The Emergence of Green Bonds: how sustainable finance is being approached worldwide

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To my family, for always believing in me
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INTRODUCTION

As humanity is using resources at a rate higher than that of their regeneration, which is causing both the exhaustion of resources and a deep environmental impact, the majority of the companies are shifting towards a more environmentally sustainable path. Since 1972, the Brundtland Commission paid huge attention towards a more efficient use of resources, to minimize the waste of the resources and to maximize the environmental quality and responsibility towards the ecosystem, the so-called “Circular Model Economy”\(^1\).

The necessity of limiting environmental impact has led many enterprises to act in a more sustainable way, by implementing Environmental, Social and Governance practices (ESG practices) in their business, where, thanks to a more transparent degree of governance, current and future generations’ welfare will be preserved. Specifically, as reported by Golden Sachs, the total value of companies regarded as sustainable was worthy $56 billion in 2017, whereas, according to the Global Sustainable Investment Associations, there was a huge increase in their value from $13,300 billion in 2012 to $21,400 billion in 2014. In the light of these events, Finance World is paying remarkable attention to the subject at issue, as proof, the London Stock Exchange Group published the new guidelines for the ESG reporting in 2017, in order for the flow of information between investors and issuers to be improved.

However, if Italian companies are really concerned about the matter, in foreign countries, the debate is definitely heat, because of the “Divesting” issue of the shares linked to the fossil fuel, after the Paris Agreement (2016). Paris Agreement was signed with the goal of reducing GHG emissions to keep the temperature target at 2°C, with related effort to stay within 1.5°C, as well as reducing the peak emission as soon as possible and reaching carbon neutrality in 2050. With this concern, the main areas of implementation are that of: renewable energies, energy efficiency, transportation, methane and other non-CO\(_2\) gas. Basically, the question is how addressing fuel and fossil investments and towards whom.

\(^1\)W. Pearce, D., and Turner K.(1989) “The economics of Natural Resources and Environment”.
In general, climate concern is an objective and unavoidable fact, and this is the reason why global attention is channelled to: lower CO$_2$ emissions, low-carbon technologies, policies capable of fostering economic efficiency, and a lower use of energy consumption. Renewable energy sources are regarded as the most effective way to support the transition towards low-carbon economy, thanks to some tangible effects it can generate: energy security and diversity of supply, green growth, increase in employment and GDP level, clear reduction of negative externalities generated by CO$_2$ and GHG emissions.

Environmental sustainability concept is spreading out not only among countries, but also among sectors, included the financial one. The focal point is not whether to embark a sustainable path, but, still it is ought to be done, scholars and legislators are trying to spot the most effective path to be followed for fulfilling this goal.

With this regard, it is imperative to outline the enormous contribution given by the High-Level Export Group in its Financial Sustainability Report 2018, which, by investigating the urgency of developing a sustainable finance, drew some recommendations to be taken by the European Commission and it identified the major entities (both public and private) deemed to implement such actions.

As green awareness is spreading out in this field, financial tools are supposed to be identified for reducing environmental impact. Insofar, bonds have been regarded as the most appropriate ones, given their large a consistent part in the whole capital markets.

However, because the Green Bond Market is still in expansion, a lot of controversies are in force and the real roadway to be taken remains still unclear. In fact, although the first Green Bond’s issuances by the European Investment Bank and the World Banks were registered in 2007/2008, the real boom of the market is dated only in 2015. This means that the existing legislative framework is still too immature to be totally reliable and continuous updating are necessary for better clarifying the framework where to act.
In order to provide the reader with a clear picture on the use of Green Bonds as way to approach green finance, the analysis to be carried out will be divided into three main chapters.

The first chapter will be discussing the emergence of Green Bonds as financial instruments to contribute to environmental sustainability. With this regard, the chapter will present the definition of Green Bonds’ Principles and their characteristics, as well as the advantages and disadvantages of the issuances. Particularly, it will be investigated why issuers’ and investors’ are still hindered from dealing with Green Bonds, despite evidences of their higher performance with respect to traditional bonds.

The second chapter will be devoted to the Green Bonds’ Market breakdown, by investigating how this market is developing across nations, by sector and kinds of investors. The study will be focusing on the path undertaken by these countries in terms of green investments and it will investigate whether there exist some differences, and if it so, why.

From the general overview of Green Bonds’ Market, the analysis will shift towards a more peculiar study, that of Italy, in order to understand which approach our country is taking towards the concept of financial sustainability.

Particularly, the last chapter of the dissertation will provide the reader with the analysis of the Italian landscape in approaching green finance, in both the banking and the corporate sector. Specifically, two empirical cases will be reported, that of Intesa Sanapaolo (for what concerns banking field) and that of Enel (regarding corporate field). The goal is to understand in which direction Italy is going when speaking about environmental sustainability and green finance. In fact, the choice of analysing two different sectors comes from the willingness to catch the path Italy is embarking in term of green sustainable finance from any possible perspective.
CHAPTER I: THE EMERGENCE OF GREEN BONDS AS FINANCIAL INSTRUMENTS TO SUPPORT ENVIRONMENTAL SUSTAINABILITY

1.1 Green Bonds’ Overview

As environmental concern is progressively increasing, also finance is helping achieve sustainable goals, through long-term and large-scale investments, along with both the 2030 targets set by the Agenda of Sustainable Development Goals\(^2\) and Paris Agreement.\(^3\)

In green finance, Green Bonds have resulted to be the most common financial tools used, both because of the consistent part bonds occupy in the capital market, and because of the long-term horizon they are based on. Basically, Green Bonds are ordinary bonds being proposed to any kind of global investors, aiming at financing eco-sustainable projects and being emitted in any currency by an investment grade issuer (e.g. AAA), who ensures the repayment at the end of maturity.\(^4\)

The development of the Green Bonds’ market started in 2007/2008, by the issuance of two Green Bonds by the European Investment Bank and the World Bank, which respectively accounted for € 600 million and $ 440 million. After the involvement of sub-sovereign, supranational and agencies, in 2012, municipalities and local government joined the market with the first issuance by Ile de France, followed by Gothenburg (Sweden), Massachusetts (USA), State of California (USA) and Province of Ontario (Canada), having contributed to a total amount of $11 billion\(^5\).

\(^2\)It is the action plan for people, planet and prosperity, guiding all global, regional and national development. The United Nation Industrial Development Organization (UNIDO) is fully committed to contribute to the accomplishment of the goals, by providing also support to Member States.


The graph below marks the main events having affected the Green Bond Market development.

**Figure 1.1 Green Bonds Market on the Rise since 2010 ($bn)**

Although the first Green Bonds’ issuances are dated during the years 2007-2009, the deep development of the market was registered only in 2015, as inferable from the graph. In fact, in 2015 emerging countries’ entered the market. With matter of fact, China, which entered the market in the 2015, immediately became the leader, followed right after by India. In fact, what really contributed to the development of the Green Bonds’ market was the emerging countries’ participation, whose share accounted for 33% of the global issuance of Green Bonds (i.e. a value of $10 billion out of the $21 billion global value⁶). Additionally, a strong contribution is amenable

also to the participation of private banks and corporations, (beyond the already present multilateral development banks and financial institutions\(^7\)) and the increase in climate concern\(^8\).

### 1.2 Principles and Characteristics

Green Bonds have to be structured in a way such as close as possible to the Vanilla Plain bonds\(^9\), with a minimum variety of interest repayment and with the intent to attract as many different kinds of investors as possible.\(^10\) They are conceived in a way capable of incorporating small-scale sustainable projects into larger ones. With this regard, The Australian Macquire Bank conceived a scheme for collecting infrastructural assets up to point where investors are attracted by the amount whenever the fund is raised.

The necessity of providing transparency on Green Bond issue has driven in 2016 the International Capital Market Association, ICMA\(^11\), to expand the inputs drawn by the Green Bond Principles Executive Committee, with the intent of ensuring a constant feedback of the Green Bonds’ performance, as well as, a constant investors’ updating along with the market trend, making transactions easier. Basically, Green Bond Principles identifies four main fields for the identification of a Green Bond: Use of Proceeds, Process for Project Evaluation and Selection, Management of Proceeds and Reporting plus a recent addition that of the external review, to guide investors to comply with GBP.

The use of proceeds clearly prescribes the description of a Green Bond and the way it will be used for the Green Project, by making sure the issuer will correctly estimate

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\(^9\)“Vanilla Plain” is the term used for defining a standardized and basic negotiations for either: options, bonds or swap. They have predefined characteristics, therefore they do not contemplate modifications.


\(^11\)It is a membership association serving both buyers’ and sellers’ interests. It includes: issuers, investors, and capital market infrastructure projects. It currently counts more than 530 members across 60 countries. It focuses on the regulative side impacting market practices and the functioning of international debt capital market.
the share of financing for the underlying project. With this matter, GBP categorizes projects as green if they are delved to: the use of renewable energy, limited pollution, protection of environment and biodiversity, sustainable management, labelled, certified and eco-efficient products.

The second GBP component is the Process for project Evaluation and Selection which consists in the issuer’s description of the project and the associated Green Bond according to both green eligibility criteria and environmental sustainability objectives, along the sequence reported below. This will surely increase the transparency of the financing in the phase of External Review.

**Figure 1.2 Process for Project Evaluation and Selection**

1. **Screening** projects satisfying green requirements
2. **Review** eligible projects for ensuring green bond support
3. Finalization of the selection of eligible green projects
4. Use of Proceeds

Source: Own Elaboration

The third component is that of Management of Proceeds: it may be either credited to a sub-account, moved to a sub-portfolio or it may be constantly tracked in by the
issuer for better explaining the use of proceeds in order to increase transparency and consistency for investors.

The last and fourth component is the Reporting, which has to be presented annually and which has to contain both qualitative and quantitative information, still in conformity with the transparency principle. Whenever a confidentiality concern arises, the issuer shall present the information in more generic terms 12.

According to the Green Bond Principles delivered by ICMA in 2017, it is necessary for all the aforementioned elements to be clarified as much as possible, since a better understanding of the Green Bond will facilitate the participation of the players in the market.

Defining the process for the use of a Green Bond may be a quite hard task, sometimes. This is why, many issuers seek for external help, the so called “External Review” 13. The broad goal justifying the introduction of an External Review depends on the willingness to achieve common and harmonized standards worldwide for the definition of the proceeds of Green Bonds. External Review plays an important role also in accentuating the difference between a bond which is green and a bond which is not. A deeper understanding of the Green Bonds’ features makes investors more comfortable when investing in green projects, as well as it provides them with a higher knowledge about the environmental benefits generated by the project itself. Among External Reviewers, the most important ones are: CICERO, which deals with both climate research and the assessment of the bonds’ ability to comply with low-carbon economy, Moody’s Green Bond Assessment, defining the probability of a bond’s proceeds to be correctly applied to environmental and sustainable projects, and Standard & Poor’s, rating projects from zero to one-hundred with respect to their expected lifetime environmental impact (Ehlers and Packer, 2017).

In general, issuers may rely on different categories of External Reviewers, specifically: consultant review, relying on expertise either in environmental sustainability sector or issuance of Green Bonds, verification, aimed at verifying the

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13 According to OECD, in October 2015 60% of Green Projects have been undertaken a second – party review and this is path has remained flat over the past three years.
alignment between Green Bond framework and issuers’ claims, certification, verifying the Green Bond framework and Use of Proceeds against predefined standards and rating, certifying the rate of the Green Bond\textsuperscript{14}. The scheme below clearly provides an intuitive description of the path to be followed for a Bond to be accepted as Green, in both cases of presence and absence of external review.

Figure 1.3 Green Bonds’ labelling Process

The Green Bond Principles are profoundly contributing to better clarify what a Green Bond is. Actually, a Green Bond is neither a social bond nor a sustainable bond. In fact, the former, despite the similarities with Green Bonds (e.g. use of proceeds, project evaluation, management of proceeds and reporting, need of external review, access to essential services), has to be used in projects aimed at sustaining harmed people\textsuperscript{15}, the latter, refers to a more general category, embracing the financing of all those projects which generates positive externalities from a social and economic point of view.

\textsuperscript{14}ICMA (2016, June 16) The Green Bond Principles.

Once having analysed what a Green Bond is and what the requirements to be satisfied are, the dissertation will proceed by analysing the various kinds of existing Green Bonds.

