranging from sustainable energy infrastructure to microfinance institutions" (Triodos, para 1). Triodos offers 3 types of Impact funds: Microfinance, Renewables (Energy and Climate) and Organic growth (sustainable food and agriculture).
   Unfortunately, those funds are not composed of more than 90% of public equity.

Before moving to the next section, it is important to understand that **the categorisation of each fund into one strategy might be restrictive.** As explained in the contextualisation (cf. supra p. 4), **some investments may end up in several categories as they may satisfy several strategies and methods at the same time.**

For example, an asset manager could decide to include companies involved in sustainable energy and that achieve high ESG score at the same time. He then combines a Thematic strategy with a Best-In-Class strategy.

Another example is an asset manager that **combines an ESG Best-In-Class approach with an Impact Investing approach.** Meaning that the companies' Impacts are measured both on their operations and on their products.

A last example concerns asset managers that include companies involved in the sustainable management of water and that also measure their Impacts at the same time. They are then **combining a Thematic strategy with an Impact Investing strategy.** This is for example the case for Parvest Climate Impact fund, RobecoSAM Child Impact, RobecoSAM Gender Impact and Schroder Climate Change. More concretely, the Parvest Climate Impact fund is a **"Thematic Impact"** fund and it differs from the Parvest Environment which is just a "Thematic" fund:

- **The Parvest Climate Impact** (2017, p. 1) "allows investors to have a real Impact on global warming issues and to access the companies doing the most to find solutions to these issues". The fund invests in companies having at least 50% of their activity in reducing global warming or adapting to it.
  In addition, they also measure their Impact. For example, "a 10-million-euro investment in Parvest Climate Impact for one year would reduce CO2 emissions by 8.500 tco2 which is equivalent to taking 3.800 cars off the road for a year".
- Whereas **the Parvest Environment fund** does not include any notion of "Impact". It is described as follows (para 1, 2017): "This fund is one of the few SRI funds to invest in each of the six environmental sub-sectors (alternative energies, energy, water treatment and purification, control of pollution, waste management or recycling), while its main competitors limit their investments to sectors of water and renewable energies". In short, while the first thematic Impact fund argues measuring the Impact, the latest thematic fund does not actually measure it.

To address the confusion about which funds to select in the Impact Investing category, 2 questions are to be answered: **does the fund manager really measure the Impact? And does he measure the Impact of the products or the services and not of the processes or of the business model?**

Despite the limits of the funds' selection and categorisation, this list is still interesting. On common databases as Morningstar and Bloomberg, they gather all the SRI strategies under the same category without any distinction concerning the method. Instead, they should better learn from Febelfin and Financité databases which describe the SRI methods used. But Febelfin and Financité databases should also learn from the TONIIC database in order to extend selection criteria. For example, Febelfin and Financité databases do not precise the percentage of asset allocation and geographic allocation. Those two databases do also only include funds distributed in Belgium. Whereas the TONIIC database does include funds distributed worldwide and specifies the asset allocation and geographic allocation. The TONIIC database also specifies the Impact theme of the asset. However, their SRI strategies categorisation is not as accurate as for Febelfin and Financité.

All in all, **this list of funds bridges the gap between the three types of databases** allowing investors to discover the public equities SRI funds distributed in Belgium and the public equities Impact funds distributed worldwide. The Febelfin, Financité and TONIIC databases are presented in appendix 13.

2.2. 3-dimensional spectrum

In traditional financial analysis, Modern Portfolio Theory evolved as an important tool because it allows investment managers to present information into a graphical representation using just two parameters: risk and return. However, a SRI fund and more importantly an Impact fund does not behave only as a traditional fund and it is thus necessary to add a dimension: Impact. With this additional dimension, Impact Investors are increasingly in need of a framework. **The research below will thus propose a tool to position KBC Impact Investing fund and other SRI funds on a 3-axis graph to see which funds best suit the 3 expectations of Impact Investors: Return, Risk and Impact.**

Graphical formats are important to help visualising and interpreting different results and data. We will thus build our own graphs, inspired by the ones of J.P. Morgan and Aquilian Investments (cf. supra p. 16). **However, graphs can also be "visually difficult" when the number of variables to be displayed is large or when the measurement scales are different**. When searching for alternatives, a form of graph called radar plot or star plot or Kiviat diagram was identified.

In the1970s, Kiviat graphs were introduced and they are now commonly used in a wide range of fields, predominating in business management, as a tool for comparing performance metrics. In general, the common feature of radial plots or Kiviat diagram is that they are a circular graphing method and have a series of rays projecting from a central point, with each ray representing a different variable. The values of the variables are encoded into the lengths of the rays, and the values so plotted are sometimes connected to form an enclosed figure. According to Joan Saary (2008, p. 312), **"radial plots have existed for years as important descriptive tools for multivariate data".**

In addition, according to Pinzger, Gall, Fischer and Lanza (2005), certain requirements have to be met to prevent diagrams to become chaotic with too much information. It is indeed important to normalise metrics to a maximum length to prevent over-sized Kiviat diagrams and to a minimum length to prevent information cluttering in the centre of Kiviat diagrams. **In short, it is important to normalise metrics to the range determined by the minimum and maximum of each variable.**

Furthermore, **the data must be converted uniformly.** Indeed, it is difficult to present different dimensions when their units of measurement and gradation are not the same. In order to make a relevant comparison of these multivariate data, we will thus assign a value from 0 to 10 to each fund and for each dimension. The axes will thus have the same gradation, and the comparison will be favoured. In addition, such a conversion generates the possibility of having a total rating for each fund and a ranking of the different funds. This greatly facilitates the highlighting of champions achieving the highest overall scores.

In the sub-points below, a 3-dimensional graph will be presented. In order to get the **return dimension**, we will use the annualised daily returns of each fund on 1 year. Then, in order to get the **risk dimension**, we will use the annualised volatility on 1 year and finally, to get the **Impact dimension**, we will use the ESG disclosure score of Bloomberg. Each of those dimensions will be defined and then converted on a scale from 0 to 10. Also, the average of the funds inside each strategy will be done in order to simplify the representation. We will thus get 4 lines: one for the Best-In-Class strategy, one for the Thematic strategy, one for the Impact strategy and finally one for the KBC Impact Investing fund.

2.2.1. Return comparison

To evaluate the financial performance of a fund, the first data an investor will look for is usually historical returns. In this study, the first dimension used to compare the funds will thus be the annualised daily return.

1) Method to compute the data

The daily prices from the 5th October, 2015 to the 1st June, 2017 excluding "non-trading days" (in other words, only including "trading days") were collected on the Bloomberg database. Usually returns are presented over 1 year, 2 years or 3 years but because few of the studied funds have been in existence for so long periods, we will only present the return over 1 year. To find the simple daily returns of the fund the following formula is used:

$$R_p = \frac{(P_t - P_{t-1})}{P_{t-1}}$$

With:

- R_p: the simple daily return of the fund
- P_t : the price at the end of the period (on day t)
- P_{t-1}: the price at the beginning of the period (on day t-1)

There are mainly two ways to do the average of the daily returns: The arithmetic mean or the geometric mean. In our case, we will use the arithmetic return as it is easy to compute and it has statistical properties, such as standard deviation. The arithmetic mean is the simple average of all daily returns:

$$\overline{R_p} = \frac{R_{p1} + R_{p2} + \cdots + R_{p\,t-1} + R_{p\,t}}{T} = \frac{1}{T}\sum_{t=1}^{T} R_{p\,t}$$

With *T*: the sample size, the number of daily returns which is here 434 days.

Then, the average return is annualised:

$$Annual\ return = (1 + \overline{R_{p\ on\ the\ period}})^{number\ of\ periods\ in\ a\ year} - 1$$

$$\text{In our case: } Annual\ return = \left(1 + \overline{R_{p\ daily}}\right)^{252\ days} - 1$$

2) Method to convert the data

In order to convert the data from 0 to 10, we will assign a rating of 10 to the fund with the highest return and of 0 to the fund with the lowest return. Then, the following formula will be used for the other funds' ratings:

$$Fund's\ return\ rating = \frac{(Fund's\ return - Minimum\ return)}{(Maximum\ return - Minimum\ return)} X\ 10$$

Table 7: Method to convert the return data

	Annualised daily returns	Intermediary step	Return rating
Fund A (with the highest return)	17,647%	$\frac{[17,647\%-(-13,291\%)]}{[17,647\%-(-13,291\%)]} = 1$	1 X 10 = 10
Fund B (with the lowest positive return)	5,134%	$\frac{[5,134\%-(-13,291\%)]}{[17,647\%-(-13,291\%)]} = 0,5956$	0,5956 X 10 = 5,956
Fund C (with negative return)	-13,291%	$\frac{[(-13,291\%)-(-13,291\%)]}{[17,647\%-(-13,291\%)]} = 0$	0 X 10 = 0

Note that this conversion method is applicable to all measurement with "boundless data" and with negative values. This is called unity-based Normalisation.

2.2.2. Risk comparison

Then, as introduced in the risk literature, the minimum-variance frontier and the efficient frontier are important tools used nowadays (cf. supra p. 31). To build those frontiers, the volatility is needed.

1) Method to compute the data

The volatility is the propensity of the unexpected to deviate from the expected average return. The more we deviate from the expected average, the higher the volatility, the less returns are predictable and therefore the greater the risk of an investment. It is calculated as followed:

$$\sigma_p = \sqrt{\frac{\sum_{t=1}^{T}(R_p - \overline{R_p})^2}{T}}$$

The volatility or the dispersion of returns or the standard deviation is the square root of variance, which is the average squared deviation from the mean. The inputs in the formula are:

- R_p: The daily simple return of the portfolio
- $\overline{R_p}$: Arithmetic average return

The only thing left is to annualise the volatility. We do that by multiplying the daily volatility by the square root of the number of trading days in a year and there are 252 trading days per year, on average.

2) Method to convert the data

The conversion method will be the same as for the returns.

Table 8: Method to convert the volatility data

	Annualised daily volatility	Intermediary step	Volatility rating
Fund A (with the highest volatility)	26,895%	$\frac{[26,895\% - (12,606)\%]}{[26,895\% - (-12,606\%)]} = 1$	1 X 10 =10
Fund B (with a middle volatility)	16,131%	$\frac{[16,131\% - (12,606\%)]}{[26,895\% - (-12,606\%)]} = 0,2467$	0,2467 X 10 = 2,467
Fund C (with the lowest volatility)	12,606%	$\frac{[12,606\% - (12,606\%)]}{[26,895\% - (-12,606\%)]} = 0$	0 X 10 = 0

The general formula will thus be:

$$Fund's\ volatility\ rating = \frac{(Fund's\ volatility - Minimum\ volatility)}{(Maximum\ volatility - Minimum\ volatility)} X\ 10$$

However, if we keep the rating in this format, the smaller the volatility, the smaller the risk rating while we actually want the contrary: the lower the risk, the better the rating. Indeed, as we have seen in the literature, Impact Investors pioneers were ready to bear higher risks. However, nowadays, with the mainstreaming of Impact Investing and the emergence of retail investors, Impact Investors look for lower risks. Impact Investors become risk-averse (cf. supra p. 14). Consequently, we adapt the data and reverse the rating:

Table 9: Method to reverse the volatility rating

	volatility rating	Volatility rating adapted
Fund A (with the highest volatility)	10	10 -10 = 0
Fund B (with a middle volatility)	5,998	10 – 5,998 = 4,002
Fund C (with the lowest volatility)	4,687	10-4,687 = 5,313

The formula will thus be adapted to:

$$Fund's\ volatility\ rating\ adapted = highest\ rating\ of\ 10 - fund's\ volatility\ rating$$

2.2.3. Impact comparison

As explained in the Impact literature, there are many Impact measurement frameworks that are emerging. However, 65% of the asset managers use their own proprietary framework and in addition, they do not disclose the Impact neither of their equities nor of their funds. As an alternative, we decided to keep the traditional ESG framework as it is used by 73% of professional and it simplifies the comparison between the different SRI strategies (cf. supra p. 38).

1) Method to compute the data

Thanks to Bloomberg terminal I had access to Sustainalytics, RobecoSAM and Bloomberg ESG disclosure scores. However, the later was the only one giving not only an ESG total score but also individual E, S and G scores. And as we have seen in the literature, Impact Investors are more interested in Social and Environmental Impact (cf. supra p. 15) and it is thus interesting for them to have this E, S, G breakdown.

The difficulty here is that the Bloomberg ESG score is only available for the equities included in the fund and not for the fund itself. Consequently, in order to aggregate the equities of the funds, we decided to do a weighted average of each ESG score of the equities, as done for the Morningstar Sustainability rating (cf. supra p.39) and for the investment ratings of the GIIRS (cf. supra p. 36).

2) Method to convert the data

After having gathered the Bloomberg ESG score for each equity, we did the asset-weighted average:

Table 10: Method to compute the weighted ESG score

	Weight in the fund	**ESG score**	**Weighted ESG score**
Equity X	0,60	40	$40 \times \frac{0.60}{100} = 0{,}24$
Equity Y	0,40	30	$30 \times \frac{0.40}{100} = 0{,}12$
Fund A	100%		$0{,}24 + 0{,}12 = 0{,}36$

In a general formula:

$$Fund's\ weighted\ ESG\ score = \sum (Weight\ of\ the\ equity \times ESG\ score\ of\ the\ equity)$$

Considering that the ESG score are from 0 to 100, the conversion to rating will be easier. We will here only multiply the ESG weighted score per 10 in order to have a scale from 0 to 10.

Table 11: Method to convert the ESG score

	Weighted ESG score	**ESG Rating**
Fund A	0,36	0,36 X 10 = 3,6
Fund B	0,25	0,25 X 10 = 2,5

Here the general formula is:

$$Fund's\ ESG\ rating = Weighted\ ESG\ score\ X\ 10$$

2.2.4. From fund to strategy rating

And finally, we will compute the average and median ratings for each SRI strategy:

Table 12: Method to compute the total rating

SRI		Return rating	Volatility rating	ESG rating	Total rating
Best-In-Class	Fund A	7	6	7	
	Fund B	8	8	8	
	Fund C	6	8	7	
	Average of A, B, C	**(7+8+6)/3 = 7**	**(6+8+8)/3 = 7,333**	**(7+8+7)/3 = 7,333**	**(7+7,333+7,333)/3 = 7,222**
	Median of A, B, C	**(3+1)/2= 2th term = 8**	**(3+1)/2= 2th term = 8**	**(3+1)/2= 2th term = 8**	**(8+8+8)/3 =8**
Impact Investing	Fund D	6	8	7	
	Fund E	7	6	8	
	Fund F	5	3	5	
	Fund G	4	4	3	
	Average of D, E, F, G	**(6+7+5+4)/4= 6,25**	**(8+6+3+4)/4 = 5,25**	**(7+8+5+3)/4=5, 75**	**(6,25+5,25+5,75)/3 = 5,75**
	Median of D, E, F, G	$\frac{\left(\frac{4}{2}\right)+\left(\frac{4}{2}+1\right)}{2}$ **(2th term +3th term)/2 = (7+5)/2 =6**	$\frac{\left(\frac{4}{2}\right)+\left(\frac{4}{2}+1\right)}{2}$ **(2th term +3th term)/2 = (6+3)/2 =4,5**	$\frac{\left(\frac{4}{2}\right)+\left(\frac{4}{2}+1\right)}{2}$ **(2th term +3th term)/2 = (8+5)/2 =6,5**	**(6+4,5+6,5)/3 = 5,666**

In this illustration, if we only look at the return rating: the Best-In-class median of 8 is higher than the Impact Investing median of 6. Best-In-Class strategy thus has higher return.

When we look at median total rating, the Best-In-Class strategy has a higher total rating of 8 than the Impact Investing strategy with 5,666. The Best-In-Class strategy thus higher 3-dimensional ratings.

In more generic formulas:

$$Average\ rating\ of\ one\ SRI\ strategy = \frac{\sum_{i=1}^{n} rating\ of\ this\ SRI\ funds}{n}$$

The average adds all the numbers in the dataset and divides them by the total number of entries. The median, on the other hand, is the 50% point in the data (the middle value in a list of numbers listed in numerical order from lowest to greatest), regardless of the rest of the data. The average is useful for data that fall under a normal curve because it helps to remove some statistical noise. However, it is common to find extreme data in the dataset and this may alter the final results of the average. Consequently, we will use the median instead.

$Median\ rating\ for\ one\ SRI\ strategy$:

$If\ the\ total\ number\ of\ the\ numbers\ (n) is\ an\ odd\ number, then\ the\ formula\ is$:

$$(odd)Median = \left(\frac{n+1}{n}\right)^{th}\ term$$

$If\ the\ total\ number\ of\ the\ numbers\ (n) is\ an\ even\ number, then\ the\ formula\ is$:

$$(even)Median = \frac{\left(\frac{n}{2}\right)^{th}\ term + \left(\frac{n}{2}+1\right)^{th}\ term}{2}$$

$And\ the\ total\ rating\ of one\ SRI\ strategy$

$$= \frac{Return\ rating + volatility\ rating + ESG\ rating\ of\ this\ SRI\ strategy}{3}$$

Graphically, we will have 4 lines going through each dimension:

1. One line for the Best-In-Class strategy going through return rating, volatility rating and ESG rating,
2. One line for the Thematic strategy going through return rating, volatility rating and ESG rating,
3. One line for the Impact Investing strategy going through return rating, volatility rating and ESG rating
4. And one line specifically for the KBC Impact Investing fund in order to allow a better comparison.

Thanks to this model, we are able to illustrate the 3 expectations of Impact Investors: return, risk and Impact and to solve some challenges as the fact that financial and non-financial reporting lacks "consistency, materiality, standardisation, accountability, transparency and comparability of data" (Vakhidova, 2012, p. 22). Indeed, it improves 3 criteria introduced by the MSCRI ESG Research: Simplicity, Comparability and Aggregation (cf. supra p. 37). However, there is one criterion left which is: Relevance. Indeed, "the desire for comparison should not outweigh the specific aspects of each sector" (Menou and Nishikawa, 2016). This is why it is important to improve the model by adding several dimensions to better understand the contributing factors behind the Impact Investing strategy.