The first one to be listed is the “Green Use of Proceeds Bonds”, which is a standard of recourse-to-the issuer debt obligation and which presents the same characteristics of The Green Bonds’ Use of Proceeds, previously described. With this typology of Green Bond, it is necessary that the issuer gives evidence of the choice of placement.

The second typology of Green Bond is the “Green Use of Proceeds Revenue Bond”: a non-recourse-to- the issuer debt and, therefore, relying only on the cash flow generated by the project.

Finally, the last two categories of Green Bonds are respectively: “Green Use of Proceeds Project Bond”, used for either a single or multiple project, with or without recourse, and the “Green Use of Proceeds Securitized Bond”, for one or several projects and repayable trough either cash flow or collateral.

1.3 Advantages and Disadvantages

After having described how Green Bonds have evolved in the bond market and the different existing typologies, the focus will be addressed toward the analysis of the advantages and disadvantages in using Green Bonds. First of all, it is imperative to outline that Green Bonds, as any kind of investment, are risk-inherent. One of the major risk associated to the them are that of “Greenwashing”: that is to say, not really taking care of the environment, and, therefore, not being effective in financing green projects. Another pressing risk associated to them is the performance risk, which may arise whenever the issuer does not provide the investor with clear information, essential for the purchase of the bond. This is a risk deriving directly by the lack of a harmonized standard framework. It is just in this case, once again, that it is possible to assert the importance of the External Reviewers.

\[16^{16}\text{ICMA (2016, June 16) The Green Bond Principles.}\]

\[17^{17}\text{Ludvigsen, P. (2015, 24 November) Advanced topics in Green Bonds: Risk, Environmental Finance.}\]
Not by chance, investors are influenced by many factors in their choices. First of all, green projects turn to less mature technologies than traditional technologies, whose risk is higher, as it is more difficult to assess their performance. A study by EC DG CLIMA (2015) show how utilities, utilizing conventional bonds, have a higher credit profile than energy renewable companies, as they are more experienced. Not by chance, given the fact that most of the projects are backed by issuers’ balance sheets, investors look more at the issuers’ credibility rather than the “Greeness” of the underlying projects, not considering the ethical issue. According to the study, basically, investors will prefer the green project to the conventional one, either in the case the two issuers have same quality rating or whenever the green project is issued by the same issuer\textsuperscript{18}. A possible mitigation for the risk could be public financial institutions’ guarantees, as well as provision of financial and policy risk insurances\textsuperscript{19}.

A huge obstacle for investors may be represented also by the controversial jurisdiction associated to the Green Bonds issuances. In fact, even though Green Bonds pay a premium, it will always too difficult for the court to quantify the damages generated by an issuer’s non-performance. Yet, also in the case where the investor may prove the issuer has wrongly labelled the Green Bond, there will not be recourse in case of misappropriation\textsuperscript{20}.

Generally speaking, investors are not prone to embrace a larger share of green financing, since they expect a value floor of €200 million. In fact, also in those decentralized areas where possibility to invest in green projects exist, the problem is that projects’ size is too small to be financed, this is why they need to be aggregated. With this regard, asset-backed securities could be a solution, still considering the lack of adequate tools to assess the related default risk.

However, there still exist some benefits associated to investors whenever they decide to invest in green projects. Beyond the major benefit of diversifying their portfolio,


\textsuperscript{19}G20 (2015, September) G20 Climate Finance Study Group, Report to the Finance Ministers, pp.35-42.

which grant them with a lower exposure to market demand fluctuations, investors also benefit for the fact that they do not bear any risk, but the one associated to the environmental sustainable project. With matter of fact, to investors, financing low carbon economy is much less risky than investing in fossil fuel ones, as the latter ones are associated to a higher political, commercial risk and environmental risks\textsuperscript{21}.

From the issuers’ point of view, whenever Green Bonds are issued, they will surely bear high up-front costs arising by the need of verification, monitoring, and administration. Moreover, issuers may suffer a loss whenever the breach of the green clauses occur. Actually, in this case, the investor can ask for damages, even if in case of full capital repayment\textsuperscript{22}.

Another risk for issuers may occur when a company undertakes a climate-friendly project, but other parts of its business may still rely on environmental regulations (e.g. the use of a coal power plant) exposing the company to the credit risk\textsuperscript{23}.

Moreover, issuers are also uncertain about their return. In fact, when issuing a Green Bond, two situations may occur: the new emission may either provide a premium or not. In the latter case, we are referring to the so-called “Greenium”. Basically, this is the situation where the bond is issued at higher price (mainly due to certification and third-party review), but it provides buyers with a lower yield\textsuperscript{24}.

To sum up, it is reasonable to conclude that, despite the evident increase of the Green Bonds’ market, it is still not large enough for allowing small green projects to be financed. However, the benefits flowing from green investments far outweigh their costs\textsuperscript{25}.

\textsuperscript{22}OECD (2015, December) \textit{Green Bonds, Mobilising the debt capital markets for a low-carbon transition}.
\textsuperscript{24}Climate Bond Initiative (2017) \textit{Green Bond Pricing in the primary market}.
\textsuperscript{25}Ibidem
1.4 Market Performance

The discussion being developed below will be concerning the analysis of the performance of Green Bonds in both primary and secondary market. By reporting two main studies, that by Climate Bond Initiative carried out in 2017 and that by HSBC in 2017, it will be seen how Green Bonds perform in terms of yield, maturity and expected premium, as well as how they behave when being issued in both EUR and USD currency.

Climate Bond’s Initiative study\textsuperscript{26} for the period April-June 2017, take into consideration some Green Bonds issued with a basket of Vanilla Bonds issued during the same quarter and with the same characteristics in terms of: rating, currency and sector. Firstly, the study makes a difference between the Green Bonds issued in EUR and USD currency. The former presents a final pricing average -6.3 bps tighter than IPT (Initial Price Talk), with a market average of -9.4bps. The latter reports a final pricing average -15.4bps tighter than IPT with a market average of -12.5 bps, showing how the USD difference between IPT and final price is larger for Green Bonds.

As also evidenced by the following graphs, what can be drawn is that EUR Green Bonds’ price movements are lower than the market average, while USD Green Bonds’ price movements are bigger.

\textsuperscript{26}Climate Bond Initiative (2017) \textit{Green Bond Pricing in the primary market}. 
The graphs reveal how EUR Green Bond tightened less than USD ones, evidencing not only a better price than the one forecasted by IPT (both for EUR and USD denominated Green Bonds), but also less price movements with respect to the USD issuances and, therefore, a more stable and predictable market trend. This result could be amenable to the fact that Social Responsible Investors are long-term.
investors, so they are mainly buy and hold ones, which, in the long term contributes to a higher stability of the secondary market, rendering the Green Bonds’ Market more appealing to investors.

Not by chance, an additionally study, conducted by CBI in the same year, highlights how, as investors’ interest for sustainable financing increases, so does oversubscription for Green Bonds. Specifically, the study reveals that EUR Green Bonds covered their order books by an average of 2.3 times with respect to that of the market, while USD Green Bonds were on average 2.8 times oversubscribed, identical to the market average, which is a quite expectable result if considering what previously discussed. Obviously, investors investing in these kinds of bonds tends to be SRI. In the light of this event, CBI, by carrying out a further study on 19 entities, demonstrated that, at least in Q2 2017, 54% of bonds were allocated to green investors, that is to say, all the investors who consider themselves as socially responsible green investors, with a share of 15-30% in Emerging Markets, and a share of 40% in Developed Markets.

Green Bonds’ prices tighter than non-green in primary market is also a conclusion drawn by HSBC, thanks to a study conducted during the period 2016-2017.

The study relies on the investigation on how Green Bonds, (denominated both in EUR and USD currency) are traded, by analysing their behaviour with respect to their two indices, since their issuance in the early 2016. HSBC’s study takes into consideration the performance of each Green Bond against the two iBoxx indices: one for the sector index to which the bond belongs, and the other one for iBoxx index having the same maturity and rating bucket. The analysis reveals that 74% and 54% of the EUR denominated Green Bonds tightened by more than the two indices, respectively after 30 days and 90 days since the announcement. It was showed a similar behaviour for USD denominated Green Bonds, whose 41% and 61% tightened by more than the indices, respectively after 30 days and 90 days since the announcement.

27 The entities taken into consideration are: EDC, Kommuninvest, Regie Auto. Des Trans, Kommunekredit, Berlin Hyp, Nordea Bank, Apple, QBE, Tenet2029, Tenet2025, Rural Elec, Inversiones CMPC, BNDES.
For what concerns secondary market, instead, according to CBI, what is known, is that bond prices increase when bonds are traded in the secondary market. Once again, Green Bonds do not behave differently from Vanilla Bonds from this point of view. A comparison between Green Bonds and their comparable indices was carried out by CBI in 2017. The study considered a sample of eighteen entities and the relative Green Bonds’ performance after 7 and 28 days from their issuance announcement. It was revealed that, overall, Green Bonds outperform indices in the immediate secondary market, with 66% tightening more than the corresponding index after 7 days from the announcement, and 53% tightening more after 28 days from the announcement. Specifically, if the result is mixed for Green Bonds issued in USD currency, this is not true for Green Bonds emitted in EUR currency, where all the entities, except for one, performed better than the indices.

The conclusion on secondary market, drawn by CBI, has found partial feedback in the study conducted by HSBC in 2017. Overall, HSBC’s further investigation underlined how in 2017 EUR-only Global Green Bond index outperformed EUR-only Global Aggregate bond index, whilst USD-only Global Aggregate and Green indices traded in line. What is interesting to notice in this study is the correlation between bonds’ performance and duration: as it appears, bonds with higher duration tend to have a better performance. This could be an incentive for investors to subscribe Green Bonds. In fact, many investors (especially American ones) are hindered from investing in Green Bonds, since they tend to get a profit in the short-term, whereas Green Bonds are generally long-term investments.

HSBC enhanced its study on Green Bonds’ performance also focusing on volatility aspect, by correlating Bloomberg Barclays MSCI Green Bond index and Bloomberg Barclays Global Aggregate index, as well as by establishing the correlation between green EUR IG Corporate bonds and iBoxx EUR Corporate Index. In both of the

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30 Ibidem
31 For Green Bonds issued in EUR currency, the entities taken into consideration were: Intesa SanPaolo, TenneT2025 and 2029, Nordea Bank, KFW and Regie Auto. Des Trans. For Green Bonds issued in USD currency, the entities under analysis were: Inversiones CMPC, Rural Elec., QBE Insurance, Kaiser Foundation Hos, Apple, First Abu Dhabi, EIB and EDC.
32 Indices used were iBoxx indices, classified by: currency, asset class, credit rating and tenor.
cases, the beta of the regression resulted to be lower than one, meaning that Green Bonds are less volatile than the index.

To sum up, the conclusions having got insofar are the following: Green Bonds trade inside non-green, at least in Developed Markets, Green Bonds price tighter than non-Green Bonds in primary market, Green Bonds outperform non-green in the secondary market (especially for EUR denominated Green Bonds), Green Bonds’ transaction costs are slightly higher than non-green ones, Green Bonds are less volatile than non-Green Bonds in times of stress, there is slightly less trading of Green Bonds than non-green.34

What discussed above are the results of economics studies, which, as it appears, tend to consider Green Bonds less volatile than non-green ones. However, the reader has to be aware about other aspects to be considered when speaking about risk and performance of Green Bonds. In fact, showing less volatility and a slightly higher performance under certain conditions (e.g. secondary market) is not a sufficient condition both for investors to undertake green investments and for the performance to be considered remunerative.

Insofar, it has been investigated how Green Bonds behave in both primary and secondary market, what their performance is in both of the markets, and the volatility associated to them.

What the dissertation proposes, now, is the analysis of the performance of the bonds, beyond the microeconomic study, but in combination with the most recent and significant political and economic events occurred in the last two years.

The following table gives an intuitive and general overview of how the Green Bonds’ volatility was affected by substantial market changes over the years 2016-2017.

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From the table, it can be drawn that during the oil price drop in 2016, Green Bonds widened less than non-Green Bonds, whilst, during oil recovery in 2017, they tightened less than non-Green Bonds. This is a result quite expectable, as Green Bonds are less resilient to oil price with respect to conventional bonds.

<table>
<thead>
<tr>
<th>State of move</th>
<th>Endo of move</th>
<th>Cause of widening</th>
<th>A 5-7y EUR IG Change (bp)</th>
<th>Green Change (bp)</th>
<th>A 5-7y EUR IG Change (%)</th>
<th>Green Change (%)</th>
<th>Comment</th>
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<td>21/01/2016</td>
<td>Oil price falls below $30</td>
<td>21</td>
<td>16</td>
<td>23</td>
<td>16</td>
<td>Green widened less</td>
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<td>12/02/2016</td>
<td>Deutsche Coco fears</td>
<td>18</td>
<td>8</td>
<td>18</td>
<td>8</td>
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<td>27/06/2016</td>
<td>Brexit Referendum</td>
<td>10</td>
<td>6</td>
<td>13</td>
<td>6</td>
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<td>10/10/2016</td>
<td>21/11/2016</td>
<td>President Trump election</td>
<td>13</td>
<td>16</td>
<td>24</td>
<td>36</td>
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<td>02/03/2017</td>
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<td>14/12/2016</td>
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<td>-16</td>
<td>-21</td>
<td>Green tightened more</td>
</tr>
</tbody>
</table>

Source: HSBC Calculations, Markit
CHAPTER II: THE WORLDWIDE DEVELOPMENT OF GREEN BONDS’ MARKET

2.1 The structure of Green Bonds’ Market by sector and country

The remarkable and pressing shift toward low-carbon economy has profoundly boosted the growth of the Green Bond Market from 2007. According to the Climate Bond Initiative: from 2015 the global Green Bonds’ value increased from more than $42 billion to $ 81.6 billion. The growing trend of green bond market has been facilitated by the involvement of different issuers. The most active issuers have been both corporate entities (e.g. Iberdrola, HSBC, Barclays) and financial entities (e.g. World Bank, European Bank for Reconstruction and Development, International Finance Corporation), as well as local governments.

If investments in green projects were regarded as a niche in the past, this is not the situation anymore. In fact, in 2017, an increase of 38% year-on-year from the $ 40 billion issued in the first six months of 2016 was registered, for a total amount of about $55 billion from two main sectors: corporate (25%), financials (30%)\(^{35}\). The graph below shows the shares of new entities issuing Green Bonds in 2017.

![Figure 2.1 Green Bonds Outstanding, by Issuer Type in 2017](image)

Other than the change in kind of issuers involved, the market has been also experiencing a profound transformation in the Use of Proceeds. In fact, in 2016

investments by sector mainly concerned railways (67%), energy (19%), and water (6%) projects, while, in 2017, they were delved towards energy efficiency, low consumption energy buildings projects (29%) and low emission transport sector.

The graph below accurately describes the composition of the sectors being financed by the emission of the Green Bonds in 2017.

**Figure 2.2 Green Bonds by Sector (through February 28, 2017)**

![Green Bonds by Sector Chart](source: BofA Merrill Lynch Global Research. Compiled from Bloomberg, CBI, company filings)

The Green Market is more than ever a European market with a 50% issuance coming from Europe in 2017, 23% Africa and Middle East in 2016, 27% from Asia-Pacific regions in 2017 and North America with a 13% share during the same year.

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36Ibidem
38Ferrovie dello Stato issued its first Green Bond being worth €600 million in December 2017
40Unicredit (2018, January 26) *Green topics relevant for the covered bond sector, Credit Research, p.2.*
The following chart provides with an intuitive distribution of the issuance of Green Bonds by country.

**Figure 2.3 Distribution of Green Bonds by Country YTD (through February 28 2017)**

Currently, estimates for Green Bond Market is quite positive, as it is expected an increase up to $130 billion in 2018, with issuances coming from three sectors, mainly: sovereigns, banks and utilities.

In fact, despite the pending controversies on Green Bonds’ behaviour and on the implementation of the necessary tools for incrementing the market liquidity, researches are confident for Q1 2018 forecasts. Precisely, they expect an annual growth rate from 11.0% to 12.0% which will represent a total amount of $620-720 billion within 2035, thanks to: the draft of a new set of guidelines for issuing Green Bonds for Stock Exchange listed companies by the Chinese Securities Regulatory Commission; the increase in the adoption of Green Bond Principles all over the world and the election of Macron in France who firmly sustains climate-friendly projects\(^4\).

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2.2 Asian Market: how China is dealing with green finance

The development of the Green Bond market in Asia has been due to both the emergence of the environmental pollution concern and the intent of minimizing the existing financial diversification of the region\textsuperscript{42}. In fact, bonds have seemed to be a suitable alternative to render the financial market more organic, as they provide investors with a short payback period and long-term horizon investments. Moreover, appealing to bond instrument appeared more flexible, in terms of: risk and return, financial structure and lower systematic risk than loans.

The Asian Green Bond Market, developed thanks to Europe’s and US’s support, is mainly covered by large entities (e.g. banks, such as Export-Import Bank of India which issued $500 million bond, attracting a large pool of investors\textsuperscript{43}), because of the additional price notified for the cost of monitoring and for labelling the Green Bond. From investors’ point of view, it can be inferred that investors are quite neutral whether invest in green or Vanilla Bonds, because of the lack of an attractive price pushing up interests rates and providing better pricing in the secondary market.

However, as sustainable concern has become more tangible, Asia has witnessed the boost in the Green Bond Market, whose main contribution comes from China.

With regardss to China, it can be stated that the country has experienced a general bond market growth of 500% from 2005, thanks to infrastructural projects, state owned enterprises and “Quasi public” sector. In 2016, in terms of green bonds, commercial banks and corporate entities were the main ones to structure Chinese green bond market, as showed below.

\textsuperscript{43}Ng, T.H.,Tao J.Y. (2016) Bond financing for renewable energy in Asia, Energy Policy 95, p.515.
Enormous relevance is that of Chinese banks, too: from the Export-Import Bank, which entered the market in December 2016, Shanghai Pudong Development Bank and Industrial Bank holding 43% of all Chinese issuances and representing the largest green bond issuers at global level\textsuperscript{44}.

Particularly, since the greater number of the transactions (93%) occur in the interbank market, while over-the-counter and exchange market occupy a marginal role in the overall Chinese (green and non green) bond market. With specificity to green bond transactions, the graph below shows the share of transactions occurring in both China interbank Market and Shanghai Stock Exchange Market.

\textbf{Figure 2.4 China's Green Bond Market 2016, by Issuer Type}

\begin{center}
\begin{tabular}{c}
\textbf{Policy Bank} \\
\textbf{Corporate} \\
\textbf{ABS} \\
\textbf{Commercial Banks}
\end{tabular}
\end{center}


\textbf{Figure 2.5 China's Green Bond by Type of Market}

\begin{center}
\begin{tabular}{c}
\textbf{Shanghai Stock Exchange Market} \\
\textbf{China Interbank Market}
\end{tabular}
\end{center}


\textsuperscript{44}CBI (2016) \textit{China Green Bond Market 2016}. 
The difficulty of ensuring an organic development of the green market is worsened also by the fact that Chinese Market varies from area to area. For example, the onshore Chinese bond market radically changes in Hong Kong, becoming a complete offshore market, called “Dim-Sum-Market”, where issuers may issue CNY bonds for the international market without regulative control. Additionally, there is another option allowing for non-Chinese issuers to participate in the domestic market, which is the so called “Panda Bonds”\textsuperscript{45}, where the participation is constrained to strict regulation and to a specified list of players, like international development banks and the IFC (i.e. International Finance Corporation)\textsuperscript{46}. The figure below shows all the green bond issuances by type of bonds: offshore, onshore and Panda Bonds.

![Figure 2.6 China's Green Bonds 2016, by Type](image)


China, as first biggest carbon polluter (emitting one fourth of the total global emissions), witnessed an enormous Green Bond Market growth in 2015, with a total value of $ 1 billion (currently the total amount is $ 94 billion generated by the issuances of Chinese companies), which provided it with a position among the first ten countries largely covering the share of the Green Bond market. Surely, the impressive boost of the Green Bond Market has been supported by a more relaxed


\textsuperscript{46}IFC provides : investment, advice and asset management to satisfy clients’ need. Its main objective is that of attracting new investors in order to make capitals rise
regulation being interested in the use of renewable energy sources and a “Cleaner” coal as priority investments\textsuperscript{47}. In terms of green finance, what is interesting to evidence is the role of Beijing which has become the world leader for green finance, thanks to the issuance of $36.9 billion of Green Bonds in 2017. Specifically, after a long period of emissions and high level of pollution, Beijing has committed to reduce carbon emission by 60-65\% within 2030 with respect to 2005 levels.

Overall, the Chinese Green Bond Market is divided into three groups: offshore hard currency (USD an EUR), offshore RMB(CNH) and onshore RMB (CNY). Specifically, the Green Bonds’ issuances saw a rise in offshore market denominated in USD currency from 4.2 billion in 2016 to 5.9 billion in 2017, as reported by table below\textsuperscript{48}:

<table>
<thead>
<tr>
<th>Market/Currency</th>
<th>Offshore</th>
<th>Onshore</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD/EUR</td>
<td>8 bonds USD 5.9 bn</td>
<td>0 bond</td>
</tr>
<tr>
<td>RMB</td>
<td>1 bonds CNH 1.0 bn USD 151 mn equivalent</td>
<td>63 bond CNY 143.3 bn USD 21.4 bn equivalent</td>
</tr>
</tbody>
</table>

\textbf{Figure 2.7a Chinese Green Bond Issuance in 2017, by Market and Currency}

<table>
<thead>
<tr>
<th>Market/Currency</th>
<th>Offshore</th>
<th>Onshore</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD/EUR</td>
<td>17 bonds USD 11.0 bn</td>
<td>0 bonds</td>
</tr>
<tr>
<td>RMB</td>
<td>2 bonds CNH 2.5 bn USD376 mn equivalent</td>
<td>100 bonds CNY335.2 bn USD 49.9 bn equivalent</td>
</tr>
</tbody>
</table>

\textbf{Figure 2.7b All Chinese Green Bonds Outstanding, by Market and Currency}

Source: HSBC Calculations. Bloomberg

The boom of Chinese Green Bond Market rested in 2017, when supply decreased from 38.2\% to 23.3\% from 2016. Perhaps, the drop was caused by the attempt to reach a too large investors’ base in short time, as well as to the a general bond supply decrease, rather than a decrease in green interest. Despite the slowdown of the Green Bond Market growth, it can be inferred that the boost of the market has been facilitated by a huge contribution coming from the legislation. With this regard 2016,

\textsuperscript{47}Darby, M. (2017, January 1) \textit{China is taking the Green Bond market by storm}, Climate Home News.

when, right before G20 in Hangzhou city, the Chinese Government ministries drafted “Guidelines For Establishing the Green Financial System”. First of all, what is important to underline is that the transition towards a low-carbon economy in China is conceived different from that in Western countries; meaning that the former aims more at environmental protection, the latter ones are more concerned about climate change: the main purpose for emitting Green Bonds in China is mainly the reduction of pollution, therefore, the environmental dimension for which China’s Green Bonds Guidelines offer a “Localized definition of green in the market”. The Guidelines have been also useful for the classification of the bonds as green, as well as for setting out the general guidelines for management of proceeds and disclosure requirements. Indeed, proceeds are applicable only to those bonds disclosed in the issuing process.

In the light of these events two recommendations are of high relevance.

The first one relies on Green Bond. Since both People’s Bank of China and National Development and Reform Commission separately issued their directives on Green Bonds at the end of 2015, the market experienced an exponential growth in 2016. During that year, financial institutions and corporations issued $ 18 billion of Green Bonds, representing 40% of the global issuances. Since one of the main concern was that of “Greenwashing” (i.e. issuing Green Bonds for polluting projects), risk intensified also by the lack of a clear framework, guidelines were implemented in order for the harmonizing two domestic Green Bond standards, as well as to ensure verification trough third-party opinion.

Second recommendation concerns overseas investments, which is another concern in China because of the fact that financial institutions and corporations do not pay so much attention to social aspects. The Guidelines call for Chinese banks, corporations and multilateral institutions to properly strengthen relationships with neighbouring countries, in order for Chinese initiatives’ reputation to be preserved. These Guidelines aim at: improving environmental risk management to protect
communities, improving information disclosure for investors, expanding green culture along the supply chain, too\textsuperscript{49}.