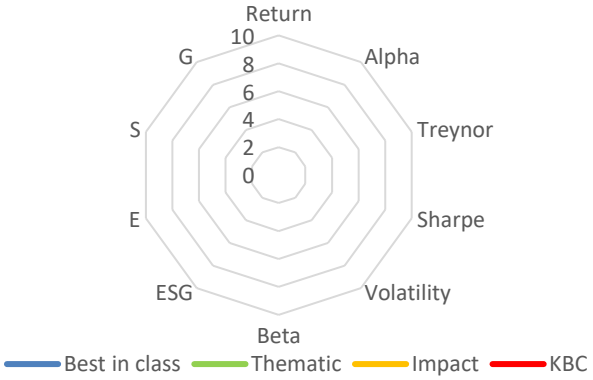
2.3. Multi-dimensional spectrum

As J.P. Morgan, has shown, there is a possibility to expand the 3-dimensional of the graph to a multi-dimensional graph (Saltuk and Ei Idrissi, 2012). Indeed, as explained (cf. supra p. 16), **some investors might prefer a more nuanced framework, that better reflects the contributing factors of each dimension**.

Consequently, we will breakdown the **performance dimension** in 4: 1 average returns and 3 risk-adjusted returns which are Alpha, Treynor ratio and Sharpe ratio because those measures are the most used in performance literature (cf. supra p. 24). Then, we will breakdown the **risk dimension** in 2: the volatility and the Beta. And finally, we will breakdown the **Impact dimension** in 4: ESG score together and E, S and G score individually. In addition, we will add 2 dimensions: SDG breadth and SDG depth as SDGs is the most credible Impact measurement framework for Impact Investing (cf. supra p. 37).

After having gathered the data for those dimensions, we will convert the data on scales going from 0 to 10 in order to facilitate the comparison. And, at the end, we will compute the median of the funds inside each strategy to simplify the representation. We will thus get 4 lines: one for the Best-In-Class, one for the Thematic, one for the Impact strategy and finally one for the KBC Impact Investing fund.

Figure 16: Multi-dimensional spectrum



2.3.1. Performance comparison

In addition to the average returns, we will have 3 risk-adjusted returns: Jensen's Alpha, Treynor and Sharpe ratios, as those measures were the most used in the 53 SRI studies analysed by Wallis and Klein in 2014 (cf. supra p. 24).

1) Methods to compute the data

a) Sharpe ratio

The Capital Asset Pricing Model (CAPM), introduced independently by William Sharpe, John Lintner, Jack Treynor and Jan Mossin and built on Harry Markowitz's earlier work on diversification and Modern Portfolio Theory, is one of the most significant innovation in portfolio theory. According to the model, portfolio's return and standard deviation should lie along a straight line and a higher level of performance should lead to a higher level of risk (cf. supra p. 31). But in his 1966 paper, Sharpe discovered funds that do not respect this CAPM rule. To solve that, Sharpe created a new measure of performance that he calls the reward-to-variability ratio.

The Sharpe ratio calculates performance by focusing on total risk, without differentiating systematic risk from non-systematic risk (cf. infra p.53). It gives an idea of the excess return obtained per unit of total risk taken. To do so, the Sharpe ratio measures the profitability gap between a portfolio's average annual return (assuming normally distributed) and the return of a risk-free investment divided by the standard deviation of the same portfolio (which represents volatility):

$$Sharpe\ ratio = \frac{R_p - R_f}{\sigma_p}$$

With:

- R_p: the return of the portfolio *p*
- R_f: the risk-free rate is the interest rate of government bonds in countries considered as solvent. These securities are said to be risk-free as the probability of default of those governments is extremely low. The risk-free rate per excellence for a fund that invests globally is the rate derived from 10-year United States Treasury note.
  In order to find an appropriate Treasury note, we made a "government bond research" on Bloomberg. From the list, we choose a bond ending in 1 year at the end of the month of June (maturity date on the 30 June, 2018) called the "T 2 3/8 06/30/18".
- σ_p: the volatility of the portfolio *p*, which was defined previously (cf. supra p.46).

The Sharpe ratio is interpreted as follows:

- **A negative ratio** means that the return is lower than the risk taken. The portfolio in question led to a return below the risk-free rate. The situation is "bad".
- **A ratio between 0 and 1** means that the excess-return of the portfolio was obtained through a higher risk taken. The risk is therefore too high for the yield obtained.
- **If the ratio is greater than 1**, the portfolio has an excess return obtained through an ad hoc risk-taking. The outperformance was not taken at the detriment of a too high risk. The situation is "good". Therefore, **the higher the Sharpe ratio is, the better the risk-adjusted return**.

However, the inconvenient of the Sharpe ratio, is that it focuses on total risk. Treynor has thus developed a new ratio which focuses on systematic risk.

b) Treynor's ratio

Sharpe (1966) claimed that, between 1954 and 1963, almost 90% of the variance of the funds that were present in his sample could be explained through its correlation with the Dow Jones Industrial Average. Consequently, to capture the influence of the market returns on the portfolio returns, Treynor substitutes the standard deviation of the Sharpe ratio by the portfolio's Beta:

$$Treynor\ ratio = \frac{R_p - R_f}{\beta_p}$$

With:

- R_p: the return of the portfolio *p*
- R_f: the risk-free rate based on the United States Treasury Note with its maturity date on the 30 June, 2018, called the "T 2 3/8 06/30/18".
- β_p: the Beta of the portfolio *p*, which is the systematic risk (cf. infra p.53). Note that considering that the MSCI world index was the most used by our selected funds, it will be used as our reference market to compute the Beta.

The Treynor ratio measures performance by focusing on systematic risk and not on total risk. This ratio is the excess return that the portfolio has earned relatively to its non-diversifiable, systematic risk, represented by the Beta. This ratio analyses the relative volatility of the portfolio vis-à-vis of the benchmark (and not just portfolio volatility). Therefore, t**he higher the ratio, the more profitable the portfolio. For example, a Treynor 1,5 is better than a Treynor of 0,5 because a Treynor of 1,5 means that the investment has earned an excess return of 1,5 times the level of risk.**

Treynor ratio can be negative for two reasons:

- **The risk-free rate is greater than the expected return and the Beta is positive:** This means that the fund manager failed to get performance better than the risk-free rate.
- T**he risk-free rate is less than the expected return but the Beta is negative:** This means that the fund manager has performed well but that the fund is moving in a opposite direction of the market.

c) Jensen's Alpha

In his 1967 paper, Jensen focused on **the predictive ability of a fund manager**. He wanted to evaluate if the manager is able to earn higher returns than what would be expected given the level of risk of its portfolio. To do so, funds are not compared on the basis of their excess returns but rather on the basis of their abnormal returns. The Alpha makes it possible to calculate **the return that should be expected** by the fund given its realised risk and to compare that **with the return actually realised** over the period. Jensen's Alpha is also called a differential risk-adjusted return.

The basis of the Jensen's Alpha is the Capital Asset Pricing Model calculated as followed:

$$R_p - R_f = \beta_p \left(R_m - R_f\right) + \varepsilon$$

With:

- R_p: the return of the portfolio p
- R_f: the risk-free rate
- β_p: the Beta of the portfolio
- $(R_m - R_f)$: the risk premium is composed of the difference between the return of the market and the return of the risk-free rate. In our case, the market is represented by the MSCI World Index and the risk-free rate is represented by the US Treasury note maturating on the 30 June, 2018.
- ε: a random error

This equation tells that the return of the portfolio *p* is a linear relationship with the existing co-variance between this return and the market portfolio return.

If the manager is superior at forecasting, he will probably select securities that realise returns larger than the "normal risk premium for their level of risk". The graphical materialisation of such superiority is a regression that would not pass through the origin of the axis. Therefore, Jensen introduces a constant, called α, into the equation. **This constant is the intercept of the regression equation of the CAPM**:

$$R_p - R_f = \alpha_p + \beta_p \left(R_m - R_f\right) + \varepsilon$$

The formula is then adapted to find the alpha:

$$\alpha_p = R_p - \left[R_f + \beta_p (R_m - R_f)\right]$$

The result represents the manager's ability to forecast stock prices and is expressed as a percentage or as yield surplus or deficit.

- **If positive,** this means that the return is higher than what should have been in relation to the risk taken. In other words, the fund has outperformed its benchmark. The manager is good at forecasting.
- **If negative**, then the portfolio does not beat the benchmark market and its return is less than what should have been obtained taking into account the market conditions and the risks involved.

It is a useful model because it allows to evaluate most institutional managers, pension funds, and mutual funds. Values of Alpha can be used **to rank** different managers and the performance of their portfolios, and to know **the magnitude** of underperformance or outperformance. For instance, if a portfolio's Alpha is 2% and another portfolio's Alpha is 5%, the second portfolio has outperformed the first portfolio by 3% and the market by 5%, as, by definition, the Alpha of the mark is zero.

2. Methodology

2) Methods to convert the data

Considering that Sharpe, Treynor and Alpha also have "boundless data" and some negative values, we will use the same conversion formula as presented for the return rating, as illustrated here for the alpha:

$$Fund's\ Alpha\ rating = \frac{(Fund's\ Alpha - Minimum\ Alpha)}{(Maximum\ Alpha - Minimum\ Alpha)} X\ 10$$

Table 13: Method to convert the Alpha data

	Alpha score	Intermediary step	Alpha rating
Fund A (with the highest positive Alpha)	0,073	$\frac{[0.073-(-0.209)]}{[0.073-(-0.209)]} = 1$	1 X 10 = 10
Fund B (with a middle positive Alpha)	0,032	$\frac{[0.032-(-0.209)]}{[0.073-(-0.209)]} = 0{,}853$	0,853 X 10 = 8,533
Fund C (with a middle negative Alpha)	-0,011	$\frac{[(-0.011)-(-0.209)]}{[0.073-(-0.209)]} = 0{,}700$	0.700 X 10 = 7.002
Fund D (with the lowest negative Alpha)	-0,209	$\frac{[(-0.209)-(-0.209)]}{[0.073-(-0.209)]} = 0$	0 X 10 = 0

2.3.2. Risk comparison

1) Method to compute the data

In addition to the volatility, we add the Beta measurement because it is the primary determinant of the Capital Asset Pricing Model and because it represents systematic risk. It is calculated as follows:

$$\beta_p = \frac{Cov_{(R_p,R_m)}}{Var_{(R_m)}}$$

Where:

- R_p : the return of the portfolio
- R_m: the return of the market. Considering that our selected funds used in majority the MSCI world index and that their underlying companies are worldwide allocated, this index will be used as our reference market.
- $Var_{(R_m)}$: the variance of the market
- $Cov_{(R_p,R_m)}$: The covariance between assets R_p and R_m is a statistical measure of the interrelationship between each pair of assets and can be expressed as $\rho_{R_p,R_m} \times \sigma_{R_p} \times \sigma_{R_m}$ where ρ_{R_p,R_m} is the correlation between assets R_p and R_m and where σ_{R_p} and σ_{R_m} are the risk of asset R_p and R_m .

The Beta measures the systematic risk as opposed to the non-systematic risk. The **systematic risk** is the risk specific to the market that cannot be eliminated such as: interest rates, inflation, economic cycles, political uncertainty, widespread natural disasters. Whereas **the non-systematic risk** is the risk specific to particular securities or industries and that can be eliminated by a strategy of diversification such as: failure of a drug trial, major oil discoveries or an airplane crash. All those events will directly affect their respective companies and possibly industries but have no effect on assets that are far removed from these industries. **Because non-systematic risk can be eliminated by diversification, investors will rationally ignore non-systematic risk and price securities according to their systematic risk which is the Beta.**

The Beta is interpreted as followed:

- **If the Beta is 1**, then the asset follows well the market.
- **If the Beta is greater than 1**, then the asset is more sensitive than the market.
- **If the Beta is smaller than 1**, then the asset is less sensitive than the market.
- **A positive Beta** indicates that returns are moving in the same direction as the market.
- **Whereas a negative Beta** indicates returns are moving in a direction opposite to the market.

For example, if a fund has a Beta coefficient of 1,5, this means that when the market rises by 1%, the value of the portfolio will increase by 1,5%. On the contrary, if the market falls by 1%, the portfolio will decrease by 1,5%.

While if a fund has a Beta coefficient of 0,5, this means that when the market rises by 1%, the value of the portfolio will only increase by 0,5% and on the contrary, if the market falls by 1%, the portfolio will decrease by 0,5%.

Table 14: Interpretation of the Beta

	Market rises by 1%	**Market falls by 1%**
Beta of 1,5	Portfolio increases by 1,5%	Portfolio decreases by 1,5%
Beta of 0,5	Portfolio increases by 0,5%	Portfolio decreases by 0,5%

In the contextualisation part, we have seen that current Impact Investors prefer assets with competitive risk-adjusted market rate that are thus aligned with the market (cf. supra p.14). **In other words, we considered that Impact Investors prefer assets with a Beta closed to a value of 1, which we will reflect in our Kiviat diagram by placing at the centre the funds with a higher absolute value of the distance between the fund's Beta and 1.**

Although Beta estimates are important for forecasting future levels of risk, there is much more concerns about their accuracy. One of the main critics of the Beta is that it is solely based on historical data. The risk profile of the company may be very different today than it used to be in the past. In general, shorter periods of estimation (e.g. 12 months) represent Betas that are closer to an asset's current level of systematic risk. Shorter period Betas, however, are also less accurate than Betas measured over three to five years because they may be affected by special events in that short period. Although longer period Betas are more accurate, they may be a poor representation of future expectations, especially if major changes in an asset have occurred. **In short, Beta has little forecasting power.**

Another concern is how the Beta is computed: which benchmark is to be chosen as a market portfolio? Luther, Matatko and Corner (1992) and Luther and Matatko (1994) (quoted by Wallis and Klein, 2014) consider conventional indices unable to meet the needs of SRI as they comprise socially irresponsible companies as well. Besides, according to them, ethical funds favour investment in small-cap companies and have diversified their portfolio abroad. **Ethical funds are thus made complex by the presence of responsible, small and international companies and to use conventional financial index to make comparisons is not the most appropriate approach.** The authors conclude that to neutralise the size and geography effects, **we should compare the performance of ethical funds to an index of small firms, to a national index as well as to an international index. Furthermore, we should select benchmark consistent with investment beliefs.** For instance, comparing a long-term investment policy with a short-term benchmark will not produce relevant information (Duiker, Bijleveld and van Ipenburg, 2016).

Consequently, to have a benchmark consistent with the Impact Investment beliefs, the GIIN and Cambridge Associates (Bouri, Mudaliar, Schiff, Matthews, Sternlicht, 2015) introduce the **Impact Investing Benchmark**. As of June 30, 2016, there were 65 private equity and venture capital Impact Investing funds included. However, within this study, we only analyse public equities and this benchmark is consequently not adapted. In addition, it only includes assets with the intent to generate social Impact and not environmental Impact.

Instead, the **MSCI Sustainable Impact INDEX** is composed of 91 Impact listed-companies whose core business addresses at least one of the world's social and environmental challenges, as defined by the United Nations Sustainable Development Goals. To be eligible for inclusion in the Index, companies must generate at least 50% of their sales from one or more of the Sustainable Impact categories and maintain minimum environmental, social and governance (ESG) standards (MSCI ESG Research, p. 13). **In short, this second benchmark would be the most appropriate to represent the Impact Investing public market.**

Although the MSCI Sustainable Impact index is the most appropriate benchmark for the Impact funds, we will still not use it since the thesis also analyses Best-In-Class funds and Thematic funds whose strategies are different. As a result, considering that our selected funds used in majority the MSCI world index and that their underlying assets are worldwide allocated, this index will be used for our performance measurement.

As a matter of complementary information, according to Chegut, Schenk and Scholtens (2011), among 41 SRI studies, 37% of studies use major conventional indices and 15% regional conventional indices while 17% use major sustainability indices and 12% use regional sustainability indices. It is thus common to use major conventional indices. The list of the other indices used by our selected funds is in appendix 14 and a list of other possible sustainability indices is in appendix 15.

2) Method to convert the data

Here is the first step to convert the data. The fund with the highest distance from a Beta of 1 gets a score of 10. Then, the more the Beta moves closer from 1, the lowest the rating.

Table 15: Method to convert the Beta

	Beta	Absolute value of the distance	Beta rating
Fund A (with the longest distance)	0,7	| 0,7-1|= 0.3	10
Fund B (Middle distance)	0,8 and 1,2	|0,8-1|= 0.2 |1,2-1|= 0.2	(10 / 0.3) X 0.2 = 6,66 = 7
Fund C (with the shortest distance)	0,99 and 1,01	|0,99-1|= 0,01 |1,01-1|= 0,01	(10 / 0.3) X 0,01= 0,33 = 0

The general formula will thus be:

$$Fund's\ Beta\ rating = \frac{10}{|\ highest\ the\ distance\ |}\ X\ |\ fund's\ distance|$$

However, if we let the rating in this condition, the closer to the Beta, the smaller the Beta rating while we actually want the contrary: the closer to the market, the greater the rating. Consequently, we reverse the data:

Table 16: Method to reverse the Beta rating

	Beta rating	Beta rating adapted
Fund C (with the lowest score)	0	10 - 0 = 10
Fund B (with a middle score)	7	10 – 7 = 3
Fund A (with the highest score)	10	10-10 = 0

The formula will thus be adapted to:

$$Fund's\ beta\ rating\ adapted = highest\ rating\ of\ 10 - fund's\ beta\ rating$$

2.3.3. Impact comparison

To have a more nuanced approach of the Impact, E, S, G individual metrics will be compared for all SRI funds and SDGs will be compared only for Impact funds.

1) E, S and G scores

For the E, S and G metrics, the same method will be used as for the Bloomberg ESG Disclosure score. Indeed, the difficulty is the same since E, S and G scores are only available for the equities included in the fund and not for the fund itself. Consequently, in order to aggregate the equities of the funds, we decided to do a weighted average of each E, S and G scores of the equities.