In addition, the People Bank of China published a Green Bond Endorsed Project Catalogue which identifies six major areas for green investments, among these: ecological conservation and adaptation, clean transport, pollution, recycling, clean energy and conservation\textsuperscript{50}.

\subsection*{2.2.1 Partnerships with foreign investors}

The first Green Bond was issued in China on 13\textsuperscript{th} May 2014 by the China General Nuclear Power and it was listed in the Shenzhen Stock Exchange (one of the three Chinese stock markets). The Green Bond followed the carbon market trend, market where also the trade of credits coming from the Clean Development Mechanism (e.g. CDM projects) were traded. The issuance resulted quite coherent with the new Chinese Law for Environmental Safeguarding, as evidence of the predominance Chinese Government has been recently attaching to environmental protection. Green Bond Market represents a huge opportunity for the Chinese Market representing the most important reference point for the CDM projects, pursuant the Kyoto Protocol. Kyoto Protocol was an international agreement, according to which, OCSE industrialized countries pledged to reduce GHG emission by 2012 with respect to 1990, reference year. Additionally, the Protocol provided for the implementation of two flexible mechanism, that is to say: joint implementation, entailing the collaboration between two industrialized countries, and clean development mechanism, involving a developed and developing country. Although developing countries are not obliged to comply to Kyoto Protocol target, a huge effort is requested for them to fight climate change. Basically, Clean Development Mechanism concerns the presence of a developed country investing in a developing


\textsuperscript{50}Zhu, S. (2016, January 8)\textit{With New Guidelines, China’s Green Bond Market Poised to Take Off in the Year of the Monkey}, World Resources Institute.
country for the realization of a clean plant (plants producing, for example, by waste recycling). Each project, conceived such as this, has to be approved by both UN and the local Government. In general, the project has to contribute to both the Credit Emission Reduction generated by the plant (i.e. each CO₂ tonne reduction corresponds to a one CER) and to the increase in the local economy and employment for natives. After the approval, the Chinese law requires for the local country to sign a cooperation agreement with a Chinese partner through a joint venture, unlike from what happens in other developing countries, where projects can be entirely financed by a foreign company. Yet, pursuant CDM Measures approved in 2005, Chinese Law prescribes that only the Chinese partner can be assigned the role of “Project Developer”(i.e. the one relating to Chinese authorities for what concerns the realization of the project).

Moreover, in most of the cases, the plant is not sold to the Chinese partner, but it is given as advanced payment. Basically, the Chinese partner is supposed to sell to the foreign country all the CERs generated by the plant, with no return for the exchange. The reason is that many foreign countries, especially Italy, possess some expertise in terms of technological requisites which China lacks and which result of urgency need, considering the urgency of implementing sustainable growth. This is why Chinese Government is so interested in attracting foreign investment. Not by chance, the Government appeals to a lot of tax shield and fiscal advantages in order for renewable projects to be financed (e.g. two-year tax holiday, lower VAT).

What is interesting to notice is that the possibility foreign investors have in speculating on CERs price sold in the European market, incentivize them to subscribe these kinds of investments, despite the joint venture with the Chinese partner and the ancillary role foreign company is attributed when it invests in China 51.

However, what is reasonable to recall is that, in general, foreign clean investments from developed countries to developing ones remarkably dropped from 2015-2016, when the worldwide total capital flows in clean investments dropped from 51

$153.8 billion to $103 billion in developing countries. The causes of this drop are to be found probably in the cost decrease of renewable energy, which depressed asset financial value globally. Beside this drop, China remains still the largest country in terms of share in clean energy investments, with 63% of global investments in the last decade and an amount of $4.8 billion foreign investments\textsuperscript{52} in 2017.

\textbf{2.2.2 The role of Government in incentivising clean investments}

Researchers have been thinking about a way for Chinese domestic market to be developed in terms of green financing. First of all, the empowerment of green banks where governments does not have a controlling interest, has been identified as one remarkable engine. In fact, government should incentivise the creation of such kinds of banks, where expertise and leverage are fully exploited, and whose high structural flexibility may enlarge investors’ pool. Moreover, an independent green bank can increase its expertise in green field, through the issuance of Green Bonds and re-lending agreements with the central bank. The major benefits Chinese Government could get from this kind of initiative would be that of increasing its reputation, as it would witness China’s commitment towards environmental pollution. As second recommendation, policy makers should promote Public and Private Partnerships arrangements. In fact, since return environmental investments are below the average, this field profoundly relies on governance assistance. In the light of this events, an effective way to raise funds could be PPP arrangements combining public and private funds, where the level of government involvement would depend on the nature of the fund. In general, government involvement would rely on: featuring contracts, defining responsibilities and sharing interests and risks. It is about dealing with a specific PPP model where government may act as general or limited partner for green funds to be raised, by accelerating and relaxing timetable for policies on Green Bonds, which will help environmental companies going public. Beyond triggering investments overseas, Chinese Government should also improve the system through which discounted rate is provided on green investments. The main problem is that, since green investments are related to several industries, the corpus

\textsuperscript{52}Climate scope2017(2017)Emerging markets Clean Energy Investment.
of legislation regulating this kind of activities results to be still fragmented. Moreover, subsidies provided by the Government are also results of corrupted practices and limited governmental staff acting in this field. Therefore, what the Government should do is improving the fiscal mechanism, by increasing the amount of loan borrowed on discounted rate to government spending and the amount of subsidies to green credits, as well as improving the communication flow among governance finance departments, banks and environmental protection agencies. With specific concern to Green Bonds, regulation should be simplified, in order to persuade banks to Green Bonds’ issuance as low-cost and long term financial instruments for green investments. Specifically, policy should incentivise the Green Bonds’ market through: exclusion of banks’ loans backed by Green Bonds from their loan-deposit ratio, give financial institutions’ loans backed by Green Bonds a preferential capital regulation requirement, making interest on Green Bonds tax-free for institutional investors.

Economically speaking, at broader level, legislation is supposed to incentivise IPO for green projects through: the clarification of green entities’ criteria, simplification of IPO review and relaxing restrictions on proceeds used for repaying banks’ loans. Additionally, sustaining the development of carbon and pollution trading market through: cap and trade mechanism, transparent and quality of emissions, quota allocation mechanism would lower the costs of abatement emissions, rendering the market more efficient. Domestic green market could also be underpinned by the establishment of green stock index and green rating system, which, through the definition of entities’ positive and negative externalities, lowers their financial costs on the basis of their green results.

Major influence should be acted on investors’ side, too. In fact, in order for investors to be led to invest in green projects, legislation, on behalf of Ministry of Environmental Protection, is supposed to appeal to an environmental cost analysis, capable of helping investors in better evaluating the costs of the projects. With matter of fact, China currently lacks an effective accounting system estimating the
environmental costs of projects, and, in most of the cases, underestimation of the costs occur\textsuperscript{53}.

The basic idea is that Chinese legislation has to be shaped such as the discouragement of polluting activities occurs. This would be stimulated by the introduction of green investor networks, aiming at influencing institutional investors to take part in sponsoring their environmental and ESG practices, as well as promoting consumers’ green culture.

What can be effectively reduce the risk for investors would be either guarantees by governments, which carry fiscal risk, establishing a dedicated fund for lowering the cost of financing for RE projects, or tax shield on RE projects, to attract more investors in operational projects. Additionally, a more coherent regulation on the gas emission should be introduced, as many large polluting entities have never sustained the actual costs of their emissions in the past\textsuperscript{54}. All these resolutions should be enacted in a political framework as stable as possible, also considering the long-term horizon required by the majority of RE projects\textsuperscript{55}. In the light of these events, building a deep capital market results to be imperative, as it would facilitate the liquidity of the market itself. The main goal is attracting an increasing number of foreign investors, beyond the domestic ones. This could be achieved by the capital integration among regions, which was a proposal already incentivized by the ASEAN Economic Community\textsuperscript{56} in 2015. Such effort is aiming at standardizing common practices and harmonizing financial regulation, in order to increase the level of transparency for cross-border investors. Obviously, the issue is far from being easy. The main problem relies on the diversity of the regions, as described


\textsuperscript{54}Ng, T.H., Tao, J.Y. (2016) Bond financing for renewable energy in Asia. Energy policy 95, pp.512, 516.


\textsuperscript{56}AEC was established in 2015 by the Association of Southeast Asian Nations for promoting economic, political, social and cultural cooperation across regions. The goal is that of moving South-East nations towards a globally single competitive market and production base, with the free flow of capital and goods across the ten Member States.
above which makes difficult to find the proper cost of borrowing when central banks differ from one another\(^5\).

In addition, the introduction of Compulsory Pollution Liability Insurances, for green enterprises, appears to be of impressive relevance, since, through the support to fund restoration efforts and transfer environmental risk, pollution costs are rendered explicit, discouraging shareholders’ impulse to invest in high-risk projects. Not by chance, the fact that a clear regulatory system does not still exist on this matter, make investors be hindered from undertaking projects. The idea is that investors have to be felt safe when they decide to subscribe these investments, which results a quite difficult task in China, given the lack of a clear regulation. For instance, unlike Western countries, Chinese lenders’ environmental liabilities have never been defined clearly, leading lenders embark polluting activities, either under the pressure of profit pursue or local governments. This is another improve to be done at legislative level, in order for investors to be legally protected\(^6\).

As it will be seen during the discussion, this is a problem affecting Green Bonds’ market in general, and not only Chinese market. However, the problem seems to be emphasized in China, because of national legislation which is more restrictive and profoundly involved in market system.

If looking at all the aforementioned actions, it can be easily drawn how the majority of them requires for a more relaxing regulation, suggesting that Government’s degree of involvement is too high for this kind of market, which necessitates a more spontaneous development. This is a quite intuitive conclusion, in the sense that, since green market is a recent developing market, it cannot subsist without a profound knowledge of stakeholders involved on what green is and on how it can be reached. Legislative actions should not function as controllers, but as promoters, meaning that they should be entailed in the development of green market and not work as external stakeholder.

\(^5\) Ng T.H., Tao J.Y. (2016) Bond financing for renewable energy in Asia, Energy policy 95, p.516.

2.3 US Market: the difficulties for the Green Bonds’ Market to expand


The graph below shows all the amount of Green Bonds issued in USA for the period 2007-2015.

![Figure 2.8 Total Global Green Bonds Issuance by Year ($bn)](source)


Despite the evident increase of the market growth over the period 2007-2015, yet, the green market accounts for less one per cent of the global bond sales worldwide, as clearly underlined by John Chiang, Treasurer of State of California. In fact, even though USA is the largest issuer, its Green Bonds’ issuance still represents a small percentage when compared to the $3.8 trillion of state and local government bonds issued in 2016. USA remains a largest GHG emitter which makes it lag with respect to: Europe, India, South Africa and China. Several causes have been identified for explaining the slow in USA’s Green Bond market growth, among which: immaturity of the market, lack of political support to climate challenges, low confidence on the issue (especially from corporate entities) and tax-exempt status of municipal bonds.

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During the Paris Agreement, USA pledged to reduce carbon emissions by 26-28% below 2005 levels by 2025\(^6\). Overall, it has been estimated that the total amount to be invested in order for USA to reach its 2050 targets, set out during the Paris Agreement, will cost the country $8 trillion, which is an enormous amount, if considering that the global investments to support economic growth is $93 trillion. By 2020, the majority of the investments, exactly $3.6 trillion, may be delved toward infrastructural projects specifically in the sectors of: transportation (railroads, airports, waterways), renewable energy, water (safe drinking water and related storage and transportation), telecommunications, waste management and recreation (public areas and parks)\(^6\). The problem relies on finding the appropriate fund sources, either public and private, for these projects, which are long-term projects with extended depreciation schedules. This is one of the main causes which hinders investors from financing sustainable projects: California recorded $359 billion funding gap over the next ten years in public infrastructural projects\(^6\).

2.3.1 Why US investors do not catch the concept of green finance

US bond market is primarily managed by two macro categories of investors: municipal and corporate. On one hand, municipal bonds are generally characterized by tax exemption at both federal and state level, and they generally provide a lower yield. This is one of the reason for which foreign investors are not attracted to them, even though they play a remarkable role in American bond market. In fact, green municipal bonds were the first ones to be issued in 2013, with a value of $100 million, emitted by the Commonwealth of Massachusetts\(^6\). Consequently, the State of California entered the market for underpinning climate-friendly projects\(^6\). By early 2016, the State of California issued just under $800 million in green municipal bonds. However, beside the notwithstanding issuance of $1.5 billion Green Bond by


\(^{62}\)American Society of Civil Engineers (2013, March). Report Card for America’s Infrastructure.


Apple and that of the Bank of America of $1.1 million, it may be concluded that corporate and financial entities’ participation is has been sporadic.

The majority regards the lack of supply (not demand, as Green Bonds are generally oversubscribed) as one of the main reasons having caused a slow growth of the Green Bond market. According to them, demand is strong because it comes from social responsible investors and asset owners, representing a fast-growing constituency. This perspective is contrasted by those who fairly state that only a part of SRI investments is green, and, therefore, it is quite likely that demand does not outstrip supply. Moreover, they think that the oversubscription is not a sufficient demonstration for ascertaining a good level of demand, as it may occur for every bond of US fixed income market when it perform better than other markets.

Illiquidity of the market partially explains why US is lagging with respect to other countries. In fact, unlike USA, all countries worldwide are seriously concerned about climate change and institutional investors are constantly encouraged by a large consensus for sustainable projects, especially after some evidences having showed Green Bonds are traded at premium, sometimes. In fact, in these countries: supply and demand are well counterbalanced, they properly mirror the maturity of the Green Bonds, offerings are fully subscribed, there is an acceptable level of liquidity, and Green Bonds are efficiently traded in the secondary market. The problem of illiquidity and small transaction of US’s Green Bond market is probably related to the fact that climate change concern is not highly perceived by investors and issuers, condition which is worsened also by the fact that, even in case the bond is sold at premium price (which will compensate issuers for their extra costs), investors would not be prone to sacrifice their yields, just for environmental concern. In fact, yield is considered by investors a relevant term of discrimination in investment choices, after credit quality. In the light of these events, a possible solution for USA would be issuing unlabelled bonds even in the case of climate-friendly projects to avoid extra costs and liability issue.

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66 The Forum for Sustainable and Responsible Investment shows that $ 6.2 trillion are held by social responsible institutions.
Additionally, during Treasurer Chiang’s listening tour in August 2016\textsuperscript{69}, participants firmly spotted the difficulty of trading Green Bonds in the secondary market, where it is easier to sell them than buy them, reflecting the investors’ willingness to hold the product rather than trading it. This is certainly due to the fact that SRI investors are mainly buy and hold investors, therefore, they tend to keep their bonds rather than trading it. Moreover, long-term perspective has not been considered in USA, where investments have been always focused on generating profit as soon as possible.

Still the existing uncertainties among investors, a first step toward a more mature Green Bonds market would be the implementation of a standardized practice and guidelines\textsuperscript{70}, combined to a valid disclosure and reporting procedure.

A crucial role should be played by public institutions capable of addressing and supporting the boost of the market. Many investors would certainly be favoured by tax exemptions on interest payments, reachable thanks to public and administrative sectors. Government should also promote effective standards and regulation, as well as combining green projects from different agencies to reach a more liquid and eligible index for Green Bonds\textsuperscript{71}.

\textbf{2.3.2 The hostile political framework since Mr. Trump’s election}

Climate change concern seems to be undermined by Mr. Trump’s election, because of his threat of stepping back Paris Agreement. According to the President, the targets set by the Agreement are not realistic for US, whereas it benefits some countries like China to which more time and less drastic duties are given. In fact, the targets for CO\textsubscript{2} emission reductions are too detrimental for US from an economic point of view, as it would cost a sacrifice of $ three thousand billions to US. The

\textsuperscript{69}In that occasion the Treasurer of the State of California met 57 market participants from 27 firms representing SRI community to discuss about the current and future state of the green bond market.

\textsuperscript{70}With this regard, Green Bond Principles have been set out embraced by several institutions, including Climate Bonds Initiative and Moody’s Investor Service.

country is required an effort which is too expensive and not in line with “American First” administration. The President underlined how US will commit its effort for reducing environmental impact, but not at the expenses of US market, whence the decision to stop financing to the UN Green Climate Fund. President’s proposal has been that of providing a new agreement, more insurable for US. The hugest risk of this threat is the consequences it may have on other countries, such as: India, Malaysia and Indonesia which may follow the same path. Obviously, the decision has not been uncontested.

Recently, Aniket Shah, OppenheimerFunds’ Head of Sustainable Investing, discussed the current consequences of the Paris Agreement and US’s step back. The main concern is that the Agreement requires for the emissions to be reduced to zero, and not just a reduction of them. Therefore, many countries could be remained unlocked in the emission problem also in the long term. Moreover, if it is true that USA is threatening the possibility of exit Paris Agreement, it is also true that other countries are strengthening their commitment to comply with the agreement. The real concern for USA’s back out is that it could be the pioneer in the transformation, by taking advantage on the public support, which could not occur, if USA stepped back from its commitment.

When Paris Agreement was signed, there was high confidence in its success, since the most powerful countries, USA and China, seemed to be willing to pursue a long-term pathway. Actually, this is the turning point for a sustainable green finance to occur: investors have to take awareness of the silent changing happening toward a more decarbonised economy and, especially, of the risks associated to a traditional economy: the economic risk (trillions of dollars got by oil and gas cap would not exist anymore), and the political risk associated to the development of those countries reliant on fossil fuel economy (e.g., Saudi Arabia, Russia, Nigeria).

[72] It is a fund established within the framework of the UNFCC for assisting developing countries in their climate change fight. It relies on a Board of 24 Members and it supported by a Secretariat. It deals with the raising of $ 100 billion a year by 2020, pursuant the Climate Finance framework.


How it can be easily inferable from the discussion above, US perceptions on green and sustainable projects are quite unclear. This vagueness is evident also when considering US investors and issuers. Concerning the former ones, US market is broken up among investors who just do not care whether dealing with either green or conventional bonds, as long as they are provided with the maximum level of return, and investors who have started thinking in terms of green finance. Same reasoning holds for issuers. Among the latter ones, it is imperative to remind large companies which have increased their efforts in green fields, especially after Trump’s declaration of stepping back Paris Agreement. Among these, other than Tesla, which is thinking of abounding presidential team dealing with climate concern, relevant importance is Apple’s recent actions. Apple pledged $1billion to sustainable projects, collected thanks to the issuance of a Green Bond in June 2017. The transaction of the Green Bond, issued with a ten-year maturity date and a 3% coupon payment, was managed by J.P. Morgan and Goldman Sachs. The intent to appeal to green projects mainly rely on: higher use of renewable energy sources, use of energy efficiency in infrastructure, introduction of closed cycle economy by the usage recycled products, supporting other spinnerets linked to the company in order for them to produce less pollution\textsuperscript{75}. Actually, this is the second bond package issued by Apple (the first issuance amounting $1.5 billion is dated in 2016), and it occurred right after Trump’s declaration back out of Paris Agreement. With a matter fact, the company signed the so-called initiative: “We are still in”, in accordance with 125 cities, 9 federal States, 183 universities, more than 900 companies, out of which: Facebook, Allianz, Ebay, Microsoft, Unilever\textsuperscript{76}. The initiative meant a real political and strategic decision to contrast Trump’s policy. Not by chance, with this last investment, Apple has clearly strengthened its position in supporting green projects to reduce as much as possible the environmental negative externalities, as well as the intent to pursue Paris Agreement.

\textsuperscript{75}Notarianni,M. (2017,June13) \textit{Apple emette1 miliardo di Green Bond per finanziare le energie rinnovabili.}

\textsuperscript{76}Neri,V. (2017, June16) \textit{Apple emette un Green Bond: un miliardo di dollari per l’ ambiente.}
2.4 European Market: European countries’ commitment and major projects in green field

In terms of sustainable finance, European markets have performed better than the other markets, thanks to its already existing financial structure and the advantage coming from political support, which makes Europe be the pioneer in the field of sustainable finance with respect to the other regions. A huge contribution to the spread of green awareness in financial field was given also by the High-Level Export Group in 2018 and its recommendation on Sustainable Finance. The Group evidenced the importance of private capital mobilization towards energy projects, as well as the remarkable role banks shall have in this context, by assessing credit risk and differentiating capital requirements between Brown and Green Bonds⁷⁷.

Europe was the first one entering the green market with the issuance of the first Green Bond by the European Investment Bank in 2007 and the creation of the Stock Exchange for Green Bonds list in Oslo and London.

Europe counts for 145 Green Bonds’ issuers, especially operating in energy sector representing one third of the global issuances and a total market value of € 122 billion from 2007(cumulative green bond issuance).

Issuers operate mostly in the energy sector, which covers a share of 36%, out of the total investments, as following reported.

Specifically, issuers are: 48 companies in the energy sector, 35 financial institutions, 23 property companies, 17 local governments and 3 sovereigns. Particularly, non-financial corporations have contributed to one third of green bond issuance up to date, considering that the top issuers come from energy, property sectors; and financial institutions, counting for 100 green bonds issued by 20 commercial banks, and having seen also the participation of Credit Agricole CIB\(^78\) (France) and BerlinHyp\(^79\). Finally there are government-backed entities, such as France, which has become the largest contributor worldwide, thanks to its Green OAT emission\(^80\). Not by chance, Government-backed and sovereign entities are the ones largely covering the Green Bond Market, still considering the remarkable role played by non-financial institutions (e.g.35%).

\(^78\)It is the Corporate and Investment Banking arm of the Crédit Agricole Group, specialised in the business of capital market and investment and corporate banking.

\(^79\)It is a specialised German bank, providing products and services centred on real estate financing to investors, housing associations, housing cooperatives and property developers.

The following chart gives a comprehensive intuition of the issuer type mostly involved at European level and their degree of involvement.

![Figure 2.10 European Green Bond Market by Issuer Type](image)

Source: own elaboration, adapted from CBI. The Green Bond Market in Europe 2018

Although the evident willingness all European countries are pledging to undertake a more sustainable path, there exist differences among Member States, depending on: projects financed, actors involved and sectors in which green investments are carried out.

The following graph shows the amount of the cumulative issuances (2014-Q12018) registered at European level, by country
In general, the countries more involved in green matter are the Nordic ones. In these areas, sustainability issue is deeply supported by governmental budgeting and key laws. Moreover, even though issuances may be small, the contribution provided by Nordic institutions are remarkable in terms of best practice standards and green bonds stock exchange, thanks to the appeal to external reviews and a high impact reporting\textsuperscript{81}. For instance, OSLO Stock Exchange (OSE) plays a crucial role in Green Bonds’ market, by contributing to set the requirements for entering the market, among them: climate friendly purpose, public second part opinion, obliged public announcement of the disclosure of the Green Bond \textsuperscript{82}.

Considering Mediterranean countries, it can be evidenced from the already presented graph that the regions mostly involved in Green Bonds’ issuances are: France, Germany, Spain and Italy.

Specifically France is regarded as the European top issuer counting for: more than 20 green issuers, sovereign bonds and more than € 3 billion certified Climate Bonds. France is followed by: Germany, Spain and Italy, issuing respectively: more than €

10 billion (for what concerns Germany), and issuances from €1 to €10 billion for Spain and Italy.\textsuperscript{83}

The French Green Bond landscape is largely covered by banks, municipalities and corporate, mainly investing in renewable energy projects.

The following table highlights the main areas where issuers operates in order for supporting sustainable economy.

### Figure 2.12 Overview of French Green Bond Market

| French Green Bond Market Sector Development in line with GBP eligible categories | Key issuers |
| --- | --- | --- | --- | --- |
| Renewable energy | >50% | x | x | x | x |
| Energy Efficiency | 5-25% | x |  | x | x |
| Sustainable management of living natural resources | <5% |  | x |
| Terrestrial and aquatic biodeversity conservation | <5% |  | x |
| Clean transportation | <5% | x | x |
| Sustainable water management | <5% |  |  | x |

Source: European Commission. Study on the potential of green bond finance for resource-efficient investments analysis

Particularly, since President Macron’s election, France has been firmly interested in injecting liquidity to respect Paris Agreement.\textsuperscript{84} With this regard, France issued of the largest sovereign bond in 2017, being worthy €7 billion, which also resulted to be the Green Bond with the highest duration (22 years). The cleverness in the French issuance consists in the minimization of the expenses, thanks to a 1.741\% rate at issue, instead of 2.0\%, which is the rate of the outstanding debt in December 2016. In general, French long-term debt instruments have resulted to be the most appealing


for investors, confidence also demonstrated by the increase in its demand which touched €23 billion.