Table 17: Method to compute the weighted E, S and G score

	Weight in the fund (in %)	ESG score	Weighted ESG score
Equity X	0,60	40	$40 \times \frac{0.60}{100} = 0{,}24$
Equity Y	0,40	30	$30 \times \frac{0.40}{100} = 0{,}12$
Fund A	100%	$\frac{40+30}{2} = 35$	$0{,}24 + 0{,}12 = 0{,}36$

In a general formula:

$$Fund's\ weighted\ E,SG\ and\ score = \sum (Weight\ of\ the\ equity \times ESG\ score\ of\ the\ equity)$$

Considering that the E, S and G scores are from 0 to 100, the conversion to rating will be easier. We will multiply the E, S and G weighted scores per 10 in order to have a scale from 0 to 10.

Table 18: Method to convert the E, S and G score

	Weighted ESG score	ESG Rating
Fund A	0,36	0,36 X 10 = 3.6
Fund B	0,25	0,25 X 10 = 2.5

Here the general formula is:

$$Fund's\ ESG\ rating = Weighted\ ESG\ score\ X\ 10$$

2) SDG scores

For the SDGs, we researched each SDG addressed by each equity in each fund.

Table 19: Method to compute the percentage of the fund exposed to one SDG

	SDG 1	SDG 2	SDG 3	SDG 4	(…)	SDG 16	SDG 17
Equity X	1		1	1			1
Equity Z		1		1			1
Fund A	**(1+0) /2= 50%**	**50%**	**50%**	**(1+1) / 2= 100%**		**(0+0)/2 = 0%**	**100%**

For example, the "number 1" means that equity X tries to solve the SDG 1. While when there is "no number", it means that equity Z does not try to solve the SDG 1. As a result, the fund A addresses SDG 1 with 50% of its equities X and Y.

After collecting the SDGs addressed by each equity, we did the average for the fund with the following formula:

$$Percentage\ of\ the\ fund\ exposed\ to\ one\ SDG = \frac{\sum_{i=1}^{n} number\ of\ equities\ addressing\ this\ SDG}{number\ of\ equities\ in\ the\ fund}$$

From those data, we will address SDG breadth and SDG depth:

- **Regarding the breadth**, we will see how many SDGs the fund addresses.
  In our example below, fund A addresses 5 different SDGs and fund B addresses 7 different SDGs. The scope is thus broader for the fund B.
- **Regarding the depth**, we will see how deep the SDGs are addressed.
  In our example, fund A addresses SDG 3 with 50% of its equities while fund B addresses SDG 3 with 60% of its equities. The depth for SDG 3 is thus greater for fund B.

In addition, on average, each SDG is addressed by 38% of the equities in fund A and by 41% of the equities in fund B. The average depth is thus also greater for fund B.

For the depth, we will thus simply use an average: $\frac{\sum percentage\ of\ equities\ for\ each\ SDG}{17\ SDGs}$

Table 20: Method to compute the total breadth and the total depth of a fund

	1	2	3	4	5	(…)	14	15	16	17	Total breadth	Average depth
Fund A	50%	50%	50%	0%	100%		0%	0%	0%	100%	5 SDGs	38%
Fund B	20%	30%	60 %	10%	0%		0%	50%	100%	100%	7 SDGs	41%

In order to convert the data from 0 to 10, we will assign a rating of 10 to the fund with the highest breadth or depth. Then, the following cross-multiplication will be used for the other funds 'ratings:

Table 21: Method to convert the total breadth

	Total breadth	Breadth rating
Fund B (highest breadth)	7 SDGs	10
Fund A (lowest breadth)	5 SDGs	(10/7) X 5 = 7,14

Table 22: Method to convert the total depth

	Average depth	Depth rating
Fund B (highest depth)	41%	10
Fund A (lowest depth)	38%	(10/0,41) X 0,38= 9,27

The general formulas are:

$$Fund's\ Breadth\ rating = \frac{10}{highest\ breadth} * fund's\ breadth$$

$$Fund's\ depth\ rating = \frac{10}{highest\ depth} * fund's\ depth$$

2.3.4. From fund to strategy ratings

And again, once each fund has its own individual rating, we will compute the average and media ratings for each SRI strategy, as done for the 3-dimensions spectrum (cf. supra p. 48). The general formulas were:

$$Average\ rating\ of\ one\ SRI\ strategy = \frac{\sum_{i=1}^{n} rating\ of\ this\ SRI\ funds}{n}$$

$Median\ rating\ for\ one\ SRI\ strategy$:

$If\ the\ total\ number\ of\ the\ numbers\ (n) is\ an\ odd\ number, then\ the\ formula\ is$:

$$(odd)Median = \left(\frac{n+1}{n}\right)^{th}\ term$$

$If\ the\ total\ number\ of\ the\ numbers\ (n) is\ an\ even\ number, then\ the\ formula\ is$:

$$(even)Median = \frac{\left(\frac{n}{2}\right)^{th}\ term + \left(\frac{n}{2}+1\right)^{th}\ term}{2}$$

And $the\ total\ rating\ of one\ SRI\ strategy$

$$= \frac{Return\ rating + volatility\ rating + ESG\ rating\ of\ this\ SRI\ strategy}{3}$$

Graphically, we will thus have 4 lines going through each dimension.

2.4. Conclusion on Methodology

In this second point about the methodology, we first explained how the selection of the 27 funds was made. Then we explained how the 3-dimensions and the multi-dimensions' spectra were built.

Concerning the selection of funds, we applied 5 criteria in order to have comparable funds to the KBC Impact Investing fund: key words, asset managers, asset allocation, geographic allocation and period of study. In addition, we categorised each selected fund according to 2 questions: does the fund manager really measure their Impact? And does he measure the Impact of the products or the services and not of the processes or of the business model? Even though those criteria can be seen as too restrictive, we finally obtained 6 Best-In-Class, 10 thematic and 11 Impact funds: 2 in Belgium and 10 abroad. However, in the future, it is likely that there will be more Impact Investing funds in Belgium since all the 6 peer asset managers are already promoting this strategy but not as defined by our selection criteria.

Concerning our return-risk-Impact spectra, we decided to use radar plot or Kiviat diagram in order to position KBC Impact Investing fund in the SRI environment. In order to apply this graph, we convert each dimension into a scale from 0 to 10. **For our 3-dimensions' spectrum,** we used the annualised daily returns on 1 year to represent the return dimension, the annualised volatility on 1 year to represent the risk dimension and the ESG score to represent the Impact dimension. **For our multi-dimensional spectrum,** we added the Sharpe ratio, Treynor ratio and Jensen's Alpha to represent the performance, the Beta to represent the risk and the E, S, G score to represent the Impact but also the SDG breadth and the SGD depth for Impact funds. Then, we computed the median and average for each dimension in order to get a score for each SRI strategy. And finally, for both 3-dimensional spectrum and the multi-dimensional spectrum, we added a **total score** englobing the average of the dimensions for each SRI funds and strategies.

To convert the data in rating, **3 types of conversion** was made. For boundless and possible negative values, we used **unity-based normalisation**. This was used for the annualised returns, the Sharpe and Treynor ratios, the Jensen's Alpha and the annualised volatility. Then, for risk values, we used **reverse rating** for the annualised volatility and for the Beta. Regarding the volatility, we converted it in order to have the lower the volatility, the higher the rating. Regarding the Beta, we converted it in order to have the Beta the closer to 1 and therefore to the market, the higher the rating. And finally, for Impact values that can only be positive, we used **cross-multiplication**. This was used for ESG scores and SDG breadth and SDG depth. In addition, for the Impact values, we also used weighted average of equities in order to get a score for the funds.

In conclusion, the aim of this part was to build 2 return-risk-Impact spectra: one simplified spectrum and one nuanced spectrum. The result is that we will get a rating for each individual dimension and a total score for all dimensions taken together. This will allow us to compare the KBC Impact Investing fund with other Impact Investing funds and to compare the Impact Investing strategy with other Best-In-Class and Thematic strategies and in the end, to highlight champions fund and strategy.

To take a step back, an investor or asset manager should not jump to one conclusion based on one theory or one methodology. It is indeed better to complete theories or methodologies with additional information and to not apply the conclusion at face value, also because we cannot capture everything in numbers, especially for qualitative data. However, it is still important to measure the multi-dimensional spectrum in order to allow comparison, to explain the contributing factors and to simplify a given reality. In addition, this model respects the pieces of advice given by the MSCI concerning the need to construct a model that takes into account: simplicity, comparability, relevance and aggregation challenges.

3. Results

More and more investors look for Impact Investing public equity funds but do those funds satisfy investors' demand and how do they differentiate from other SRI funds? To answer this question, a methodology has been constructed to assess each of the return, risk and Impact dimensions. Now, it is time to collect, compute and interpret the data. The results of the 3-dimensional spectrum will be presented in the first part while the multi-dimensional spectrum will be presented in the second part. In each part, there is a double comparison: the comparison of the KBC Impact Investing fund with other Impact Investing funds and the comparison of the Impact Investing strategy with other Best-In-Class and Thematic SRI strategies. To structure the results, the Kiviat diagrams will help us to answer systematically 3 questions (National institute of standards and technology, 2009):

1) KBC Impact Investing fund comparison with other Impact Investing funds:
    1. **What variables are dominant for a given observation?**
       For this question, the KBC Impact Investing fund will be analysed in order to understand where its strengths and weaknesses are in comparison with other Impact Investing funds and where KBC can improve.
    2. **Which observations are most similar; are there clusters of observations?**
       Here the spectra between the highest and lowest score of each variable will be analysed in order to understand where the Impact Investing funds are agglomerated or dispersed.
    3. **Are there outliers?**
       Impact Investing funds will be analysed in order to highlight the funds with the highest and lowest performance for each variable. Thanks to this question, a "champion fund" will be highlighted.
2) Impact Investing strategy comparison with other Best-In-Class and Thematic SRI strategies:
    1. **What variables are dominant for a given observation?**
       The Impact Investing strategy will be analysed in order to understand where its strengths and weaknesses are in comparison with other SRI strategies and where it can improve.
    2. **Which observations are most similar; are there clusters of observations?**
       In the same way, the spectra between the highest and lowest score of each dimension will be analysed in order to understand where the SRI strategies are agglomerated or dispersed.
    3. **Are there outliers?**
       SRI strategies will be analysed in order to highlight the strategies with the highest and lowest performance for each variable. Thanks to this question, a "champion strategy" will be highlighted.

The aim of this section is to position Best-In-Class (shortened in BIC), Thematic and Impact Investing SRI strategies as well as the KBC Impact Investing fund (shortened just as KBC) on the created framework and to see how financial institutions will be able to reposition themselves on this return-risk-Impact spectrum and on the gaps between supply and demand.

Note that, to answer the second question, the spectra between the highest and lowest funds or strategies are presented in appendix 16. In addition, to improve the interpretation of the data, the results of the Domini Impact equity fund (as it was the only fund with negative return) and of the RobecoSAM Gender Impact (as it was the only fund for which the weight of the equities was not disclosed) were sometimes not included in the median. Those changes will be highlighted in red.

3.1. 3-dimensional spectrum

In this section, the 3-dimensional data for both the funds and the strategies are presented in alphabetical order. In appendix 17, the ratings from 0 to 10 of each dimension are presented.

3.1.1. Impact Investing funds comparison

Table 23: 3-dimenional data of SRI funds

	Name	ISIN	Return	Volatility	ESG score	Total 3-D Rating
Best-In-Class	Candriam Sustainable World	LU0113400328	11,215%	13,374%	27,172	7,513
	DPAM World Sustainable	BE0058651630	8,371%	13,187%	34,352	7,705
	KBC Eco World	BE0133741752	12,262%	14,135%	31,482	7,721
	NN Global Sustainable	LU0191250769	10,936%	13,540%	25,183	7,319
	Triodos Sustainable Equity	LU0278271951	6,159%	14,382%	26,938	6,719
	Triodos Sustainable Pioneer	LU0278272843	6,723%	16,131%	19,767	5,918
Impact Investing	BlackRock Impact US	US0919361461	13,355%	15,676%	17,399	6,589
	BlackRock Impact World	LU1254583351	11,862%	14,045%	29,457	7,571
	Domini Impact Equity	US2571328606	-13,291%[1]	26,895%[2]	16,641	1,053
	Domini Impact International	US2571328861	9,329%	16,464%	36,634	7,188
	KBC Eco Impact Investing	***BE0175718510***	***13,718%***	***14,862%***	***28,729***	***7,534***
	NN Impact Opportunities	LU0250158358	9,586%	14,146%	19,831	6,693
	Parvest Climate Impact	LU0406802339	15,878%	13,704%	18,708	7,403
	RobecoSAM Child Impact	LU1277649130	10,882%	12,606%	31,344	7,920
	RobecoSAM Gender Impact	LU1277652514	12,382%	13,466%	37,480[3]	8,269
	Schroder Climate Change	LU0302445910	13,109%	14,673%	21,972	7,085
	Touchstone Sustainability and Impact	US89154X3026	13,343%	15,660%	52,697	8,824
Thematic	Axa World Human Capital	LU0316218527	11,104%	16,360%	36,947	7,423
	BNP Paribas Aqua	FR0010668145	17,647%	13,560%	23,000	7,899
	KBC Eco Alternative Energy	BE0175280016	10,485%	14,298%	20,900	6,822
	KBC Eco Climate Change	BE0946844272	11,896%	13,376%	22,017	7,260
	KBC Eco Water	BE0175479063	15,068%	13,794%	22,490	7,534
	Parvest Aqua	LU1165135440	17,003%	13,776%	23,079	7,784
	Parvest Consumer Durables	LU0823411706	10,839%	15,510%	19,124	6,465
	Parvest Environment	LU0347711466	16,612%	14,156%	23,747	7,695
	Parvest Human Development	LU1165136174	5,134%	13,376%	24,951	6,717
	Parvest Smart Food	LU1165137149	10,582%	13,295%	23,759	7,247

[1] Because the return of the fund Domini Impact Equity was the minimum return of all our funds, it was assigned a rating of zero, which weights down on the results.

[2] Because the volatility of the fund Domini Impact Equity was the maximum volatility of all our funds, it was assigned a rating of zero, which weights down on the results.

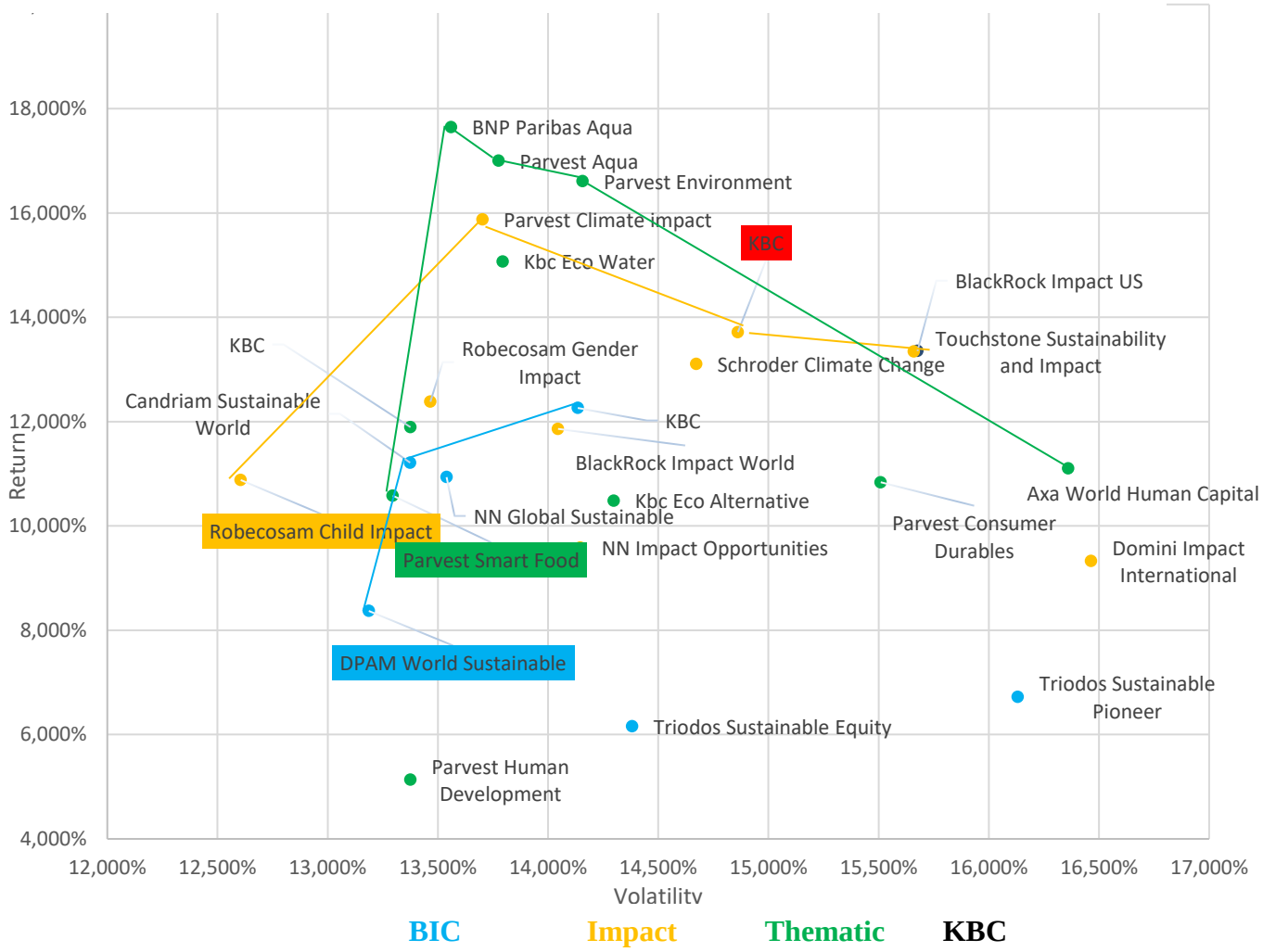
[3] As the weight of each equity inside the RobecoSAM Gender Impact fund was not disclosed, we did not a weighted average of the ESG score but a simple average. The ESG score is consequently higher and not truly comparable to other ESG scores.

Table 23 represents the value of the return, the volatility and the ESG score of each fund. Here are the answers of our 3 questions:

1. What variables are dominant for a given observation?
   KBC Impact Investing has a return of 13,718% (ranked 2nd for all Impact Investing funds and 6th for all SRI funds), a volatility of 14,862% (ranked 7th for all Impact Investing funds and 20th for all SRI funds) and an ESG score of 28,729 (ranked 6th for all Impact Investing funds and 9th for all SRI funds). And concerning the total rating, KBC Impact Investing has a score of 7,534 (ranked 4th for the 11 Impact Investing funds and 9th for the 27 SRI funds).
   To conclude, this shows that the KBC Impact Investing fund has high return but also high volatility and low ESG score compared to the other Impact funds. We can then consider that, **even though the KBC Impact Investing fund has good total rating, its strength is its return while its weaknesses are its risk and ESG score**.
2. Which observations are most similar, are there clusters of observations?
   The 11 Impact Investing funds have a return between 15,878% and -13,291% which represents a spectrum of 29,169%, a volatility between 26,895% and 12,606% which represents a spectrum of 14,290% and an ESG score between 52,697 and 16,641 which represents a spectrum of 36,056. Consequently, the total 3-dimensional rating ranks between 8,824 and 1,053 which represents a spectrum of 7,771. But if we take the fund Domini Impact Equity out as it is an excessive outlier, the spectra look very differently. The return spectrum is then 6,549%, the volatility spectrum 3,055%, the ESG spectrum 35,298 and the total rating spectrum 2,235.
   To conclude, **there is a broad spectrum for the ESG score while the spectrum is narrower for the returns and especially for the volatility.** We can then consider that **Impact Investing funds will satisfy every Impact Investors on the ESG spectrum but will only satisfy Impact Investors looking for high return and high volatility**. Indeed, as we have seen in the contextualisation part (cf. p. 14), low returns on capital for Impact-First investors are from -10% to 7% while commercial returns on capital for Finance-First investors are above 8%. Since the returns of all our Impact Investing funds rank above 8% except the Domini Impact Equity fund, we can say that they will satisfy Finance-First investors.
3. Are there outliers?
   The Impact fund with the lowest return (-13,291%), with the highest volatility (26,895%), with the lowest ESG score (16,641) and with the lowest total rating (1,053) is Domini Impact Equity followed by Domini Impact International with a return of 9,329%, a volatility of 16,464 and by BlackRock Impact US with an ESG score of 17,399. Whereas the Impact fund with the highest return is Parvest Climate Impact (15,878%), the fund with the lowest volatility is RobecoSAM child Impact (12,606%) and the fund with the highest ESG score is Touchstone Sustainability and Impact (52,697).
   To conclude, the fund having **the highest return-risk-Impact performance is Touchstone Sustainability and Impact (total 3-D rating of 8,824) and should be favoured by an investor looking for high return-volatility-Impact dimensions**, as it is the champion fund.

   Besides, note that for the Best-In-Class strategy, the fund with the highest 3-D rating is KBC Eco World (7,721) and for the thematic strategy, it is BNP Paribas Aqua (7,899). The Impact fund Touchstone Sustainability and Impact has thus the highest total rating compared to the best Best-In-Class fund and the best Thematic fund.

Figure 17: Traditional risk-return spectrum and the efficient frontiers of SRI funds



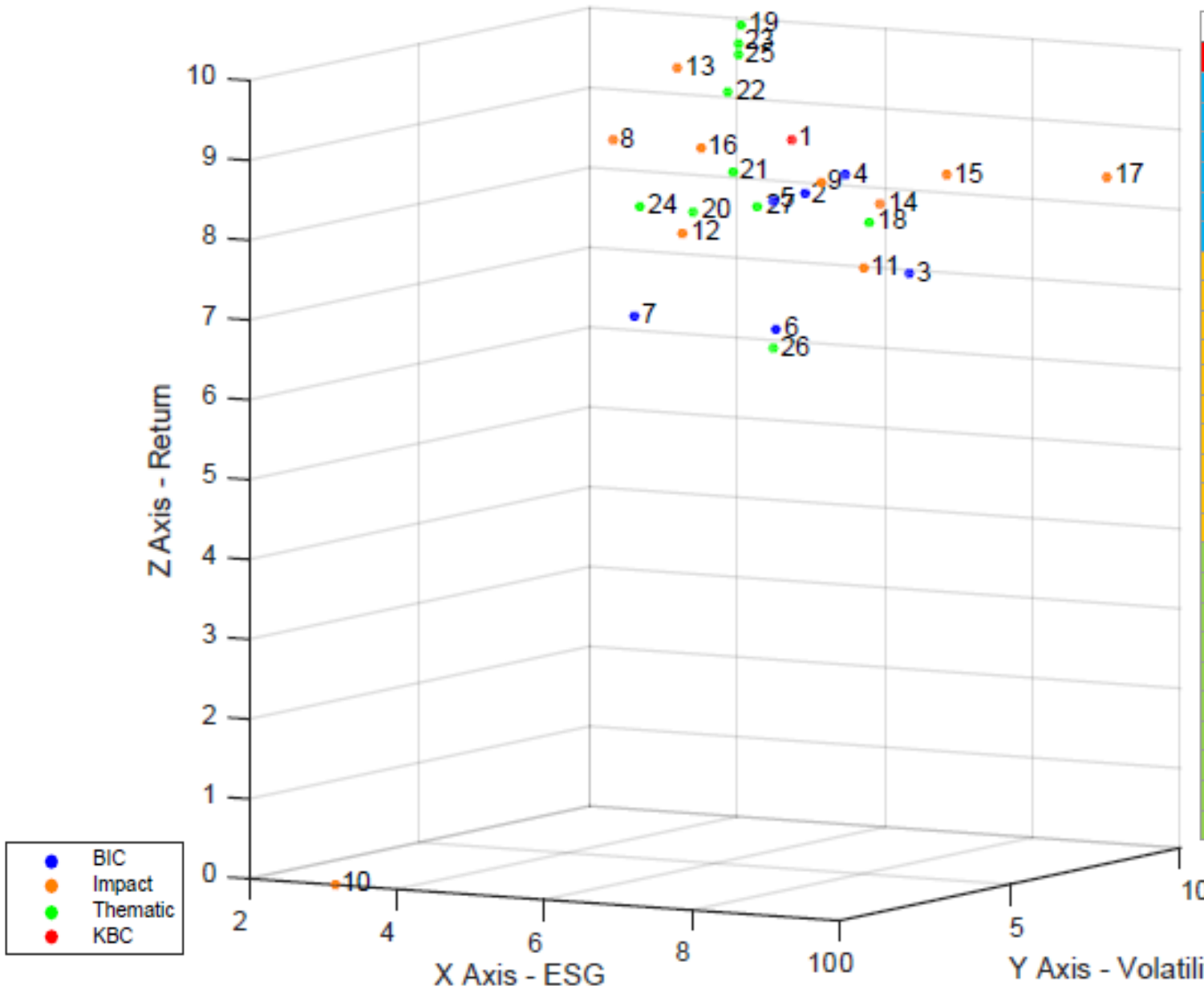
Before moving to the 3-Dimensional graph, let's discuss figure 17th which represents the traditional 2-Dimensional graph, the risk-return spectrum of each fund. Bullet points in blue represent the Best-In-Class funds while the Impact Investing funds are in orange whereas the thematic funds are in green.

Thanks to this graph, we can clearly see that the risk-return spectra are approximately as broad as for all SRI strategies. There are no strategies where the funds agglomerate in a dense corner of the graph. In addition, we can clearly visualise that **KBC Impact Investing stands relatively high both in terms of return as in terms of volatility.**

In addition, we can discover the Global Minimum-Variance fund that lies the most Northwest for each strategy: RobecoSAM Child Impact for Impact Investing, DPAM World Sustainable for Best-In-Class and Parvest Smart Food for Thematic. From that point we were able to build an efficient frontier for each strategy. Each point that lies below the efficient frontier of its strategy has a lower risk-return and is consequently less interesting. For instance, the fund RobecoSAM Gender Impact lies below the Impact efficient frontier. Consequently, for nearly the same level of risk (risk of 13,466% and return of 12,382%), there is an Impact fund on the efficient frontier that has higher return, the fund Parvest Climate Impact (risk of 13,704% and return of 15,878%). The implication is that, **if an asset manager wants to launch a new fund, then the fund must be <u>on or above</u> its respective efficient frontier**.

Besides, on this graph, it seems that **the efficient frontier of the thematic funds is the highest and this will be confirmed by the Sharpe and Treynor ratio (cf. infra p. 69).**

Figure 18: 3-dimensional spectrum of SRI funds



	(ESG rating, Volatility Rating, Return Rating)
1	***KBC Eco Impact Investing (5,452; 8,421; 8,730)***
2	Candriam Sustainable World (5,156; 9,462; 7,921)
3	DPAM World Sustainable (6,519; 9,593; 7,002)
4	KBC Eco World (5,974; 8,930; 8,260)
5	NN Global Sustainable (4,779; 9,346; 7,831)
6	Triodos Sustainable Equity (5,112; 8,757; 6,287)
7	Triodos Sustainable Pioneer (3,751; 7,533; 6,469)
8	BlackRock Impact US (3,302; 7,851; 8,613)
9	BlackRock Impact World (5,590; 8,992; 8,130)
10	Domini Impact Equity (3,158; 0,000; 0,000)
11	Domini Impact International (6,952; 7,300; 7,311)
12	NN Impact Opportunities (3,763; 8,922; 7,395)
13	Parvest Climate impact (3,550; 9,232; 9,428)
14	RobecoSAM Child Impact (5,948; 10,000; 7,813)
15	RobecoSAM Gender Impact (7,112; 9,398; 8,298)
16	Schroder Climate Change (4,169; 8,553; 8,533)
17	Touchstone Sustainability and Impact (10,000; 7,862; 8,609)
18	Axa World Human Capital (7,011; 7,373; 7,885)
19	BNP Paribas Aqua (4,365; 9,332; 10,000)
20	KBC Eco Alternative Energy (3,966; 8,816; 7,685)
21	KBC Eco Climate Change (4,178; 9,461; 8,141)
22	KBC Eco Water (4,268; 9,168; 9,166)
23	Parvest Aqua (4,380; 9,181; 9,792)
24	Parvest Consumer Durables (3,629; 7,968; 7,799)
25	Parvest Environment (4,506; 8,915; 9,665)
26	Parvest Human Development (4,735; 9,461; 5,956)
27	Parvest Smart Food (4,509; 9,517; 7,716)

Figure 18th on previous page represents the new return-risk-Impact spectrum of all funds.

We can then clearly visualise that the fund number 7 (Triodos Sustainable Pioneer) has lower ESG rating (3,751), lower volatility rating (7,533) and lower return rating (6,469) than the number 17 (Touchstone Sustainability and Impact) that has an ESG rating of 10,000, a volatility rating of 7,862 and a return rating of 8,609. We also note that the **KBC Impact Investing fund ranks relatively high compared to the others Best-In-Class and Thematic and Impact Investing funds** with an ESG, volatility and Return position of (5,452; 8,421; 8,730).

In addition**, this graph shows that the spectra for return and for risk are quite small whereas the spectrum for ESG is broad.** There are indeed no funds below the return rating of 5,956, below the volatility rating of 7,300 while there are funds ranging from an ESG rating of 10 to 3,158. The implications for t**he Impact Investors is that it is easy to find the funds that best satisfy its requirements in terms of ESG but it is more difficult to find funds in terms of return and volatility. And the implications for the asset managers are that they can launch new products on the gaps between the already existing funds.**

3.1.2. Impact Investing strategy comparison

Table 24: 3-dimenional ratings of SRI strategies

SRI	Return	Volatility	ESG	Return Rating	Volatility Rating	ESG Rating	Total 3-D Rating
BIC	9,654%	13,837%	27,055	7,416	9,138	5,134	7,229
Impact	**12,382%**	14,673%	**28,729**	**8,298**	8,553	**5,452**	**7,434**
Thematic	11,500%	**13,785%**	23,040	8,013	**9,175**	4,372	7,187
KBC	13,718%	14,862%	28,729	8,730	8,421	5,452	7,534

Table 24 represents the median rating of the return, the volatility and the ESG of each SRI strategy. Further information on the median, the average and the spectra of the multi-dimensional data and ratings of the SRI strategies are presented in appendix 18.

1. What variables are dominant for a given observation?

   The Impact Investing strategy has a return of 12,382% (ranked 1st for all SRI strategies), a volatility of 14,673% (ranked 3th for all SRI strategies), an ESG score of 28,729 (ranked 1st for all SRI strategies). As a result, it is achieving a total rating of 7,434 (ranked 1st for all SRI strategies).

   To conclude, **the Impact Investing strategy strengths are Return and ESG score while its weakness is risk**. This confirms what we have seen in the contextualisation about the risk concerns and the fact that in order for Impact Investing funds to move from niche to mainstream, they have to be well diversified, less risky and very transparent (cf. supra p. 17).

   Interestingly, the KBC Impact Investing fund has higher return (13,718% compared to 12,382% for the Impact Investing strategy), higher volatility (14,862% compared to 14,673% for the Impact Investing strategy) and higher ESG score (28,729 which is the same result than as the Impact Investing strategy) than the Impact Investing strategy but also than the Best-In-Class and the Thematic strategies. Consequently, **KBC Impact Investing fund is achieving higher total 3-D rating than all strategies together** (7,534 compared to 7,434 for Impact Investing strategy).

2. Which observations are most similar, are there clusters of observations?

   The return spectrum of 2,729% goes from 12,382% to 11,500%; the volatility spectrum of 0,888% goes from 14,673% to 13,785% and the ESG spectrum of 5,689 goes from 28,728 to 23,040. Also, the total spectrum of 0,248 goes from 7,434 to 7,187.

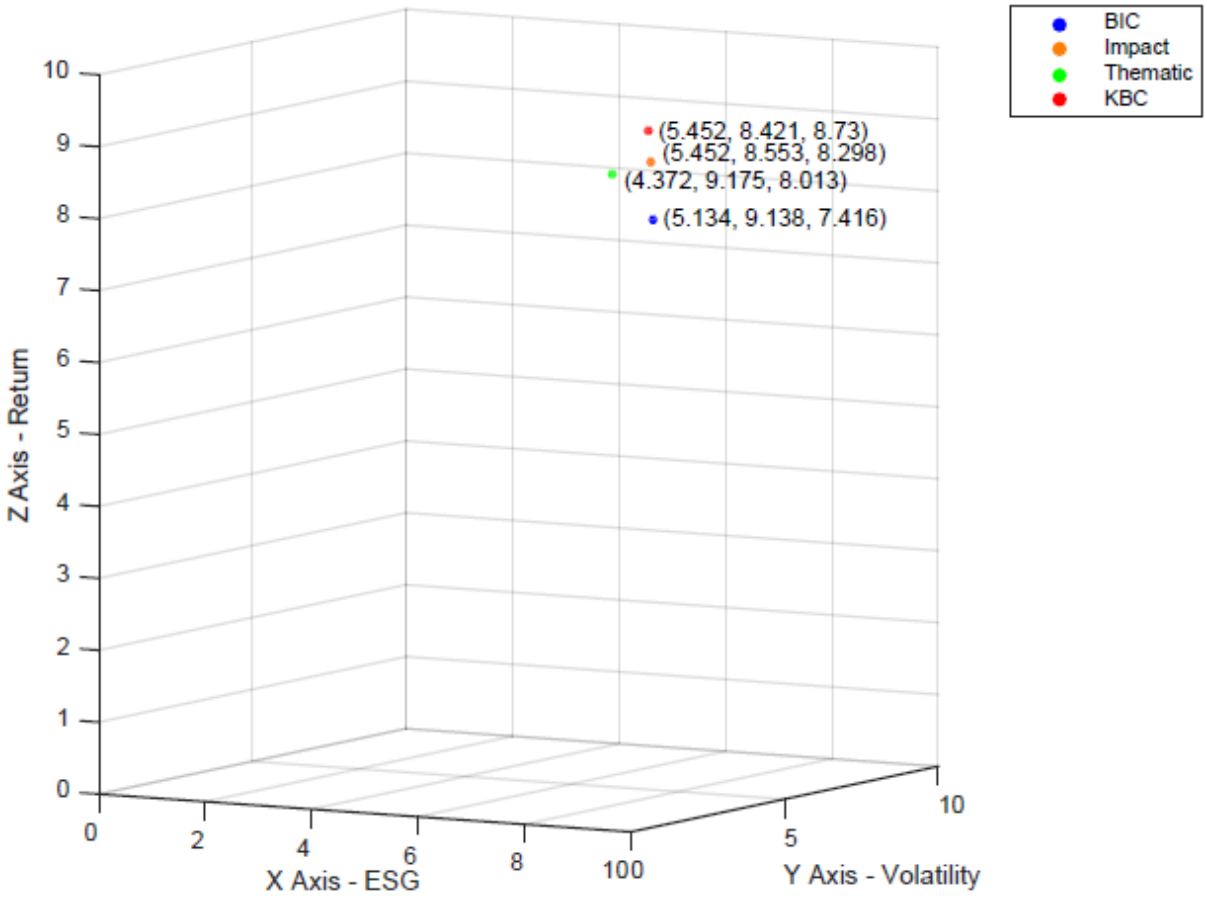
   In other words, there are no large spectra differences between each strategy and consequently, each strategy does not differentiate clearly from the others.