Another European country deeply committed to green finance is Germany, which has always showed its interest in financial sustainability. Not by chance, the country experienced a remarkable Green Bond Market development in 2016, whose key issuers were: development banks and banks, municipalities and corporate entities. German cumulative Green Bond issuance (2013-Q1-2018) is worthy €22.6 billion, involving 12 issuers and 41 deals[^5]. Almost the totality of the German Green Bond issuances (i.e. 96%) benefits from an external review or Certification under the Climate Bonds Standards, and this has led many investors approach German Bonds, thanks to the high reliability, as well as, define a clear benchmark for all German entities operating in green finance.

Aligned with GBP 2016 eligible categories, the projects these Green Bonds are deemed to finance concern: renewable energy and building energy efficiency, pollution prevention and control, eco-efficient products, climate adaptation and clean transportation.

![Figure 2.13 German Use of Proceeds](image)

Although Energy is the largest sector having been invested in over the period 2014-2016 (with a share of 85% of allocation of the funds), the share decreased by 73% in

2017, probably due to the increase in building fund allocation from 12% (2016) to 23% (2017)\textsuperscript{86}.

As inferable from the graph, Kreditanstalt für Wiederaufbau (KfW), the German public bank, is one of the most active issuers in German Green Bond Market, and, in fact, it manages the 58\% of the issuance up to date. It issued a Green Bond being worthy €1.5 billion for the period 2014-2019, aimed at financing wind and photovoltaic plants included in the KfW’s loan program “Renewable Energies – Standard”. Generally speaking, KfW has always played a remarkable role in green project context: in 2015, in accordance with the Federal for the Environment, Nature Conservation, Building and Nuclear Safety set the minimum requirements for a bond to be green, that is to say: updated reports, transparency of projects, external reviews. Given the remarkable increase of the Green Bonds’ demand, KfW has raised the minimum requirements needed, also with the intent to create a more sophisticated Green Bond Market\textsuperscript{87}.

Large contribution to Green Bonds’ Market development is being also given by Spain, whose cumulative value is worthy € 9.8. The country first entered the market in 2014 through the issuances by Iberdrola and Abengoa Greenfield. Deals from non-financial corporate prevail, representing 75\% of the total issuances in 2017, also thanks to the continuous issuances by Iberdrola, which became the first green loan borrower with a €500 million facility. With any doubt renewable energy sector dominates proceeds(94\%), while the remaining part is used in transportations sector. Although the big potential the country shows to low-carbon economy, the transition is hindered from the state policies, which suspended Feed- in Tariffs in 2012 and taxes on consumers using solar energy batteries in 2015\textsuperscript{88}.

Last country to be discussed about is, surely, Italy. The current Italian Green Bond Market, being worthy € 5.1 billion\textsuperscript{89}, is covered by: public companies and entities, as well as financial institutions whose use of proceeds are deemed to be invested

\textsuperscript{86} Ibidem.
especially in energy projects and transportation, as evidenced by the following charts:

Specifically, Italy was one of the first countries entering the market in 2014 with Hera’s Green Bond, being worthy €500 million and having financed 26 sustainable green projects. The country also issued a smaller bond, being worthy €3.2 million by Enna Energia, in order to finance renewable projects. Since then, other eight issuers entered the market within 2017. In 2018, Enel, the first Italian issuer opened with a €1.25 billion bond, aimed at financing both RES electricity generation and energy efficiency projects. Not by chance, Enel is the first Italian issuer (with a total value of €25 billion), followed by Ferrovie dello Stato which issued €600 million Green Bond in 2017.

Forecasts on Green Bond issuance are quite positive in Italy, especially after that the Italian Green Fund announced its first emission being worthy €70 million aimed at financing efficient energy projects by the first quarter of the current year. An additional option could be potential emissions by the State, that is to say, the issuance of green BTP. A solution such as this, could grant Italy with a position among the capitalist countries.

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90 The first Italian fund dedicated to the financing of infrastructures through Green Bonds.
91 The possibility has been stressed by Anna Genovese, Consob’s Commissioner, during the audition in House Finance Commission at the end of September 2017.
CHAPTER III: THE COMPARISON BETWEEN INTESA SANPAOLO AND ENEL

3.1 How Italian banking and corporate sectors are dealing with green finance

As inferable from the previous discussion, Italy is one of the most European countries more involved in green finance issue. In fact, Italian entities are very prone to adopt ESG practices, especially in the case of: environmental protection (35%), sustainable culture diffusion (29%) and increase in stakeholders’ engagement (19%), as reported below:

![Figure 3.1 Share ESG Practices Adopted by Italian Entities](source: Own elaboration)

Many entities are getting benefits from these kinds of actions, in terms of: normative compliance, brand reputation and clients’ engagement. Surely, benefits outweigh costs, and, exactly, by 40%, according to the study “Seize the Change”, conducted by Dnv Gl and EY in 2017. The same study also revealed how 45% of Italian enterprises are investing more in environmental sustainability in the next three years, by taking advantage on a more developed governance management. Considering that the best mean to achieve sustainable goals does not exist, major trend among entities is that of “Shared Value” between corporate entities and community, in the belief that the competition among companies and competitive environment are interdependent. Generally speaking, the process of integration is supported by: specific governance system, GRI guidelines, certification ISO 26000, and future Agenda in terms of sustainability(i.e. CSR practices).
Even though Italy is, overall, moving towards sustainable finance, there exist unavoidable discrepancy between banking and corporate sectors.

Concerning banking sector, it can be evidenced that banks’ commitment towards the green subject was born recently, exactly, in 2015. In fact, according to a study conducted by the Italian Banking Association, the share of banks taking into account ESG practices was about 84%, out of which, 86 % was firmly involved in the advisory and consultation practices with their stakeholders. Pursuant the same analysis, 76% of the sector established an internal department dealing with corporate social responsibilities with a percentage of 51% of them having revised their Code of Ethics, with the inclusion of training employees’ programmes.

![Figure 3.2 Share of ESG Practices Adopted by Italian Banks](image)

Figure 3.2 Share of ESG Practices Adopted by Italian Banks

Source: Own elaboration

Therefore, Italian banking system is increasingly being interested in integrating Corporate Social Responsibility practices in their governance and strategies. According to ABI’s analysis, Italian banks have been consolidating a formalized integration model between CSR unit and all the other units, in order to draft sustainability report as best as possible, by sharing information. In fact, sustainability report has been regarded as the most appropriate instrument to accelerate the approach to sustainable businesses, as confirmed by 80% of banking institutions in 2015. Banks are deeply relying to the Code of Ethics, too. It is common sense that all the banks have adopted their own code, in order to highlight: banks’ rights and duties towards their stakeholders (100%), specific control bodies to
be appealed in case of violation (100%) , behavioural norms (92%), control and implementation system of the procedure to be adopted (88%)\(^9\). 

However, Italian banks really involved in green financing are still too few, as it emerged during the Conference held in Milan, in April 2018. During the conference, remarkable attention was pointed out to the compliance to the Legislative Decree 254/16\(^9\) and to the Paris Agenda Cop21/Cmp11\(^9\). Basically, what emerged is that Italian Banks concerned in Green Finance are only three (i.e. Intesa Sanpaolo, Banca Mediolanum and Bper Banca Group), evidencing how development on this matter is still really slow.

With matter of fact, a study conducted by ShareAction, the English organization which promotes responsible and sustainable investments in Europe, shows that the most active banks on this matter are French banks, while Italians one are still lagging. In fact, French banks are conceived such as they acknowledge their own investors on the matter: there are the front desks where clients are taught on what an ESG practice is and why it would be convenient to invest in one project rather than another one. Therefore, French Banks demonstrate higher awareness on green matter, with respect to Italian ones. With matter of fact, ShareAction sent a questionnaire to 15 banks, to draw a general overview on the actions implemented in compliance to Paris Agreement. The result of the search was quite clear: on top of the list, there was BNP Paribas, followed by Ubs and HSBC, whereas Unicredit, the Italian Bank, occupied one of the last position, as reported below:

\(^{9}\)\(^2\) ABI(2015) *Le Banche Italiane sempre più impegnate per uno sviluppo sostenibile.*


\(^{9}\) It was the conference having negotiated the Paris Agreement, to which 195 countries participated. The objective was that of finding a common and binding agreement to deal with climate change, which turned out to be the Paris Agreement.
Not by chance, the same organization evaluated many answers to default questions provided as lame and vague, such as the hydrocarbons percentage utilized banks’ activities.95

Another remarkable subject emerged during the conference of April 2018 in Milan, was the importance of mutual support between corporate sector and banks, in order for green finance to develop crossly. To better understand, let us consider agricultural sector. Climate change represents a huge threat for this sector, because of the nature of the business performed. In approaching green economy, agricultural sector may be deeply helped by banks, providing both insurances from all the possible arising risks, as well the financial tools to sustain green projects.96 In fact, from banks’ point of view, enterprise’s sustainable profile is not codified at regulative level, but it mainly concerns discretionary evaluations that every bank considers when dealing with corporate entities.97

Speaking about corporate entities, the path towards environmental sustainability seems to be much more concrete and consolidated: Italian companies have revised their businesses, leading to both innovation and employment. In fact, Italian

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96ABI (2018, 11 April) La sostenibilità delle Banche.
companies show a more advanced production system with respect to the European ones, at least in terms of CO₂ emissions and energy efficiency. Intuitively, the commitment towards this new form of business deeply depends on the kind of sector (food and energy companies adopt a sustainability report more frequently than luxury or insurance ones[^98]), and on the level of risk taking: intangible assets (e.g. associated to reputation) would mean an increase in the revenues of the companies, but it could also weaken the business, since enterprises would be more focused of solving environmental problems, rather being focused on the performance itself.[^99]

Overall, what can be drawn is that Italian corporations are more involved in green finance matter than Italian banking system, both because of the nature of the business performed and because of kind of stakeholders involved. In fact, in Italian banking systems, since investors are not acknowledged about green tools by issuers, they do not tend to sustain a green business through their capitals. Particularly, the situation is worsened by the economic and political instability of Italian landscape which does not facilitate the switch. Other way around holds for corporate sector. In fact, it is investors themselves who look for more green projects to invest in and this has firmly contributed for entities to become more sustainable.

In the light of these events, the following next paragraphs will analyse the most notwithstanding examples in terms of green finance, respectively at banking and corporate level. Considering the former, the analysis will be focusing on the case of Intesa Sanpaolo, as leading banking entity to sustain green finance. Regarding the latter, the will fall on Enel, largest Italian Green Bonds issuer.

3.2 Intesa Sanpaolo Case Study: the transition from the financial sector towards the sustainable business

Intesa Sanpaolo is one of the main leading banking Group in Europe with a market capitalization of € 46.4 billion, a variety of customers accounting for 12.3 million and a market share of 12% in most regions, from Central- Eastern Europe to Eastern Asia and North Africa. The Group relies on several business units, among these: Banca dei Territori\textsuperscript{100}, Corporate and Investment Banking\textsuperscript{101}, International Bank Subsidiary, Asset Management Area and Capital Light Bank, aimed at recovering value from non-core activities and non-performing loans, as well as selling non-strategic investments\textsuperscript{102}.

What is interesting to notice is that the Bank has recently witnessed particular concern for social (i.e. job protection, especially in the third sector) and environmental responsibility, applying, respectively, the Code of Ethics and the Rules for Environmental and Energy Policy\textsuperscript{103} (in combination to ISO certification, Environmental, Energy Management System and to Sustainability Report).

What is important to notice is that the Group is not just taking sustainable initiatives by itself, but its main concern is spreading out the sense and the culture ESG practices among regions. In the light of these events, Intesa Sanpaolo launched several initiatives in 2017(involving more than two thousands employees), among these: City Bank’s programme for training employees in line with the ISO 50001, European Bank for Reconstruction and Development training on socio-

\textsuperscript{100}The business unit focuses on SMEs and non-profit entities’ relationships and including the Mediocredito Italian subsidiary for what concerns leasing and factoring practices.

\textsuperscript{101}It is the area where the Group acts as supporter for the sustainable development of enterprises and financial institution on international basis.