3. Are there outliers?

Impact Investing is the strategy with the highest return (12.382%) and also the strategy with the highest volatility (14,673%). The strategy with the lowest volatility is the Thematic strategy (13,785%). Surprisingly Impact Investing strategy is also the strategy with the highest ESG score (28,729), whereas the Best-In-Class strategy has an ESG score of 27,055. And finally, and more importantly, the strategy which has the highest overall score for the 3-dimensional spectrum is Impact Investing (7,434) followed by Best-In-Class (7,229) and by the Thematic strategy (7,187). **To conclude, the Impact Investing strategy should be favoured by an investor looking for a high return-risk-Impact spectrum, as it is the champion strategy.**

Besides, the ESG score of the Impact Investing strategy must be considered carefully. Indeed, the RobecoSAM Gender Impact is included in the median and magnifies the results. Moreover, as highlighted in the literature review, the ESG score is not the best manner to assess and compare the Impact of the SRI strategies, especially the Impact Investing strategy. This is why an SDG analysis was added (cf. infra p. 75).

Figure 19: 3-dimensional spectrum of SRI strategies



To conclude this first part on the 3-dimensional spectrum and thanks to the **figure 19** which represents the new return-risk-Impact spectrum of each strategy, we can say **that KBC Impact Investing fund has higher return rating, lower volatility rating and higher ESG rating than the Impact Investing average and that Impact Investing strategy has higher return rating, lower volatility rating and higher ESG rating than Best-In-Class and Thematic strategies.**

3.2. Multi-dimensional spectrum

As explained above, we decided to broaden the 3-dimensional to a 10-dimensional spectrum. By expanding the scope, an investor will have a better idea of all criteria to consider.

The following section will thus be divided in 3 main parts:

1. The performance comparison will present 4 dimensions: return, Sharpe, Treynor and Alpha.
2. The risk comparison will present 2 dimensions: volatility and Beta.
3. The Impact comparison will present 4 dimensions: ESG, E, S and G.
   In addition, in this Impact comparison part, we will also cover 2 additional dimensions specifically for the Impact Investing funds to visualise the SDG breadth and SDG depth of each fund.

Each part will also present a double comparison of the Impact Investing funds between them and of the Impact Investing strategies with other SRI strategies.

3.2.1. *Performance comparison*

1) *Impact Investing funds comparison*

Table 25: Performance data of SRI funds

	Name	Return	Sharpe	Treynor	Alpha	Total performance Rating
Best-In-Class	Candriam Sustainable World	11,215%	0,962	0,140	0,015	7,786
	DPAM World Sustainable	8,371%	0,760	0,118	-0,011	6,885
	KBC Eco World	12,262%	0,984	0,142	0,024	7,998
	NN Global Sustainable	10,936%	0,930	0,134	0,012	7,650
	Triodos Sustainable Equity	6,159%	0,543	0,079	-0,032	5,938
	Triodos Sustainable Pioneer	6,723%	0,519	0,082	-0,026	6,020
Impact Investing	BlackRock Impact US	13,355%	0,957	0,140	0,034	8,121
	BlackRock Impact World	11,862%	0,962	0,161	0,021	8,051
	Domini Impact Equity	-13,291%	-0,433	-0,116	-0,209	0,000
	Domini Impact International	9,329%	0,667	0,103	-0,003	6,799
	KBC Eco Impact Investing	***13,718%***	***1,034***	***0,171***	***0,037***	***8,521***
	NN Impact Opportunities	9,586%	0,794	0,116	0,000	7,115
	Parvest Climate Impact	15,878%	1,279	0,193	0,057	9,365
	RobecoSAM Child Impact	10,882%	0,994	0,141	0,012	7,784
	RobecoSAM Gender Impact	12,382%	1,042	0,149	0,025	8,152
	Schroder Climate Change	13,109%	1,006	0,195	0,032	8,567
	Touchstone Sustainability and Impact	13,343%	0,957	0,135	0,034	8,085
Thematic	Axa World Human Capital	11,104%	0,780	0,139	0,014	7,512
	BNP Paribas Aqua	17,647%	1,423	0,213	0,073	10,000
	KBC Eco Alternative Energy	10,485%	0,849	0,135	0,008	7,473
	KBC Eco Climate Change	11,896%	1,013	0,155	0,021	8,076
	KBC Eco Water	15,068%	1,212	0,190	0,050	9,121
	Parvest Aqua	17,003%	1,354	0,204	0,067	9,733
	Parvest Consumer Durables	10,839%	0,805	0,125	0,011	7,398
	Parvest Environment	16,612%	1,290	0,191	0,064	9,487
	Parvest Human Development	5,134%	0,507	0,077	-0,041	5,711
	Parvest Smart Food	10,582%	0,920	0,145	0,009	7,665

Table 25 presents the funds in alphabetical order and their annualised return and 3 risk-adjusted returns: Sharpe, Treynor and Alpha. In addition, in the last column, the total of all their performance ratings are displayed. In appendix 19 and 20, the multi-dimensional data and ratings are presented in descending order.

1. What variables are dominant for a given observation?
   KBC Impact Investing fund has a return of 13,718% (ranked 2nd for all Impact Investing funds and 6th for all SRI funds). Then, it as a Sharpe ratio of 1,034 (ranked 3th for all Impact Investing funds and 7th for all SRI funds) which means that the excess-return of the fund was obtain through and ad-hoc risk-taking. The outperformance was not taken at the detriment of a too high risk. It has a Treynor ratio of 0,171 (ranked 3th for all Impact Investing funds and 7th for all SRI funds) which means a positive fund's returns relative to its Beta (which is the level of sensitivity to the market index). It is a positive reward compared to the non-diversifiable, systematic risk (and not the total risk included in the Sharpe ratio). It has a Jensen's Alpha of 0,037 (ranked 2th for all Impact Investing funds and 6th for all SRI funds) which means that the fund has outperformed its benchmark and that the fund's manager is good at forecasting and selecting equities. The return is greater that what should have been obtained considering market conditions and risks involved. And more importantly, KBC Impact Investing has a total performance rating of 8,521 and ranks 3th for all Impact Investing funds and 7th for all SRI funds. To conclude, **KBC Impact Investing fund has very high risk-return performance compared to other funds**.

2. Which observations are most similar, i.e., are there clusters of observations?
   The 11 Impact funds have a return between 15,878% and -13,291% which represents a spectrum of 29,169%; a Sharpe ratio between 1,279 and -4,333 which represents a spectrum of 1,712; a Treynor ratio between 0,195 and -0,116 which represents a spectrum of 0,311 and a Jensen's Alpha between 0,057 and -0,209 which represents a spectrum of 0,266. Consequently, the total performance rating ranks between 9,365 and 0,000 which represent a spectrum of 9,365. But if we take the fund Domini Impact Equity out as it is an excessive outlier, the spectra look very differently**. The return spectrum is then 6,549%, the Sharpe spectrum is 0,612, the Treynor spectrum is 0,092, the Alpha spectrum is 0,060 and the total performance spectrum is 2,235.**
   To conclude, **the different performance spectra are thus moderately narrow** except for the Sharpe ratio which has a more dispersed spectrum. In addition, it is interesting to note that **all Impact funds' return, Sharpe, Treynor and Alpha are positive** except for Domini Impact Equity fund and the Alpha of Domini Impact International.

3. Are there outliers?
   The Impact fund with the lowest return (-13,291%), with the lowest Sharpe ratio (-0,433), with the lowest Treynor (-0,116) and with the lowest Alpha (-0,209) is Domini Impact Equity followed by Domini Impact International with a return of 9,329%, a Sharpe of 0,667, a Treynor of 0,103 and an Alpha of -0,003. Whereas the Impact fund with the highest return (15,878%), with the highest Sharpe ratio (1,279), and with the highest Alpha (0,057) is Parvest Climate Impact and the fund with the highest Treynor ratio (0,195) is Schroder Climate Change.
   To conclude, **the Impact fund with the highest total performance rating is Parvest Climate Impact (9,365) and should be favoured by an investor looking for high performance, as it is the champion fund**.

   In addition, for the Best-In-Class strategy, it is the KBC Eco World fund that has the highest performance score (7,998) and for the thematic strategy, it is BNP Paribas Aqua (10,000).

2) Impact Investing strategy comparison

Table 26: Performance ratings of SRI strategies

SRI	Return	Sharpe	Treynor	Alpha	Return Rating	Sharpe Rating	Treynor Rating	Alpha Rating	Total Performance Rating
BIC	9,654%	0,845	0,126	0,000	7,416	6,884	7,354	7,416	7,268
Impact	**12,382%**	0,962	0,141	**0,025**	**8,298**	7,516	7,820	**8,298**	**7,983**
Thematic	11,500%	**0,966**	**0,150**	0,017	8,013	**7,539**	**8,086**	8,013	7,913
KBC	13,718%	1,034	0,171	0,037	8,730	7,904	8,721	8,730	8,521

Table number 26 represents the performance of the SRI strategies.

1. What variables are dominant for a given observation?
   Impact Investing has a return of 12,382% (ranked 1st for all SRI strategies), a Sharpe ratio of 0,962 (ranked 2nd for all SRI strategies), a Treynor ratio of 0,141 (ranked 2nd for all SRI strategies) and a Jensen's Alpha of 0,025 (ranked 1st for all SRI strategies). Consequently, it is achieving a total performance rating of 7,983 (ranked 1st for all SRI strategies).
   To conclude, **the Impact Investing strategy strengths are Return and Alpha while its weaknesses are Sharpe and Treynor ratio.** A recommendation should then ben to improve the risk-adjusted performance of the strategy.
   In addition, KBC Impact Investing fund has higher return (13,718% compared to 12,382% for the Impact Investing strategy), higher Sharpe ratio (1,034 compared to 0,962 for the Impact Investing strategy); higher Treynor ratio (0,171 compared to 0,141 for the Impact Investing strategy) and higher Alpha (0,037 compared to 0,025 for the Impact Investing strategy) than all SRI strategies. Consequently, **KBC Impact Investing fund is achieving higher total rating than all strategies together** (with 8,521 compared to 7,983 for the Impact Investing strategy).

2. Which observations are most similar, are there clusters of observations?
   The return spectrum of 2,729% goes from 12,382% to 11,500; the Sharpe spectrum of 0,122 goes from 0,966 to 0,845 the Treynor spectrum of 0,024 goes from 0,150 to 0,126 and the Alpha spectrum of 0,025 goes from 0,025 to 0,000. Also, the total performance spectrum of 0,715 goes from 7,983 to 7,268.
   To conclude, there is no large spectrum between each strategy and as a consequence, each strategy does not differentiate significantly from the others.

3. Are there outliers?
   As we have seen in the 3-dimensional spectrum, Impact Investing is the strategy with the highest annualised return (12,382%). Besides, it is also the Impact Investing strategy that has the highest alpha (0,025). However, it is the thematic strategy which has the highest risk-adjusted performances with a Sharpe ratio of 0,966 and a Treynor ratio of 0,150. All in all, it is again the Impact Investing strategy that earns the highest total performance ratings (7,983) followed by thematic (7,9113) and Best-In-Class (7,268) while the KBC Impact Investing fund reaches the highest Total performance rating (with 8,521).
   To conclude**, the Impact Investing strategy should be favoured by an investor looking for high performance as it is the champion strategy**.

3.2.2. Risk comparison

1) Impact Investing funds comparison

Table 27: Risk data of SRI funds

	Name	ISIN	Volatility	Beta	Total Risk Rating
Best-In-Class	Candriam Sustainable World	LU0113400328	13,374%	0,920	8,065
	DPAM World Sustainable	BE0058651630	13,187%	0,852	6,724
	KBC Eco World	BE0133741752	14,135%	0,984	9,125
	NN Global Sustainable	LU0191250769	13,540%	0,942	8,462
	Triodos Sustainable Equity	LU0278271951	14,382%	0,994	9,260
	Triodos Sustainable Pioneer	LU0278272843	16,131%	1,026	8,236
Impact Investing	BlackRock Impact US	US0919361461	15,676%	1,077	7,353
	BlackRock Impact World	LU1254583351	14,045%	0,840	6,170
	Domini Impact Equity	US2571328606	26,895%	1,004	0,000
	Domini Impact International	US2571328861	16,464%	1,071	7,179
	KBC Eco Impact Investing	***BE0175718510***	***14,862%***	***0,901***	***7,161***
	NN Impact Opportunities	LU0250158358	14,146%	0,969	8,823
	Parvest Climate Impact	LU0406802339	13,704%	0,912	7,789
	RobecoSAM Child Impact	LU1277649130	12,606%	0,889	7,700
	RobecoSAM Gender Impact	LU1277652514	13,466%	0,942	8,494
	Schroder Climate Change	LU0302445910	14,673%	0,759	4,277
	Touchstone Sustainability and Impact	US89154X3026	15,660%	1,112	6,604
Thematic	Axa World Human Capital	LU0316218527	16,360%	0,921	7,055
	BNP Paribas Aqua	FR0010668145	13,560%	0,908	7,755
	KBC Eco Alternative Energy	BE0175280016	14,298%	0,904	7,412
	KBC Eco Climate Change	BE0946844272	13,376%	0,877	7,171
	KBC Eco Water	BE0175479063	13,794%	0,884	7,172
	Parvest Aqua	LU1165135440	13,776%	0,917	7,879
	Parvest Consumer Durables	LU0823411706	15,510%	1,002	**8,943**
	Parvest Environment	LU0347711466	14,156%	0,958	8,581
	Parvest Human Development	LU1165136174	13,376%	0,883	7,298
	Parvest Smart Food	LU1165137149	13,295%	0,845	6,536

Table 27 shows the risk data for each fund.

1. What variables are dominant for a given observation?
   KBC Impact Investing fund has a volatility of 14,862% (ranked 7th for all Impact Investing funds and ranked 20th for all SRI funds) and a Beta of 0,901 (ranked 7th for all Impact Investing funds and 18th for all SRI funds) which means that the asset is less sensitive than the market and that it moves in the same direction as the market. And finally, concerning the total risk rating, KBC Impact Investing ranks 7th for all Impact Investing funds and 20th for all SRI funds with a total risk rating of 7,161.
   To conclude, **KBC Impact Investing fund has high volatility** and is less closed to the market **relative to other Impact funds.** As Impact Investors require competitive investments (cf. supra p. 14), a recommendation would be to lower down the KBC Impact fund risks.

2. Which observations are most similar, are there clusters of observations?
   The 11 Impact Investing funds have a volatility between 26,895% and 12,606% which represents a spectrum of 14,290% and a Beta between 1,112 and 0,759 which represents a Beta spectrum of 3,353. Consequently, the total risk rating ranks between 8,823 and 4,277 which represents a total risk rating spectrum of 4,546. But if we take the fund Domini Impact Equity out as it is an excessive outlier, the volatility spectrum changes to 3,055%.
   To conclude, **the volatility spectrum is very narrow and there are no funds low risks.** In addition, it is interesting to note that all SRI funds' Beta are positive. 7 Impact funds (21 SRI funds) are less sensitive than the market and have Beta between 0 and 1 while 4 Impact funds (6 SRI funds) are more sensitive than the market and have Beta higher than 1.

3. Are there outliers?
   The Impact fund with the highest volatility is Domini Impact Equity (26,895%) followed by Domini Impact International (16,464%) and the Impact fund with the worse Beta (the further from 1) is Schroder Climate Change (0,7589). Whereas the Impact fund with the lowest volatility is RobecoSAM child Impact (12,606%) and with the best Beta (the closest from 1) is Domini Impact Equity (1,004) followed by NN Impact opportunities (0,969).
   To conclude, **the fund with the highest total risk rating is NN Impact Opportunities with 8,823 and should be favoured by an investor looking for low risk**, as it is the champion fund of all Impact Investing fund.

   In addition, for the Best-In-Class strategy, the fund with the highest overall risk rating score is Triodos Sustainable Equity (9,260) and for the thematic strategy, it is Parvest Consumer Durables (8,943). The SRI fund having the highest return-risk-Impact performance is thus Triodos Sustainable Equity and should be favoured by an investor looking for low risk, as it is the champion fund of all SRI funds.

2) Impact Investing strategy comparison

Table 28: Risk ratings of SRI strategies

SRI	Volatility	Beta	Volatility Rating	Beta Rating	Total risk Rating
BIC	13,837%	**0,963**	9,138	**8,259**	**8,698**
Impact	14,673%	0,942	8,553	6,347	7,450
Thematic	**13,785%**	0,906	**9,175**	6,094	7,634
KBC	14,862%	0,901	8,421	5,900	7,161

Table 28 represents the risk rating for each strategy.

1. What variables are dominant for a given observation?
   Impact Investing strategy has a volatility of 14,673% (ranked 3th for all SRI strategies) and a Beta of 9,942 (ranked 2nd for all SRI strategies). Consequently, it is achieving a total risk rating of 7,450 (ranked 3th for all SRI strategies).
   To conclude, **the Impact Investing strategy' weakness is its risks, as already highlighted by the 3-dimensional spectrum.**
   In addition, KBC Impact Investing fund has higher volatility (14,862% compared to 14,673 for the Impact Investing strategy) and worse Beta (further than 1) (0,901 compared to 0,942 for the Impact Investing strategy). **KBC Impact Investing fund is achieving a lower total rating than all strategies together** with a total performance rating of 7,161 (compared to 7,450 for the Impact Investing strategy).

2. Which observations are most similar, are there clusters of observations?
   The volatility spectrum of 0,888% goes from 14,673% to 13,785% and the Beta spectrum of 0,057 goes from 0,963 to 0,906. Also, the total risk spectrum of 1,248 goes from 8,698 to 7,450.
   To conclude, **there are no large spectra between each strategy and consequently, each strategy does not differentiate from the others. All spectra are very narrow and should be enlarged in order to satisfy all types of investors.**

3. Are there outliers?
   As we see, Impact Investing is the strategy with the highest volatility (14,673%) and Thematic is the strategy with the Beta the furthest from 1 (0,906). The strategy with the lowest volatility is Thematic strategy (13,785%) while the fund with the Beta the closest to 1 is Best-In-Class (0,963). And finally, and more importantly, the strategy which has the highest risk rating for the 3-dimensional spectrum is Best-In-Class (8,698) followed by the Thematic strategy (7,634) and finally by Impact Investing (7,450) while KBC Impact Investing fund has the lowest total risk rating (with 7,161).
   To conclude, **Impact Investing is thus generally a strategy with higher risk. The Impact Investing strategy should not be favoured by an investor looking for low risk but should rather favour the Best-In-Class strategy as it is the champion strategy.**

3.2.3. Impact comparison

For the Impact comparison, a double analysis was made. Indeed, ESG scores are, today, the best mean to compare all strategies together. However, it is not the best representation of the Impact of Impact Investing funds. This is the reason why SDG methodology was added but only for Impact Investing funds. The SDG methodology is thus not comparable between strategies.