\textsuperscript{103}Intesa Sanpaolo Group, performing also in the asset management area, provides green products and services also in this field. Basically, the Bank stands out for the signatory of the Principle Responsible Investment and the Carbon Disclosure Project, the so called Eurizone Capital. It is an Ethical Fund counting for €900 million and which includes seven mandates in line with ESG criteria.
environmental risks and the participation to European Week promoted by the European Commission for Waste Reduction\textsuperscript{104}.

In committing itself to shoulder socially and environmentally sustainable activities, Intesa Sanpaolo has ended up facing another risk other than the usual ones faced by banks (e.g. credit risk, liquidity risk and market banking risk): reputational risk. The risk rises from the mismanagement of ESG practices which may damage the bank’s image. Therefore, the Bank has established both a Corporate Bodies for strategically supervising on Code’s compliance and the Enterprise Risk Management Head Office Department for governing reputational risk processes (e.g. counterparty and specific transaction risks exposure)\textsuperscript{105}.

Specifically to environmental regard, the Business Plan 2014-2017\textsuperscript{106} shows targets for 2022 and 2037\textsuperscript{107}, including: CO\textsubscript{2} emission reduction (by 37%), share of use in renewable energy sources up to 81% in 2037, use of photovoltaic panels (with an increase of 8.3% in photovoltaic energy sources) and promotion of sustainable modes of transport\textsuperscript{108}. With matter of fact, Intesa Sanpaolo has almost eliminated the use of traditional energy sources in Italy (generation from renewable energy sources accounted for 80% out of the total in 2016, with 97% in Italy)\textsuperscript{109} and it drastically reduced total energy consumption, over the years 2014-2016, as reported below:

\begin{itemize}
  \item \textsuperscript{104}Intesa Sanpaolo (2017)\textit{2017 Consolidated Non-Financial Statement}, Sustainability Report., pp.114-115.
  \item \textsuperscript{105}Intesa Sanpaolo (2016, December 6) \textit{Base Prospectus 2016}, pp. 7-20.
  \item \textsuperscript{106}The business plan implied a solid and valid value creation, driven by:11.8% rote, 10% roe and €4.5 billion net income, with a roe well above the cost of capital. The plan mirrored contributions from all the banks, focusing on a more fee-intensive business, in order to keep a low interest rate.
  \item \textsuperscript{107}Intesa San Paolo (2017) \textit{2017 Consolidated Non-Financial Statement}, Sustainability Report, pp. 69-81.
  \item \textsuperscript{108}The goal requires: the reduction of individual transports, as defined by the Decreto Ronchi, and the improvement of road safety as defined by ISO 39001:2012 standard.
  \item \textsuperscript{109}Intesa Sanpaolo (2017, June) \textit{Intesa Sanpaolo Inaugural Green Bond}, Presentation p.17.
\end{itemize}
A huge contribution to the Bank’s environmental climate actions was granted by the Environmental and Energy Integrated Management System\textsuperscript{110}, compliant to ISO 14001 and ISO 50001, and certified by an external body, DNV\textsuperscript{111}. The use of the System has allowed for the evaluation of better identification of environmental risks, better energy consumption, as well as larger green awareness among stakeholders\textsuperscript{112}. In addition, thanks to the Environmental Management System and Energy Management System integration, during the period 2014-2016, the Bank was capable of taking substantial steps towards: reduction of paper consumption (with 57\% of recycling, certified by FSC and / or ECF and TCF for the 30\%)\textsuperscript{113}, and the reduction in emission scope 1+2, as reported by the following graph\textsuperscript{114}.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure3.4.png}
\caption{Total Energy Consumption (MWh)}
\end{figure}

\textsuperscript{110}The System is certified by an independent body which checks its management and operational procedures. The System monitors the activities performed by 220 operational units, whereas internal audits assess the compliance to the system and to the standard principles, as well as the compliance to the Rules for Environmental and Energy Policies.

\textsuperscript{111}Intesa Sanpaolo (2017, June). \textit{Intesa Sanpaolo Inaugural Green Bond}, Presentation, p.17


\textsuperscript{113}Intesa Sanpaolo (2017, June). \textit{Intesa Sanpaolo Inaugural Green Bond}, p.17.

\textsuperscript{114}Where Scope 1 refers to the direct emissions from fuel for heating and fleet and Scope 2 to the indirect emissions deriving from air-conditioning and electricity.
The Group fairly noticed how its environmental policies indirectly impact on customers and suppliers. In fact, Intesa Sanpaolo is stressing remarkable importance on the risk creditworthiness assessment and on the compliance to the Equator Principles\textsuperscript{115} for all the loans provided (both in Italy and abroad), as well as on the choice of contracting with socially and environmentally responsible suppliers, in line with the environmental, energy and quality performance certifications\textsuperscript{116}.

Specifically, the total amount of green loans remarkably increased in the early 2017 when it reached a value of € 1.7 billion, representing 3.1% of Intesa Sanpaolo’s total loans. The major sources of funds was that of Mediocredito Italiano\textsuperscript{117}, which pledged € 1.5 billion for medium/ long term green projects, as reported below:

\textsuperscript{115}EP is a risk management framework adopted by financial institutions for determining and assessing environmental and social risks. Intesa Sanpaolo adhered to EP in 2007. EP were defined from social risk assessment (safety and health concerns, energy efficiency development and protection of workers, as recommended by IFC and the World Bank). The EP requires for alternative solutions whenever CO\textsubscript{2} emissions exceed 100 000 tonnes, as well as an annual report of the total amount of emissions associated to the project undertaken.

\textsuperscript{116}Intesa Sanpaolo( 2014, January) \textit{Rules for the Environmental and Energy Policy}, pp.4-5.

\textsuperscript{117}Mediocredito Italiano is part of the Sanpaolo Group which works within the advisory area and which undertook several loans in support of businesses and public administration in energy.
Therefore, Mediocredito Italiano was the biggest loaner at the beginning of 2017, investing in projects such as: photovoltaic (82%), biomass (7%), wind (3%), hydroelectric (6%) and energy efficiency (3%). Other two fund sources were: Banca Prossima\(^{118}\) (€ 1.2 million) and Equiter (€190 million), respectively investing in environmental-friendly projects to promote socio-economic development and urban development projects\(^{119}\).

### 3.2.1 The Eurizon Asset Management

The importance stressed by the Bank on green investments has led the Group to establish the first Italian environmental asset management. It is a sector which selects green investments, preferably investment grade, being compliant to the Green Bond Principles with the intent of underpinning the green investments appertaining to the Eurizon Capital. The asset management fund subscribed also the Principles for Responsible Investment (PRI), which are the principles on investment sustainable mechanisms, drafted in conjunction with United Nations Environment Programme -

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\(^{118}\) It is a non-profit organization belonging to Intesa Sanpaolo Group which works in support of companies underpinning energy efficiency projects (specifically, reduction in energy costs and social and environmental actions) in the third sector.

\(^{119}\) Equiter financed 41 eco-friendly projects at the end of 2016: 12 related to urban development in Sicily (€90 million) and Campania (€63 million) and other 29 related to energy efficiency projects in Sardinia (€ 90 million).
Finance Initiative (UNEP-FI)\textsuperscript{120} and the Global Compact\textsuperscript{121}. All the funds collected by the asset management can be invested up to the benchmark level. The investment process includes the monthly publication of a list of all the stocks characterized by a low sustainability rating, to be provided to analysts in order for the traditional financial analysis to be integrated. In 2017 the Eurizon Capital SGR asset management, invested in ethical and sustainable funds, was worthy € 2390 million (e.g. 5.6% of the total Italian funds). The management process of ethical funds relies on both the principle of inclusion and the principle of exclusion. The former aims at the identification of the ethical characteristics that companies show, whereas the latter tends to spot all the areas in contrast to ethical principles. Simultaneously, the asset management appeals to the “Best in class” principle, combining both positive and negative criteria. Among the principles of inclusion, it seems reasonable to recall: clean technologies use, GHG reduction and biodiversity protection, while exclusion criteria are: antitrust violation, activities in the army sector and discrimination in credit accessibility. In addition Eurizon SGR adhered to the Eurosif Transparency Guidelines with the intent of developing responsible social investments, as well as better governance models. By doing so, Eurizon Capital has committed itself to provide accurate and adequate information in order to better clarify the process followed in social responsible investments, showing its solid commitment on this matter in Italy.

Eurizon Asset Management is playing a remarkable role also in banks’ approach to green finance. Not by chance, the management of the Green Bond issued by Intesa Sanpaolo is on behalf of the Asset management.

The Bond, being worthy €500 million, and issued on the 16\textsuperscript{th} June 2017, was taken up by a total amount of € 2 billion. It consists in a yearly 0.875\% coupon with an issuancel price set at 99.534\%, due to June 2022. Considering both the coupon and the initial price, the bond is supposed to provide a premium of 0.83\% above the

\begin{itemize}
  \item \textsuperscript{120}It is a partnership established between the United Nations Environment and the global financial sector in 1992, with the objective of promoting sustainable finance. It implies a strong focus on policy, by emphasizing the dialogue between finance practitioners, supervisors and regulators, as well as the financial sector involvement in climate concern issue at international level.
  \item \textsuperscript{121}It is a UN’s initiative aimed at encouraging companies to adopt sustainable practices at international level, pursuant corporate social responsibility principle. It includes ten principles in the areas of: human rights, job, environmental sustainability, anti-corruption.
\end{itemize}
midswap rate, lower then initially forecasted yield of 0.95%. The Green Bond has been listed on Luxembourg Stock Exchange and it has a rating of: Baa1 by Moody’s, BBB by Standard’s & Poor’s, BBB by Fitch and BBBH by Dbrs\textsuperscript{122}. The amount collected, € 2 billion, is supposed to be delved toward renewable energy and energy efficiency projects. Moreover, the Bank is drafting annually “The Green Bond Report”, by recalling the projects being financed up to the maturity date of the bond, when all the benefits associated to the financed projects will be evaluated\textsuperscript{123}.

\textbf{3.2.2 The Issuance of the Green Bond}

For each Green Bond issued, Intesa Sanpaolo relies on the following scheme: use of proceeds, process for project evaluation and selection, management of proceeds, monitor and reporting.

The issuance of Green Bonds is totally devolved to Eligible Loans, pursuant to Eligible Categories, as specified in the Green Bond Framework. Precisely, eligible categories are two: Renewable Energy and Energy Efficiency\textsuperscript{124}. The former, relying on solar, wind, hydro, bio-energy and infrastructural investments will lead to benefits in terms of increase of supply of renewable energy sources and contribution to the global warming decrease. The latter, relying on: reduction of energy consumption in favour of use of RES, energy efficiency improvement of smart grids, infrastructure and buildings, will incentivize energy savings and a more efficient infrastructural network. Basically, Energy Efficiency increase seems to be the most appropriate and quickest way for facing climate change with a minimum level of impact from an environmental point of view, leading also to a benefit for the society as a whole, since it will relieve buildings and households from the loan of paying bills.

The only kind of financing considered as eligible within the Use of Proceeds framework is that provided by Mediocredito Italiano. The project evaluation is on

\textsuperscript{122}Intesa Sanpaolo (2017, June) Intesa Sanpaolo Inaugural Green Bond, Presentation p. 12.


\textsuperscript{124}Renewable Energy criteria are defined clearly according to Intesa’s strategy. Additional criteria have been implemented for what concerns bio-mass and hydro power generation, satisfying either Hydropower Sustainability Protocol or Publicly stated commitment to comply with IFC performance standards. With regard to Energy Efficiency, instead, eligibility is defined pursuant international standard and certification schemes.
behalf of the Green Bond Working Group constituted by: Treasury Department, Corporate Social Responsibility (e.g. CSR) and the Energy Desk of Mediocredito Italiano. This Group is in charge of reviewing, and eventually approve, the loan proposed by the business teams under Eligible Categories requirements and the Criteria listed in the “Use of Proceeds”. Whenever a loan is regarded as “Eligible”, it will be accepted and registered in the Green Bond Register, constantly updated by the Green Bond Working Group, as specified in the section of “Management of Proceeds”. The selection of a loan as eligible is constituent part in the Intesa Sanpaolo investment process, and it implies the involvement of both internal roles (e.g. Mediocredito Italiano functions) and external ones, to ensure the maximum level of compliance to Mediocredito Italiano guidelines. Additionally, before Mediocredito Italiano evaluates the final disbursement for the project to be financed, an accurate evaluation of clients’ creditworthiness is required by the Credit Evaluation function. In fact, Intesa Sanpaolo is deeply concerned about their clients’ sustainability actions and it makes sure that the credit is devoted to customers who operate in accordance to the Green Bond Principles. In the light of these events, the assessment of the creditworthiness is carried out through technical and legal due diligences which appraise the respect of laws and regulation during the building phase of the project, as well as the environmental impact of the business plan.