1) ESG of SRI funds

a) Impact Investing funds comparison

Table 29: ESG data of SRI funds

	Name	ISIN	ESG	E	S	G	Total ESG Rating
Best-In-Class	Candriam Sustainable World	LU0113400328	27,172	20,991	25,93	42,149	6,215
	DPAM World Sustainable	BE0058651630	34,352	27,213	35,696	48,509	7,875
	KBC Eco World	BE0133741752	31,482	27,964	29,230	41,546	7,104
	NN Global Sustainable	LU0191250769	25,183	19,294	22,520	41,086	5,745
	Triodos Sustainable Equity	LU0278271951	26,938	20,130	25,866	43,462	6,194
	Triodos Sustainable Pioneer	LU0278272843	19,767	10,445	17,195	43,792	4,635
Impact Investing	BlackRock Impact US	US0919361461	17,399	12,776	11,748	33,697	3,930
	BlackRock Impact World	LU1254583351	29,457	24,922	27,178	42,377	6,697
	Domini Impact Equity	US2571328606	16,641	10,081	13,378	34,335	3,821
	Domini Impact International	US2571328861	36,634	29,996	37,364	49,965	8,351
	KBC Eco Impact Investing	***BE0175718510***	***28,729***	***19,427***	***27,290***	**51,298**	***6,652***
	NN Impact Opportunities	LU0250158358	19,831	13,612	17,615	36,152	4,565
	Parvest Climate Impact	LU0406802339	18,708	11,508	16,942	37,225	4,363
	RobecoSAM Child Impact	LU1277649130	31,344	25,933	30,311	44,019	7,120
	RobecoSAM Gender Impact	LU1277652514	37,480	33,979	39,039	57,738	9,122
	Schroder Climate Change	LU0302445910	21,972	17,498	20,379	33,666	5,011
	Touchstone Sustainability and Impact	US89154X3026	52,697	26,965	20,085	25,333	6,786
Thematic	Axa World Human Capital	LU0316218527	36,947	29,467	41,647	48,856	8,536
	BNP Paribas Aqua	FR0010668145	23,000	16,623	22,597	38,327	5,330
	KBC Eco Alternative Energy	BE0175280016	20,900	14,397	19,848	36,918	4,841
	KBC Eco Climate Change	BE0946844272	22,017	15,300	20,198	39,456	5,091
	KBC Eco Water	BE0175479063	22,490	14,351	20,681	43,531	5,249
	Parvest Aqua	LU1165135440	23,079	16,642	22,683	38,527	5,349
	Parvest Consumer Durables	LU0823411706	19,124	12,894	14,264	37,077	4,318
	Parvest Environment	LU0347711466	23,747	17,821	22,583	38,664	5,467
	Parvest Human Development	LU1165136174	24,951	20,273	24,185	36,503	5,708
	Parvest Smart Food	LU1165137149	23,759	17,197	21,693	40,661	5,455

Table 29 presents all the ESG data for each SRI fund.

1. What variables are dominant for a given observation?
   KBC Impact Investing fund has an ESG score of 28,729 (ranked 6th for all Impact Investing funds and 9th for all SRI funds), an Environmental score of 19,427 (ranked 6th for Impact Investing funds and 12th for all SRI funds), a Social score of 27,290 (ranked 4th for Impact Investing funds and 7th for all SRI funds) and a Governance score of 51,298 (ranked 2nd for Impact Investing funds and 2nd for all SRI funds). And more importantly, KBC Impact Investing fund has a total ESG rating of 6,652 (ranked 6th for all Impact Investing funds and 8th for all SRI funds).
   To conclude, **KBC Impact Investing fund has good Social and Governance scores but has relatively low ESG and Environmental score**. **A suggestion would then to select companies with higher Environmental Impact, which would increase the ESG score automatically.**

2. Which observations are most similar, are there clusters of observations?
   11 Impact funds have an ESG score between 52,697 and 16,641 which represents a spectrum of 36,056; an Environmental score between 33,979 and 10,081 which represents a spectrum of 23,898; a Social score between 39,039 and 11,748 which represents a spectrum 27,291 and a Governance score between 57,738 and 25,333 which represents a spectrum of 32,405. As a result, the total ESG rating ranges from 9,122 and 3,821 which represents a spectrum of 5,301. But if we can the RobecoSAM Gender Impact out as the ESG score are simple average instead of weighted average, then the ESG spectrum stays 36,056; the environmental spectrum becomes 19,915; the social spectrum 25,616; the governance spectrum 25,965 and the total ESG rating spectrum 4,530.
   To conclude**, the spectra are relatively broad especially the Social and Governmental spectra**.

3. Are there outliers?
   The Impact fund with the lowest ESG score (16,641) and the lowest Environmental score (10,081) is Domini Impact Equity, with the lowest Social score (11,748) is BlackRock Impact US and with the lowest Governance score (25,333) is Touchstone Sustainability and Impact. Whereas the fund with the highest ESG score is Touchstone Sustainability and Impact (52,697), with the highest Environmental score is RobecoSAM Gender Impact (33,979) followed by Domini Impact International (29,996), with the highest Social score is RobecoSAM Gender Impact (39,039) followed by Domini Impact International (37,364) and with the highest Governance score is RobecoSAM Gender Impact (57,738) followed by KBC Impact Investing (51,298). Also, the Impact fund with the highest total ESG rating is RobecoSAM Gender Impact (9,122) followed by Domini Impact International (8,351).
   To conclude, **the fund with the highest total ESG rating is Domini Impact International and is considered as the champion fund**.

   In addition, for the Best-In-Class strategy, the fund with the highest overall ESG rating is DPAM World Sustainable (7,875) and for the thematic strategy, it is Axa World Human Capital (8,536). The fund having the highest total ESG rating is thus RobecoSAM Gender Impact followed by Axa World Human capital and should be favoured by an investor looking for high Impact, as it is the champion fund which is surprising as we expected a Best-In-Class fund and not an Impact Investing fund or a Thematic fund.

b) Impact Investing strategy comparison

Table 30: ESG ratings of SRI strategies

SRI	ESG	E	S	G	ESG Rating	E Rating	S Rating	G Rating	Total ESG Rating
BIC	27,055	**20,561**	**25,901**	**42,806**	5,134	**6,051**	**6,219**	**7,414**	**6,204**
Impact	**28,729**	19,427	20,379	37,225	**5,452**	5,717	4,893	6,447	5,627
Thematic	23,040	16,632	22,138	38,595	4,372	4,895	5,316	6,685	5,317
KBC	28,729	19,427	27,290	51,298	5,452	5,717	6,553	8,885	6,652

T**able 30** concerns ESG rating for each strategy.

1. What variables are dominant for a given observation?

   Impact Investing strategy has an ESG score of 28,729 (ranked 1st for all SRI strategies), an environmental score of 19,427 (ranked 2nd for all SRI strategies), a social score of 20,379 (ranked 3th for all SRI strategies) and a governance score of 37,225 (ranked 3th for all SRI strategies). Finally, the Impact Investing strategies get a total ESG rating of 5,627 (ranked 2nd for all SRI strategies)

   To conclude, **the Impact Investing strategy ranks after the Best-In-Class strategy**, as was to be expected. It is also interesting to notice that inside the Impact Investing strategy, it is the Governance that achieves the highest score (37,225) followed by Social (20,379) and finally by Environment (19,427) which is good for Impact Investors which have social Impact preferences compared to environmental (cf. supra p. 15).

   In addition, KBC Impact Investing fund has the same ESG score (28,729) and the same Environmental score (19,427) as the Impact Investing strategy and has higher Social score (27,290 compared to 20,379 for the Impact Investing strategy) and higher Governance score (51,298 compared to 37,225 for the Impact Investing strategy). KBC **Impact Investing fund has also a higher ESG rating than all strategies together with a total ESG rating of 6,652** (compared to 5,627 for the Impact Investing strategy).

2. Which observations are most similar, are there clusters of observations?

   The ESG spectrum of 5,689 goes from 28,729 to 23,040; the Environmental spectrum of 3,928 goes from 20,562 to 16,632; the Social spectrum of 5,522 goes from 25,901 to 20,379 and the Governance spectrum of 5,580 goes from 42,806 to 27,225. Also, the total ESG rating spectrum of 0,888 goes from 6,204 to 5,317.

   To conclude, **there are no large spectra between each strategy and consequently, each strategy does not truly differentiate from the others.**

3. Are there outliers?

   As we see, Impact Investing is the strategy with the highest ESG score (28,729) but it is then the Best-In-Class strategy that has the highest Environmental (20,561), Social (25,901) and Governance (42,806) scores taken individually. And finally, and more importantly, the strategy which has the highest ESG rating is Best-In-Class (6,204) followed by the Impact Investing strategy (5,627) and finally by Thematic strategy (5,317) while KBC Impact Investing fund has the highest total ESG rating (with 6,652).

   To conclude, **the Best-In-Class strategy should be favoured by an investor looking for a high ESG rating** as it is the champion strategy.

2) SDG of Impact funds

The ESG score is however not the best manner to compare the Impact of Impact Investing strategy. To improve the Impact assessment of the funds, we therefore added the SDGs.

Table 31: SDG breadth and depth of Impact Investing funds

Name	Total Breadth	Average Depth	Breadth rating	Depth rating
Average	17	16,096%	10	3,671
BlackRock Impact US	17	4,900%	10	1,117
BlackRock Impact World	17	15,942%	10	3,636
Domini Impact Equity	17	8,824%	10	2,012
Domini Impact International	17	23,220%	10	5,295
KBC Eco Impact Investing	***17***	***10,196%***	***10***	***2,325***
NN Impact Opportunities	17	18,285%	10	4,170
Parvest Climate Impact	17	8,012%	10	1,827
RobecoSAM Child Impact	17	24,449%	10	5,575
RobecoSAM Gender Impact	17	31,699%	10	7,229
Schroder Climate Change	17	43,850%	10	10,000
Touchstone Sustainability and Impact	17	14,932%	10	3,405

Table 31 allows us to answer our 3 questions:

1. What variables are dominant for a given observation?
   The equities included in the KBC Impact Investing fund address the SDG 13 with the highest percentage (20%, ranked 8th for all Impact Investing fund) as well as the SDG 12 (20%, ranked 7th) then followed by SDG 7 (18%, ranked 6th), SDG 3 (16%, ranked 7th) and SDG 8 (16%, ranked 8th). While the equities address the SDG 1, SDG 10, SDG 14 and SDG 16 with the lowest percentage (4% each).
   Consequently, and in conclusion, the **KBC Impact Investing fund has an SDG breadth of 17 and an SDG depth of 10,196% which means that it is ranked 8th for all Impact Investing** funds which is quite low. To improve, KBC should select more equities that address the SDGs. However, we have to highlight the fact that the data were collected on basis of companies' self-assessments and may not represent the total SDGs that they are addressing. In addition, it does not indicate how far they go in the fight for SDGs.
2. Which observations are most similar, are there clusters of observations?
   The average depth varies by 38,951% between 43,850% and 4,900% and consequently, the depth rating varies by 8,882 between 10 and 1,117.
   To conclude, **the spectrum is thus relatively broad.** Not all funds address the SDGs with the same percentage probably because it is only an emerging framework.
3. Are there outliers?
   Regarding the breadth (which shows how many SDGs the fund addresses), all the Impact Investing funds addressed all the 17 SDGs. Regarding the depth (which shows on average how many equities address the SDG), Schroder Climate Change addresses the SDGs with the highest percentage (43,850%) while BlackRock Impact US addresses the SDGs with the lowest percentage (4,900%).
   To conclude, **an investor looking for high SDGs Impact should invest in Schroder Climate Change** as it is our champion fund.

This is also supported by our table in appendix 21 and appendix 22.

Appendix 21 on SDGs data for each fund can be read horizontally and vertically.

Horizontally, we can see on the Median line that it is the SDG 13 "climate action" that has the highest median of equities per fund in this SDG (25%) followed by SDG 8 "decent and economic growth" (23%) and SDG 12 "responsible consumption and production" (20%). For the KBC Impact Investing fund, it is also the SDG 13 "climate action" that has the highest percentage of equities addressing it (20%) as well as the SDG 12 "responsible consumption and production" (20%) followed by SDG 7 "affordable and clean energy" (18%). The SDGs the more addressed by the other funds are highlighted in blue. This is line with the conclusion of Eurosif showing that SDG 13 was the most targeted and with the conclusion of the GIIN showing that SDG 8 was the most targeted (cf. supra p. 37).

If we look vertically, for example, for SDG 13 concerning "climate action", the fund with the highest percentage of equities addressing this SDG is Schroder Climate Change (73%). KBC Impact Investing fund addresses this SDG with 20% of its equities while the median of the funds address this SDG with 25% of their equities.

To conclude, SDG 13 "climate action" has the highest percentage of equities per fund followed by SDG 8 "decent and economic growth" and SDG 12 "responsible consumption and production". In addition, the fund with the highest percentage for each SDG is Schroder Climate Change followed by RobecoSAM Gender Impact. And finally, KBC Impact Investing has lower percentage of equities addressing SDGs compared to the median.

In **appendix 22** where we can clearly see that Schroder Climate Change is the fund with the most equities addressing each SDG.

To interpret correctly the appendix 22, an investor should look at the number of colours a fund has (does it have 17 colours?), at the size of the colour (does it address the SDG with a high percentage of equities?) and at the overall height of the column (does it address all the SDGs with a high percentage of equities?).

3.2.4. Conclusion on the multi-dimensional spectrum

1) Impact Investing funds comparison

Table 32: Multi-dimensional data of Impact Investing funds

Name	ISIN	Return	Sharpe	Treynor	Alpha	Volatility	Beta	ESG	E	S	G	Breadth	Depth	Total 12-D Rating
BlackRock Impact US	US0919361461	13,355%	0,957	0,140	0,034	15,676%	1,077	17,399	12,776	11,748	33,697	17	4,900%	6,164
BlackRock Impact World	LU1254583351	11,862%	0,962	0,161	0,021	14,045%	0,840	29,457	24,922	27,178	42,377	17	15,942%	7,081
Domini Impact Equity	US2571328606	-13,291%	-0,433	-0,116	-0,209	26,895%	**1,004**	16,641	10,081	13,378	34,335	17	8,824%	3,093
Domini Impact International	US2571328861	9,329%	0,667	0,103	-0,003	16,464%	1,071	36,634	**29,996**	**37,364**	49,965	17	23,220%	7,521
KBC Eco Impact Investing	***BE0175718510***	***13,718%***	***1,034***	***0,171***	***0,037***	***14,862%***	***0,901***	***28,729***	***19,427***	***27,290***	***51,298***	***17***	***10,196%***	***7,278***
NN Impact Opportunities	LU0250158358	9,586%	0,794	0,116	0,000	14,146%	**0,969**	19,831	13,612	17,615	36,152	17	18,285%	6,545
Parvest Climate Impact	LU0406802339	**15,878%**	**1,279**	0,193	**0,057**	13,704%	0,912	18,708	11,508	16,942	37,225	17	8,012%	6,860
RobecoSAM Child Impact	LU1277649130	10,882%	0,994	0,141	0,012	**12,606%**	0,889	31,344	25,933	30,311	44,019	17	24,449%	**7,549**
RobecoSAM Gender Impact	LU1277652514	12,382%	1,042	0,149	0,025	13,466%	0,942	37,480	33,979	39,039	57,738	17	31,699%	**8,609**
Schroder Climate Change	LU0302445910	13,109%	1,006	**0,195**	0,032	14,673%	0,759	21,972	17,498	20,379	33,666	17	**43,850%**	6,905
Touchstone Sustainability and Impact	US89154X3026	13,343%	0,957	0,135	0,034	15,660%	1,112	**52,697**	26,965	20,085	25,333	17	14,932%	7,175

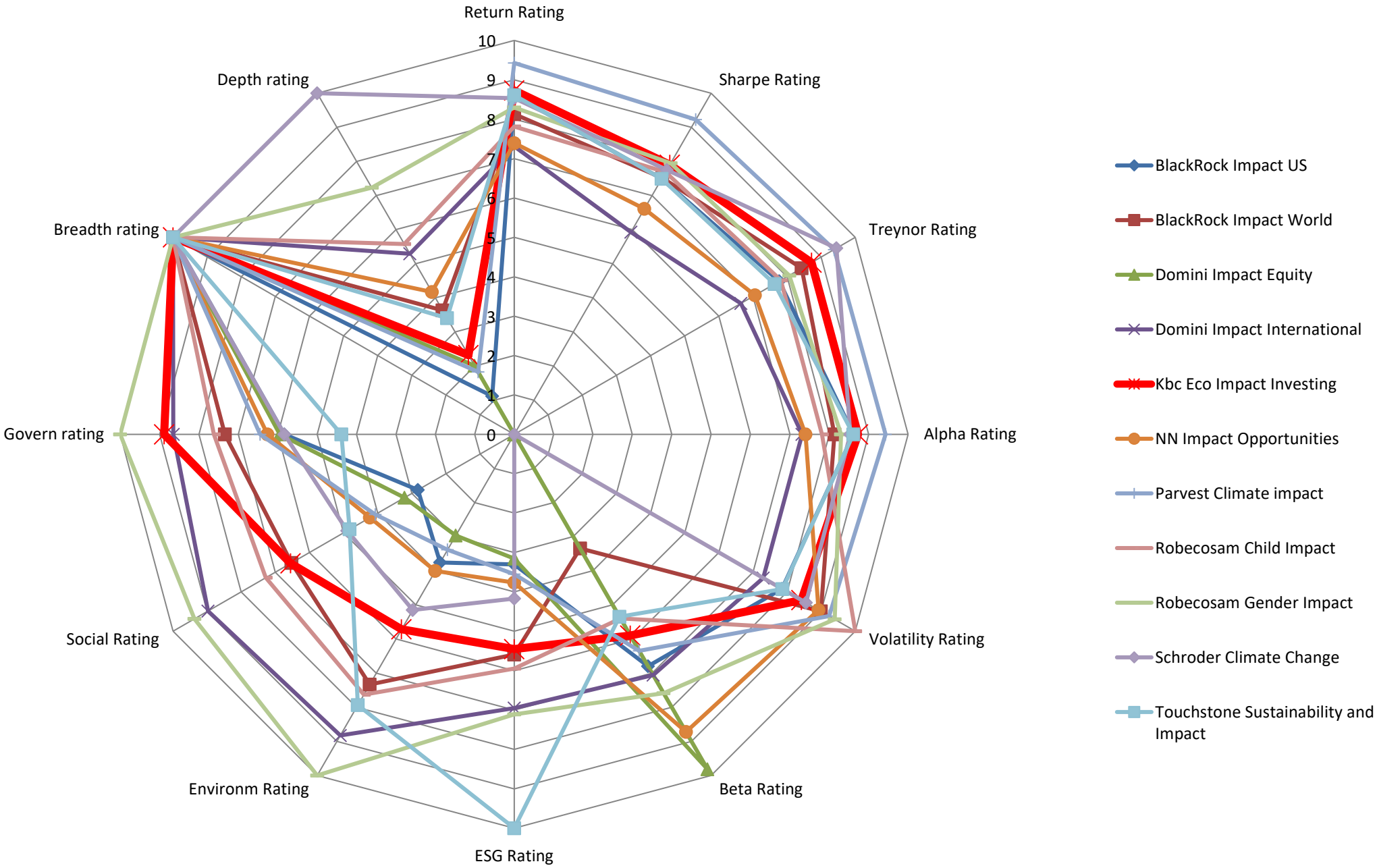
Table 32 presents all the data of the Impact Investing funds. We can visualise the 12 dimensions' spectrum for Impact Investing funds in **figure 20**.
Note that the same Kiviat diagram has been made for only the 10 first dimensions in appendix 23 and can be compared to the Kiviat diagram of the Best-In-Class strategy in appendix 24 and of the Thematic strategy in appendix 25.

1. What variables are dominant for a given observation?

KBC Impact Investing fund ranks relatively high in terms of return rating (ranked 2th), Sharpe rating (ranked 3th), Treynor rating (ranked 3th), Alpha rating (ranked 2th) but it ranks lower for the volatility rating (ranked 7th) and Beta rating (ranked 7th). In terms of the ESG (ranked 6th), environmental (ranked 6th) and social rating (ranked 4th), they also rank quite low but the governmental rating (ranked 2th) is high. Then, it has the same breadth than the other funds but very low SDG depth (ranked 8th). In short, it has high performance rating (ranked 3th), low risk rating (ranked 7th), ESG rating (ranked 6th) and SDG rating (ranked 8th). All in all, the KBC Impact Investing fund has a total rating of 7,278 and ranks 4th on 11 Impact Investing funds.

Our recommendations for KBC would be to improve the risk (both the volatility and Beta), the ESG score (especially the Environmental score) and the SDG depth.

Figure 20: 12-Dimensional spectrum of Impact Investing funds



2. Which observations are most similar, are there clusters of observations?

On to figure 20, we can clearly see that the spectrum between each strategy is narrow especially for the performance ratings but broad for the ESG ratings. Indeed, the return rating spectrum is 2,117; the Sharpe rating spectrum is 3,299; the Treynor rating spectrum is 2,800; the Jensen's Alpha rating spectrum is 2,117. Then, the volatility rating spectrum is 2,138; the Beta rating spectrum is 8,723. The ESG rating spectrum is 6,698, the Environmental spectrum is 5,861; the Social spectrum is 6,151; the Governance spectrum is 4,497. And finally, there is no SDG breadth spectrum and the SDG depth spectrum is 8,883. All in all, the total performance rating spectrum is 2,566; the total risk rating spectrum is 4,546 and the total ESG rating spectrum is 5,430.

Our recommendations for asset managers would then be to improve the risk spectrum in order to also offer Impact Investing funds with lower risk and proportionally good risk-adjusted return. Impact-First investors should then be ready to sacrifice high return if they have lower risks and if they keep high Impact. If an asset manager wants to launch a new fund, then the fund must be on or above the Impact Investing efficient frontier (cf. supra p. 62).

3. Are there outliers?

The take-aways from table 32 and figure 20, are that:

- An investor looking for the highest return should invest in Parvest Climate Impact (annualised return of 15,878%).
- An investor looking for the highest risk-adjusted returns should invest in Parvest Climate Impact (Sharpe of 1,279) or in Schroder Climate change (Treynor of 0,195).
- An investor looking for the highest Alpha should invest in Parvest Climate Impact (Alpha of 0,057).
- An investor looking for the lowest volatility should invest in RobecoSAM Child Impact (volatility of 12,606%).
- An investor looking for a fund following the market should invest in Domini Impact Equity (Beta of 1,004) or NN Impact opportunities (0,969).
- An investor looking for the highest ESG score should invest in Touchstone Sustainability and Impact (52,697); for high Environmental score and for high Social score in Domini Impact International (E =29,996; S =37,364) and for high Governance score in KBC Impact Investing (51,298).
- An investor who prefer SDG methodology should rather invest in Schroder Climate Change which as the highest average depth (43,850%).

Our recommendations for Impact Investors would then be to invest in RobecoSAM Gender Impact (8,609). However, as the ESG ratings for this fund are biased, they should rather invest in RobecoSAM Child Impact which has the second highest total rating (7,549). Nevertheless, an Impact Investor might allocate higher interest and thus higher weight to some dimensions. We then recommend making a personal weighted total rating aligned with investor's preferences.

2) Impact Investing strategy comparison

Table 33: Multi-dimensional data of SRI strategies

SRI	Return	Sharpe	Treynor	Alpha	Volatility	Beta	ESG	E	S	G
BIC	9,654%	0,845	0,126	0,000	13,837%	**0,963**	27,055	**20,561**	**25,901**	**42,806**
Impact	**12,382%**	0,962	0,141	**0,025**	14,673%	0,942	**28,729**	19,427	20,379	37,225
Thematic	11,500%	**0,966**	**0,150**	0,017	**13,785%**	0,906	23,040	16,632	22,138	38,595
KBC	13,718%	1,034	0,171	0,037	14,862%	0,901	28,729	19,427	27,290	51,298
Spectrum	2,729%	0,122	0,024	0,025	0,888%	0,057	5,689	3,928	5,522	5,580

Table 34: Multi-dimensional ratings of SRI strategies

SRI	Return Rating	Sharpe Rating	Treynor Rating	Alpha Rating	Volatility Rating	Beta Rating	ESG rating	E Rating	S Rating	G Rating	Total 10-D Rating
BIC	7,416	6,884	7,354	7,416	9,138	**8,259**	5,134	**6,051**	**6,219**	**7,414**	**7,129**
Impact	**8,298**	7,516	7,820	**8,298**	8,553	6,347	**5,452**	5,717	4,893	6,447	6,934
Thematic	8,013	**7,539**	**8,086**	8,013	**9,175**	6,094	4,372	4,895	5,316	6,685	6,819
KBC	8,730	7,904	8,721	8,730	8,421	5,900	5,452	5,717	6,553	8,885	7,501
Spectrum	0,882	0,655	0,731	0,882	0,621	2,165	1,080	1,156	1,326	0,966	0,310

All dimensions' data and ratings are presented in **table 33** and **table 34** for all strategies and for the KBC Impact Investing fund. We can visualise the 10 dimensions' spectrum in **figure 21**.

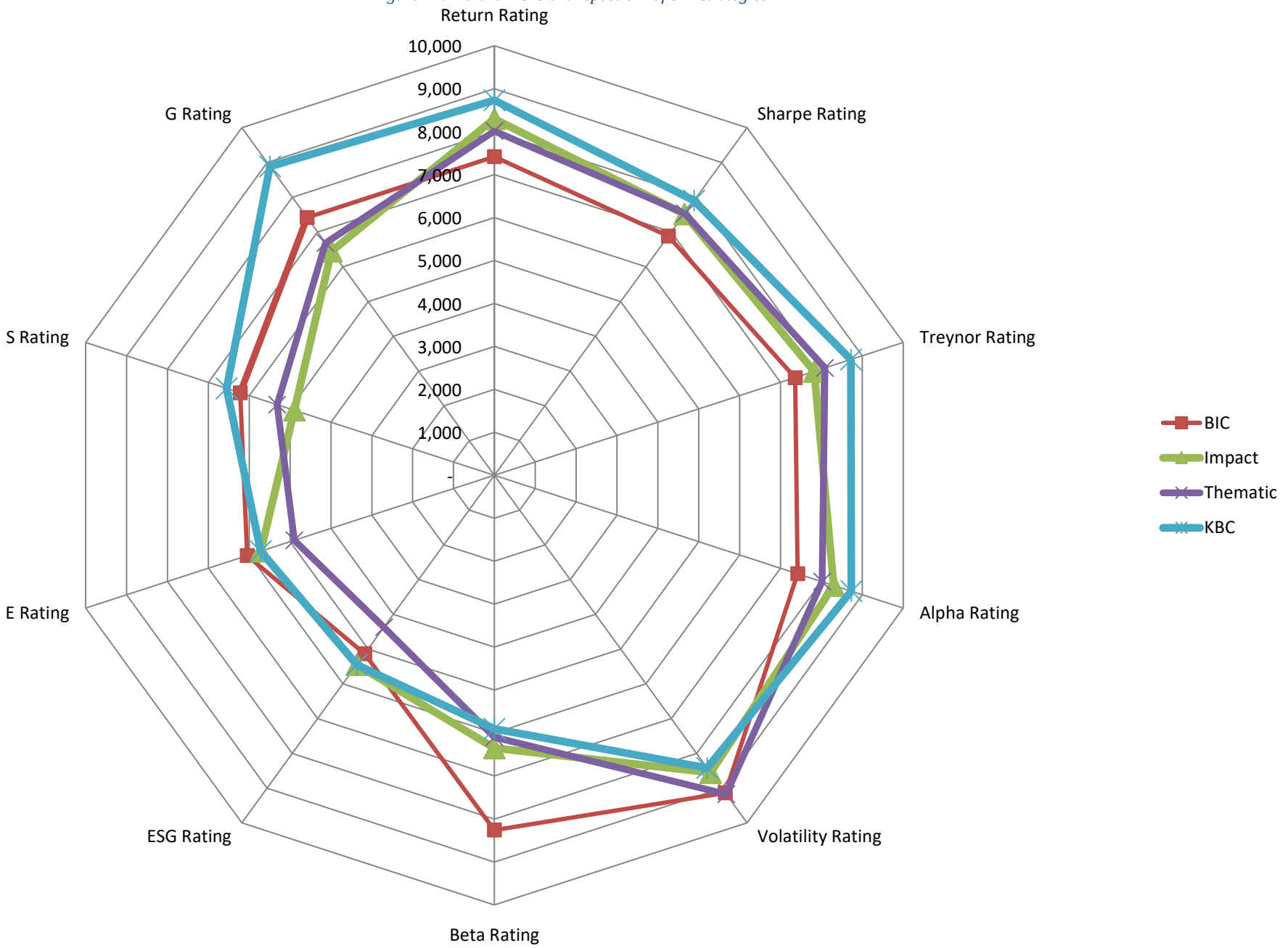
1. What variables are dominant for a given observation?

Impact Investing strategy ranks first in terms of returns (12,382%), Alpha (0,025) and ESG score (28,729) and ranks second in terms of risk-adjusted returns (Sharpe of 0,962 and Treynor of 0,141); in terms of Beta (0,942) and in terms of environmental score (19,427). But it also ranks third in terms of volatility (14,673%), of Social score (20,379) and of Governmental score (37,225). All in all, it has first performance rating (7,983), third risk rating (7,450) and second ESG rating (6,934) and finally, Impact Investing strategy has a total rating of 6,934 and ranks second after Best-In-Class.

Our recommendations for asset managers would then be to improve in priority the risk (especially in terms of volatility) and its Social and Governmental score and secondly the risk-adjusted returns, the Beta and the Environmental score.

Interestingly, KBC Impact Investing fund is performing better than all strategies in terms of return, Sharpe ratio, Treynor ratio, alpha, ESG score, social score and Governance score but not in terms of volatility, Beta and environmental score.

Figure 21: Multi-dimensional spectrum of SRI strategies



2. Which observations are most similar, are there clusters of observations?

On to figure 21, we can clearly see that the spectrum between each strategy is narrow especially for the volatility ratings and slightly broader for the ESG ratings. Indeed, the return rating spectrum is 0,882; the Sharpe ratio spectrum is 0,655; the Treynor ratio spectrum is 0,731 and the Alpha spectrum is 0,882. Then the volatility rating spectrum is 0,621 and the total Beta rating spectrum is 2,165. And finally, the ESG rating spectrum is 1,080; the Environmental rating spectrum is 1,156; the Social rating spectrum is 1,326 and the Governance rating spectrum is 0,966. All in all, the total performance rating spectrum is 0,715; the total rating risk spectrum is 1,248 and the total ESG rating spectrum is 0,888. And finally, the total rating spectrum is 0,310. In other words, there are no large spectra between each strategy and consequently, each strategy does not differentiate clearly from the others, except in terms of ESG.

Our recommendations for asset managers would then be to enlarge the spectra in order to satisfy all types of investors including the investors looking for lower risks. If asset manager want to launch a new strategy, then the strategy should be above the efficient frontiers of each SRI strategy (cf. supra p. 62).

3. Are there outliers?

The take-aways of table 34 and figure 21 are that:

- An investor looking for the highest return should invest in **Impact Investing strategy** (annualised return of 12,382%).
- An investor looking for the highest risk-adjusted returns should invest in Thematic strategy (Sharpe of 0,966 and Treynor of 0,150).
- An investor looking for the highest Alpha should in **Impact Investing strategy** (Alpha of 0,025).
- An investor looking for the lowest volatility should invest in Thematic strategy (volatility of 13,785%).
- An investor looking for a strategy the closest to the market should invest in Best-In-Class strategy (Beta of 0,963).
- An investor looking for the highest ESG score should invest in **Impact Investing strategy** (ESG of 28,729).
- An investor looking for the highest Environmental score should invest in Best-In-Class strategy (E of 20,561).
- An investor looking for the highest Social score should invest in Best-In-Class strategy (S of 25,901).
- An investor looking for the highest Governance score should invest in Best-In-Class strategy (G of 42,806).

We can thus easily visualise that the Impact Investing strategy is the best strategy only in terms of high return, high Alpha and high ESG score. The thematic strategy is the best strategy in terms of risk-adjusted returns and volatility. And the Best-In-Class strategy is the best in terms of Beta, Environmental score, Social score and Governance score. And finally, the most important thing is the total rating in the last column of the **table 34.** We can see that the Best-In-Class strategy has the higher total score (7,129) followed by Impact Investing (6,934) and Thematic (6,819).

Our recommendations for Impact Investors would then be to invest in Best-In-Class rather than in Impact Investing strategy. However, as explained several times, an Impact Investor might allocate higher interest and thus higher weight to some dimensions. We then recommend making a personal weighted total rating aligned with investor's preferences.

Interestingly, we can note that KBC gets a total score of 7,501which is higher that all strategies together.

General conclusion

This general conclusion is divided in 3 parts. In the first part, the contextualisation of Impact Investing, the literature review about the return-risk-Impact motivations of Impact Investors and the methodology will be summarised. The second part includes some recommendations for Impact Investors, asset managers as KBC and for regulators on how to improve the future of Impact Investing on basis of the results found. And finally, some limits concerning the methodology will be introduced.

1) Summary

In part 1 of this thesis, Impact Investing was contextualised in the SRI landscape using the GIIN definition "Impact Investments are investments made into companies, organisations, and funds with the intention to generate social and environmental Impact alongside a financial return". Besides, 5 characteristics were highlighted: Intentionality, Investment with return expectations, Range of return expectations and asset classes, Impact measurement and Long-term horizon.

Today, $250 billion euro are already invested in this strategy which represents 0,60% of total investments in SRI, at the world level and this amount is set to grow rapidly at a CAGR of 17,86% from 2015 to 2020, at the world level. It is expected to grow, as there is a high interest from investors that have 3 types of motivations: Impact, return and risk. Concerning the Impact expectations, Impact Investors prefer social investments to environmental investments and prefer country-specific Impact or emerging market Impact to global impact. Concerning the financial expectations, a majority of investors look for competitive, risk-adjusted returns, above 7%. In addition, there is a tendency that investors are moving from Impact-First to Finance-First investors. Although Impact Investments are growing, it remains a peripheral strategy that faces some challenges. Impact Investing is still very young; mostly present in the private market and driven by investors ready to bear higher risks. To secure the growth of Impact Investing, it is thus important to include retail investors and to activate public market. And finally, it is important to see if the return-risk-Impact characteristics of the supply are well aligned to the return-risk-Impact demand of investors? and how to improve by for instance launching new products to close the gaps between supply and demand. In order to do so, each of the return-risk-Impact dimensions was presented.

Regarding the performance dimension, there are several factors influencing the relationship between SRI and financial performance. Factors leading to positive relationship between SRI and returns were: shareholder engagement, learning effect and information effect. While factors leading to negative relationship were: diversification effect and monitoring costs effect. Then different biases that influenced our methodology were covered. Indeed, some biases lead to positive or negative relationship between SRI and performance. It is thus needed to avoid: measurement bias, comparison bias, period bias, sample bias, geographic bias, asset class bias and screenings bias.

Then, **regarding the risk dimension**, a misconception about the risk of Impact Investments was highlighted. There is indeed a general assumption that Impact assets are generally riskier while there is actually a broader range of assets along the complete risk/return spectrum. In addition, factors leading to additional risks for Impact Investments compared to traditional investments (capital risk, exit risk, unquantifiable risk, transaction risk and Impact risk) were described but ESG factors were also highlighted to mitigate those risks. In reality, Impact and ESG data allow a broader holistic view beyond the balance sheet and thus a better risk management. Moreover, while some of the risks will remain true, the development of Impact Investing over time should erode some of the risks associated with its early years. And finally, the literature on risk has influenced our methodology which was based on the Modern Portfolio Theory of Markowitz. This theory explains that the higher the return, the higher the volatility,

which is the main measure of risk. In addition, there is a need to move from the traditional mean-variance efficient frontier to a new frontier that includes Impact.
And finally, **regarding Impact**, the factors to take into account in WHAT to measure were highlighted such as intentionality, measurability and additionality. In addition, there are important distinctions between the outputs, the outcome and the Impact; between the investment Impact, the non-monetary Impact or the company Impact and between the product Impact or the operational Impact. Depending on the Impact Investors, the "net sustainable Impact" will thus not be same. Secondly, different frameworks to better know HOW to measure the Impact were covered such as the IRIS, GIIRS, SROI or GRI frameworks. But it still remains a challenge to compare those measures across projects and companies and more importantly to collect those data. As an alternative, the UN Sustainable Development Goals emerged as a credible framework in the eyes of many Impact Investors. However, the ESG framework looks to be the most used in the eyes of all investors in order to assess the sustainability of an equity. Those last 2 frameworks were therefore part of the methodology.

Thanks to the contextualisation and the literature review, we were able to highlight the need to position Impact Investing in the SRI environment, hence our research question:

"**Do the characteristics of the KBC ECO Impact Investing fund satisfy investors' demand in comparison with the supply of other Belgian Socially Responsible funds and of other worldwide Impact Investing funds mainly in terms of return, risk and Impact?**"

To answer this question, we built 2 return-risk-Impact spectra: one simplified spectrum and one nuanced spectrum. The results expected from those spectra are to come to a rating for each individual dimension and a total score for all dimensions taken together. This allowed us to compare the KBC Impact Investing fund with other Impact Investing funds and to compare the Impact Investing strategy with other Best-In-Class and Thematic strategies. And finally, this allowed us to highlight champions for each strategy. But first, we had **to select our funds**. To do this, we applied 5 criteria in order to have comparable funds to the KBC Impact Investing fund: key words, asset managers, asset allocation, geographic allocation and period of study. Even though those criteria can be seen as too restrictive, we obtained 6 Best-In-Class, 10 thematic and 11 Impact funds: 1 in Belgium and 10 abroad. However, in the future, it is likely that there will be more Impact Investing funds in Belgium as all the 6 asset managers are already promoting this strategy. Then, concerning our return-risk-Impact spectrum, we decided to use radar plot or **Kiviat diagram.** In order to apply this graph, we selected 10 dimensions, computed them and converted them on a same scale ranging from 0 to 10. **For our 3-dimensional spectrum,** we used the annualised daily returns on 1 year to represent the return dimension, the annualised volatility on 1 year to represent the risk dimension and the ESG score to represent the Impact dimension**. For our multi-dimensional spectrum**, we added the Sharpe ratio, Treynor ratio and Jensen's Alpha to represent the performance, the Beta to represent the risk and the E, S, G score to represent the Impact but also the SDGs for Impact funds. And finally, as for the 3-dimensional spectrum, we added a total score regrouping the average of the 10 dimensions for Best-In-Class and Thematic strategies and of the 12 dimensions for Impact Investing strategies.

2) Results and implications

This section will be divided in two. First, we will answer the question "does the KBC Impact Investing fund satisfy Impact Investors' demand?". Second, we will see what the implications are for the investors as well as for KBC and other asset managers. To analyse if the Impact Investors are satisfied with the KBC fund, it has been compared with other Impact funds and with other SRI strategies.

When comparing the KBC Impact fund with other Impact funds, Impact Investor are likely to be satisfied by the 3-dimensional score of 7,534 as it is ranked 4th for the 11 Impact Investing funds.

However, some Impact Investors (depending if they are Impact-First or Finance-First investors) may be interested in a more nuanced approach. In that case, they will be highly satisfied by the fund's performances: return of 13,718% (ranked 2th); Sharpe of 1,034 (ranked 3th), Treynor of 0,171 (ranked 3th) and Alpha of 0,037 (ranked 2th). However, high performances also mean high risks: volatility of 14,862% (ranked 7th) and Beta of 0,901 (ranked 7th). Normally, Impact Investors would be ready to bear higher risks provided that the Impact score is also high. Unfortunately, ESG and SDG scores are rather low with: ESG score of 28,729 (ranked 6th) and SDG depth of 10,196% (ranked 8th). As a result, the KBC Impact Investing fund final score for the 12-dimensional is 7,278 and it is the 4th Impact Investing funds. Furthermore, the KBC Impact Investing fund has higher 10-dimensional score (7,501) than the average of Impact Investing (6,934) but also than the average of Best-In-Class (7,129) and Thematic (6,819).
All in all, Impact Investors and especially Finance-First investors should be satisfied by the 3, 10 and 12-dimensional scores. But, of course, it all depends on the weight they allocate to each dimension. In addition, if Impact Investors want to increase their satisfaction, they should rather invest in RobecoSAM Child Impact as it has the highest total rating overall (7,549).

When comparing Impact Investing strategy with other Best-In-Class and Thematic strategies, Impact Investors are likely to be satisfied by the 3-dimensional score of 7,434 as it ranked as the 1st SRI strategy. However, Impact Investors may want to have a more nuanced approach. In that case, they will also be satisfied by the strategy' performances: return of 12,832% (ranked 1st) and alpha of 0,025 (ranked 1st). However, its risk-adjusted returns are slightly weak: Sharpe of 0,962 (ranked 2nd) and Treynor of 0,141 (ranked 2nd). Its risks are even weaker: volatility of 14,673% (ranked 3th) and Beta of 0,942 (ranked 2th). The good news concerns the ESG score of 28,729 (ranked 1st) but not the E score of 19,427 (ranked 2nd); S score of 20,379 (ranked 3th) and G score of 37,225 (ranked 3th).
Therefore, the Impact Investing strategy gets a final 10-dimensional rating of 6,934, after the Best-In-Class Strategy (7,129) but before the Thematic strategy (6,819). Investors who want to increase its satisfaction should rather invest in Best-In-Class strategy.

To conclude, the answer to the research question is mitigated. The KBC Impact Investing fund does satisfy investor's demand in comparison to the average of SRI strategies but it can still be improved.

The implications for investors are then the following: investors who want to have the best score regarding the 10 dimensions should choose for a Best-In-Class strategy. But if they still want to stick to the Impact strategy, then they should rather opt for RobecoSAM Child Impact.

The implications for KBC would be to improve the volatility and Beta, the Environmental score and the SDG depth of the fund. And those pieces of advice also hold for other Impact Investing funds.

Indeed, our analysis has shown that Impact Investing strategy ranks first in terms of returns (12,382%), Alpha (0,025) and ESG score (28,729) and ranks second in terms of risk-adjusted returns (Sharpe of 0,962 and Treynor of 0,141); in terms of Beta (0,942) and in terms of environmental score (19,427). But it ranks third in terms of volatility (14,673%), of Social score (20,379) and of Governmental score (37,225). All in all, the Impact Investing strategy has a total rating of 6,934 and ranks second after Best-In-Class.

The implications for other Impact asset managers would then be to improve in priority their risk (especially in terms of volatility) and their Social and Governmental scores. At the beginning of Impact Investing history, Impact pioneers were ready to bear high risks. But in order to embrace reluctant institutional investors or new retail investors, the public market now needs to widen its risks spectrum. Indeed, all Impact Investing funds rank on a very narrow spectrum (presented on a scale from 0 to 10) regarding their performances and volatility: return spectrum of 2,117; Sharpe spectrum of 3,299;

Treynor spectrum of 2,800; Alpha spectrum of 2,117 and volatility spectrum of 2,138. Whereas they also score on a very scattered spectrum regarding their Beta, ESG and SDGs: Beta spectrum of 8,723; ESG spectrum of 6,842; E spectrum of 5,861; S spectrum of 6,151; a G spectrum of 4,497 and a SDG depth spectrum of 8,883. In other words, there are already many funds spread on the Impact spectrum whereas there is still some space to fulfil on the performance and risk spectra. Here are some suggestions in order to mitigate the risks: hedging some systematic risks (such as wars or economic recessions in some countries where companies are active); diversifying the portfolio either by taking more and more positions (in the same countries or sectors) to dilute the risks or by including new countries and/or new sectors; improving the liquidity of the funds (by including easily tradable equities); including larger equity capitalisations (which could be synonym of stable companies); monitoring carefully market changes (new competitors, new regulations) but also management changes (through higher active engagement); changing the equity weights when necessary if, for instance, there are new controversies about a company; considering the short-term but also the long-term gains or losses (as a long-term focus would lead to better risk-adjusted returns, especially for public equities which have more fluctuating markets); continuing to monitor extra-financial information (e.g. the inclusion of all stakeholders) in order to avoid ESG risk (non-compliance with ESG criteria) or reputational risks; etc. A very last suggestion is to launch new financial products with low and slow returns but high Impact. Indeed, Impact-First investors should be ready to sacrifice high return if they have lower risks and if they keep high Impact. Note that if an asset manager wants to launch a new fund, then the fund must be on or above the Impact Investing efficient frontier.

Parallel to that, many different actors (asset managers, investees, intermediaries, public authorities, etc.) can play an important role in improving Impact Investing. The public authorities also play their role in helping asset managers, for example, to transfer the risks (to provide guarantees for investments that have a positive social Impact) or to compensate the risks (with price premiums, tax incentives or revenues from carbon offsets).

3) Critical perspective

Thanks to some discussions with Ms. Dumas, Mr. Stiernon and Ms. Berbers and thanks to a discussion papers of Oxfam (2017), some limits and difficulties were highlighted. Those limits will be here presented in order to insist on the fact that the results of the thesis must be considered carefully and should not be taken at face value.

Firstly, here are some limits concerning **the definition of Impact Investing**. Firstly, the asset value of Impact Investing and the percentage of Impact Investors preferences do not make the distinction between the public and the private market and between Impact-First and Finance-First investors. Consequently, all the numbers include in this first part have to be considered carefully. Moreover, there is some confusion between for instance Thematic and Impact Investing strategies as we have seen for the Parvest Environment thematic fund and the Parvest Climate Impact fund. An investment might consequently end up in several strategies at the same time. The comparison is also rather difficult between asset managers because they have different views on Impact strategy (do they make the distinction between product Impact, operational Impact? And what are their revenue threshold and their Impact frameworks?). To improve the definition of Impact Investing, we should add criteria as the liquidity turnover of the funds (to see if the investments are hold on the long term) and as new engagement criteria (to see if managers are truly voting, making suggestions and monitoring the application of these suggestions).

Concerning the performance, the literature solely describes SRI and not Impact Investing specifically. Impact Investing is indeed too young to identify the factors clearly influencing its performance. However, it seems that the factors highlighted for the SRI are also applicable to Impact Investing.

Besides, we tried to avoid the methodological biases introduced by Revelli and Viviani (2011) but they did still influence our results. For instance, we choose a period of 1 year to analyse the Impact Investing funds as this is a very young strategy. Consequently, the 1 year return could not be considered as representative and we should expect negative and less stable returns for Impact Investing than for Best-In-Class strategy which have existed for a longer period. A recommendation is therefore to wait a minimum of 3 years so that Impact Investing strategy can be improved thanks to the learning from past mistakes. In addition, it would have been interesting to compare the fees of the different funds as it is also a quite important criterion for investors. Furthermore, due to our selection criteria, we had a small sample of 27 funds to assure a neutral relationship between SRI and performance. However, in the future, the number of Impact Investing fund is likely to increase and the larger sample will probably produce a more positive relationship as a result. Anyway, it was not a problem to have a small sample because Kiviat diagrams are only helpful for small-to-moderate-sized multivariate data sets. If the sample is to broad, the graph becomes overwhelmed. Furthermore, we compared funds with variable sizes, including from 45 stocks (for KBC Impact Investing) to 917 stocks (BlackRock Impact World). Consequently, small funds are likely to more volatile than funds more diversified. Then, we gathered worldwide Impact funds and there is thus a possibility that the investment culture has an effect on the performance. However, this bias has been avoided for the Best-In-Class and Thematic funds as those funds are managed in Belgium. Besides, it is important to note that the funds selected have worldwide geographic allocation in order to have Impact in all regions. Some Impact Investors may however prefer country-specific Impact or emerging market Impact. Finally, we used the Capital Asset Pricing Model because it is the most used in the market. However, this model couldn't stand the crisis and is often criticised because its assumptions are not verified in the real world. For instance, it assumes normal and linear distribution of asset returns within an asset class, which for individual equities has been proven to be false. In addition, it does not take into account the transaction costs; it depends on an efficient investment market with homogeneous investor expectations; it considers only systematic risk with a Beta that is all but a reliable predictor of future returns, etc. Consequently, new neo-classical theories are emergining that should also be worth exploring. For example, we could have used other factor models in order to better understand what the factors influencing the Impact Investing returns are.

Historically, before Impact Investing, there was only one financial tool for example to address poverty: making donations, which implied a 100% loss of capital. Then, new financial vehicles were developed to attract more capital suppliers. Since then, it seems that Impact Investing has lost its focus on the essence of its true mission. Indeed, the predominant focus in the literature is on financial return expectations but not on the downstream companies or their Impact. Indeed, there are very little research done on the Impact achieved by those investments. Various studies say that market rate returns are achievable but those same reports remain silent on the associated Impact achieved. Besides, the experiences and the needs of the "downstream companies" (who receive the capital) are not explored in the existing the literature. And most companies elected to these investments are actually not always able to deliver high rates of return because some of these companies are facing emerging market risks (e.g. economic and political instability, infrastructure challenges, commodity price shocks). Some even only achieve financial break-even after 7 to 10 years. Even beyond maturity, the companies remain fragile because of internal changes (loss of staff) or external changes (weather-related changes). That's why companies need patient capital (with a time horizon greater than 10 year) and need investors who seek to maximise Impact while accepting varying levels of returns. In other words, the field of Impact Investing is evolving with a one-sided view of investors' needs and not with the realities and needs of the companies themselves. Consequently, the need for higher return might lead to a sacrifice of Impact. For instance, we might be tempted to exclude companies with high Impact potential but which are unlikely to deliver market rate return. There is a risk of mission drift of Impact Investing due to the rise

of unrealistic expectations about financial returns. In order to avoid this mission drift, new financial products should be developed in order to better serve the needs of the companies seeking to have an Impact such as financial products with low and slow returns but high Impact. Furthermore, we should better understand the downstream companies' experiences and analyse their structures and the incentives that will really optimise their Impact. We should also ensure that investors are actively engaged in the companies' governance by for instance sharing expertise, providing technical and governance assistance, helping them build strategic relationships or securing and protecting the company's social mission, etc.

Concerning the Impact measurement, we would like to underline once more the difficulties to find an Impact measurement framework allowing a comparison between SRI strategies and also between investments. ESG data were initially created to assess the Impact of Best-In-Class strategy and they are consequently not the best measurement of the Impact of Impact Investments and Thematic investments. For example, the ESG framework is unable to distinguish the operational Impact and the product Impact It is thus unsafe to compare the Impact of the different strategies only with this Impact measurement. The Bloomberg ESG disclosure scores should therefore be completed with other analysis including for example the number of controversies an equity face, as suggested by Sustainalytics. In addition, we would like to highlight the fact that there is a possibility that the smaller funds (with few equities positions) have lower ESG score than bigger funds. Indeed, smaller funds might include equities that do not have an ESG score yet and this will tend to dilute the average score of the funds. By the way, even if these equities do not have an ESG score, they might be of top quality (because they may have higher sustainability requirements). Then, regarding the SDGs, the data were collected on basis of companies own disclosures and may not represent the real SDGs they are following. In addition, this self-disclosed data gives no clue of how far companies fight for SDGs. Also, a fund with many equities is likely to address more SDGs that a fund with a smaller number of equities. As a final remark, SDG methodology counts only for Impact Investing strategy and cannot be extended to other SRI strategy. This prevents any comparison possibility. As a side point, we recommend that regulators bound companies to include extra-financial information in their annual reports in order to collect more ESG and SDGs data.

Concerning the results and implications, the suggestion of lowering the volatility in order to satisfy risk-averse investors is in reality very difficult to implement. often, funds' managers can have difficulties in finding companies with both high Impact and small risks. As explained previously, most Impact companies are actually in start-up phase or are located in emerging markets, which explain why the risk level is high. Furthermore, it is not because the spectrum is narrow or broad, that the results are to be seen as good. Indeed, a narrow return spectrum that ranks high is good news for investors. Inversely, an ESG spectrum that is disperse might be bad news for investors looking only for high ESG and not for low ESG scores.

4) Last but not least

Although facing some limits, the thesis brings a meaningful kind of impact to the Impact Investing market. Firstly, because it concludes that the KBC Impact Investing fund and the Impact Investing strategies do not completely satisfy the Impact Investors and, secondly, because it suggests several possible improvements. The thesis is a first attempt to solve some of the challenges highlighted in the future expectations of Impact Investing. Indeed, we recommended to lower the risks in order to have more viable Impact Investments products; we advised using ESG and SDG frameworks together, based on the models we constructed; we showed higher performances for Impact Investments; we suggested ways to lower the risks and finally, we offered a broad exploratory research on the subject in order to improve a common understanding of Impact Investing. In short, we paved the way to overcome some barriers of Impact Investors in the public market.

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