Management of Proceeds, basically, means dealing with the Register recording all the Green Bonds regarded as “Eligible”. The Register contains all the Green Bonds’ details (e.g. ISIN, pricing date, maturity date) and the Eligible Loans List (e.g. eligible category used, date of disbursement, maturity date, potential benefits, amount of loan pledged, use of proceeds). Intesa Sanpaolo may finance the green project chosen either directly or indirectly through its subsidiaries (Mediocredito Italiano, Banca Prossima), financially supported by intercompany loans. Any other projects not complying with the Eligibility Criteria, will be included in treasury liquidity portfolio, Time Deposit, Cash or Other form of short/ medium term funding sources. In the case where the project does not respect the eligibility criteria anymore, the net of the proceeds will be used to finance another eligible project falling under the same Eligibility Category.
Once proceeds are provided to Eligible Loans, the fund is constantly monitored and verified by external auditors. Intesa Sanpaolo is supposed to report annually (in the “Green Bond Report”) the use of the proceeds up to the point full allocation is completed. The Green Bond Report furnishes information about the amount of the allocated loan, the share of financing or re-financing project, whether the loan is provided directly or indirectly. Moreover, during the phase of reporting, the Group will confirm the compliance to the use of proceeds to the Green Bond Principles, as well as the assessment of the environmental benefits of the loan, both in terms of output and impact\textsuperscript{125} at category level\textsuperscript{126}.

The choice of reporting Intesa Sanpaolo case has been mainly due to the fact that it has been the first Italian Bank in approaching environmental sustainability through the issuance of Green Bond. In fact, Intesa Sanpaolo is one of the few Italian financial institutions which has profoundly opted for a more sustainable business.

In the previous paragraph, it has been studied how the Italian banking sector is approaching sustainable finance and it has been concluded how the banking sector is little bit less concerned than corporate entities on the matter. Obviously, it is an expectable result, since some corporate entities’ core businesses are strictly related to climate change and it is quite legitimate for them to be more concerned. This is the reason why, discussing about Intesa Sanpaolo Group has seemed to be relevant, as it is the demonstration that the convergence towards a more environmental sustainable path may come from every entity, regardless the nature of the business performed. It is the notwithstanding example that embarking a sustainable trend is, firstly, a mindset, and that without a deep commitment coming from the issuers in first place, green awareness could not exist.

\textsuperscript{125}Outputs and impacts are estimated for the whole period of bond duration, up to its maturity. Specifically, impacts are evaluated either ex-ante/ex-post on the basis of defined indicators implemented by Intesa Sanpaolo.

\textsuperscript{126}Intesa Sanpaolo (2017, June 12) \textit{Intesa Sanpaolo Green Bond Framework}, pp.5-7.
3.3 Intesa Sanpaolo’s Second Party Opinion

Intesa Sanpaolo’s commitment towards ESG practices has been evaluated by the agency Vigeo Eiris in June 2017. According to the agency, the Bank positively contributes to sustainable development, in alignment with the Green Bond Principles, displaying an overall robust ESG performance\textsuperscript{127}.

Other than the assessment of the performance on the basis of the Bank’s leadership (significance of commitment), implementation (process tools, control and reporting) and results (feedback drawn by stakeholders’ satisfaction and eventual controversies), second party opinion by Vigeo Eiris outlined how Intesa Sanpaolo’s risk factors clearly range from reasonable level (for human rights, operational and legal concerns) to moderate (with regards to reputational risk. Overall, ESG management by Intesa Sanpaolo results to be, any doubt, robust. Precisely, according to Vigeo Eiris Assessment Scales, the Bank’s performance may be classified as robust within environmental and social domain, whereas it is considered limited in the governance field.

On one hand, when speaking about environmental domain, they are referring to the efforts being showed in the management of climate change risks and in the investment of plants for renewable energy sources generation (with the relative bank’s creditworthiness assessment and consultancy service for the customer). On the other hand, saying that Intesa Sanpaolo is robust in terms of social domain, means it is firmly supporting small and medium enterprises and start-ups for triggering social and economic development, combined to special care for Human Rights and the mitigation of associated risks in both lending and investment activities. With this regard, an association between company-trade union body and company representatives has been established. However, the Bank’s management in terms of governance does not seem as strong as the other two areas. The weakness in governance field mainly depends on the improving margins that the Banks has

showed in terms of transparency on executives’ remuneration\textsuperscript{128} and on the lack of formal policy for fighting corruption and bribery\textsuperscript{129}.

Until June 2017, the Bank recorded a frequent level of controversies especially on issues, such as: environmental, business behaviour, corporate governance, human rights and community governance. Their severity varied from significant to high, especially for those matters related to: social and economic development, responsible customer relations, corruption, internal control and monitoring. The severity factor is not to be underestimated, as it may seriously impact stakeholders’ interests. However, beside the level of severity, the Group showed a good level of responsiveness\textsuperscript{130} in order for each case to be managed as most transparently as possible. Being responsive means being capable of communicating with stakeholders and taking the commitment to adapt precautionary measures.

With this regard, the following graph provides a clear overview of the level of controversies faced and the way they have been managed.

\begin{itemize}
\item \textsuperscript{128}The Board is composed by a majority of independent directors and the Corporate Social Responsibility reports through the Chief Governance Officer to the Managing Director and CEO and Board of Directors.
\item \textsuperscript{129}Vigeo Eiris Enterprise (2017, June) \textit{Second Party Opinion on the Sustainability of Intesa Sanpaolo Green Bond}, pp.1-9.
\item \textsuperscript{130}Responsiveness is scaled up: Proactive, Remediate, Reactive, Non-Communicative. While the frequency of controversies as: Isolated, Occasional, Frequent, Persistent.
\end{itemize}
To sum up, what can be drawn by the external review conducted by Vigeo Eiris is that, overall, Intesa Sanpaolo shows a robust ESG performance, that is to say, a good level of alignment in relation to Green Bond Principles when performing sustainability actions. Not by chance, the Bank is positioned as eighth in the “Diversified Banks” Vigeo Eiris sector which includes 31 European companies. Moreover, according to the external review, Green Bond Framework is in line with the Bank’s strategy and any kind of financing or refinancing Eligible Loans is carried...
out in a clear, measurable and quantifiable way. Despite the robustness of use of proceeds, reporting is still weak as it occurs only at corporate level and through the Sustainability Report. What Vigeo Eiris suggests is reinforcing disclosure at project level, as well as improving the details in the reporting of ESG management loans\(^{131}\).

### 3.4 Enel Case Study: the transition from the energy business towards the sustainable finance

Enel is active in more than thirty countries, with an installed capacity of 83 GW, 1.9 million of networks and 61 million clients. The Group produces energy by combining both renewable energy sources (hydro, wind, solar, geothermal and biomass) and fossil fuel ones. More than the half of the energy produced by the Group in 2016 did not entail CO\(_2\) emissions, making the Group one of the most important producer in terms of clean energy\(^{132}\). The satisfying results have been quite tangible also in the stock market, which registered an increase by 8 percentage points in 2016\(^{133}\).

The chart below shows the net production by source in 2016:

![Figure 3.8 Net Production by Source](image)

Source: Enel Sustainability Report 2016

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\(^{132}\) The total production is equal to 261,812 GWh, out of which 85,974 GWh represents clean production and whose 46% is at no GHG emission.

As inferable from the graph the majority of the net production came from hydroelectric sources (33%), followed by carbon sources (20%) and Combined Cycle Gas Turbine (18%). With matter of fact, the Group, operating in both unregulated and regulated market, has the largest client base in the electricity and gas market, including: Europe, America, India, Russia, North America and Latin America. Moreover, the Group’s activities experienced also the energy crisis during 70s, by providing the company with a remarkable experience in energy field, and renderning it one of the most important zero emission energy pioneer in this sector.

As energy business reliant, Enel has profoundly committed itself towards a more sustainable path in energy generation, pursuant both UN Sustainable Development Goal\textsuperscript{134} and Paris Agreement. Regarding the former, the ground in which the Group sinks its roots are those of: quality of education (SDG 4), clean and accessible energy production (SDG 7), especially in Africa, Asia and Latin America, economic growth (SDG 8) and climate actions (SDG 13).

In the light of these events, what Enel forecasts is an industrial growth coming based on renewable energy sources, with clear focus on hydro, as presented below:

**Figure 3.9 Industrial Growth Sources (GW)**

\textsuperscript{134}UN Sustainable Development Goals are universal call actions implemented with the aim of: ending poverty, protecting the environment, enjoying universal peace and prosperity. Exactly, they are seventeen goals, interconnected with one another, and providing clear guidelines and targets for all countries to underpin sustainable development.
Moreover, targets set for 2020 includes the reduction of particulates specific emissions by minus 70% within 2020 against 2010, reference year.

The 2020 targets, combined to the Investment Plan 2017-2019, which implies: a € 5.3 billion increase in renewable energy sources, new renewable capacity equal to 8 GW by 2019, the reduction of fossil fuel plants, and the Build, Sell and Operate Model, will definitely accelerate the 2050 zero emission target the company is following. Specifically the two main decarbonisation target the company set were that in 2016, when the CO₂ emission target was established at -15% with respect to 2007, and that of 2020 when the target is supposed to reach a level of -25% with respect to 2007, as showed by the following graph:

![Figure 3.10 Cumulative CO2 Emission Reduction from 2007](source)

Overall, it can be stated that decarbonisation path has been quite constant since 2007, with a general decreasing trend for CO₂ emissions, supposed to reach a zero level in 2050.

What is interesting to underline is that, differently from the case of the banking sector, whose core business does not rely directly on climate change concern, Enel’s

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135 The Plan 2017-2019 forecasts a net production (%), respectively of: Renewables(15), Hydroelectric (30), and nuclear (11) at zero emission level plus a share of carbon (26), CCGT(11),Oil & Gas (7).
activities sink their roots in environmental field, which can be deeply affected by a more sustainable business. This tight link between Enel’s core business and environmental concern has led the company to undertake its sustainable path more easily and more actively than a financial institution would do.

Decarbonisation path is only a part of the business model Enel proposes. In general, what Enel refers to is a framework based on: ethical principles, transparency, respect of human rights and fight against corruption and bribery, which are totally embedded in the Group’s policy. In the light of these events, focal importance is acquired by the ex-post and ex-ante application of ESG sustainability indices to the whole value chain of the business, in order to anticipate the decision-making process and to take advantage of market opportunity.

The basic idea is that Enel has not simply decided to embark a sustainable path, but, considering the business and energy sector experience, Enel’s main objective is that of achieving environmental sustainable goal in a more innovative way, by embracing the current technological revolution. Actually, the new model proposed in the Sustainability Report 2016, takes into account two macro aspects: that of that of clients’ needs satisfaction and that of digitalization.

With special focus on customers’ needs and to better respond to market shocks within a more digitalized framework, it has been necessary for the entity to open to external contributions, this is why, it has promoted the “Open Innovability” Model, in association with: universities, local and international organizations and nongovernmental organizations. Not by chance, the new model is perfectly aligned with the indications of UN’s Global Compact, to which Enel has been belonging since 2004.

Enel, with the “Open Power” mission, is involved in the resolution of the main challenges of our country, pursuant the radical change being promoted by B Corp.

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136 It is the new model proposed by ENEL which relies on both innovation and digitalization to ensure interconnection among its services (ENEL 4.0). The new model deals with 80 projects among -ups and Market and Business unit, concerning: e- mobility, minigrid, e-home, connectivity, storage and blockchain.

137 It is a corporate global movement helping entities evaluate their activities’ social and environmental impact against a reference benchmarking in the fields of: workers, community,
Since this mission requires a more decentralized model, the Group has changed the traditional business utilities to be adapted to the new mission, and to the promotion of circular economy. Not by chance, Enel is developing also a circular economy, on the basis of its five main pillars: sustainable inputs, recycling, extension of asset life, service as product and sharing\textsuperscript{138}.

Specifically, considering digitalization matter, it can be drawn that, as energy increases, electrification sector is surely expanding, with a large share of entities relying on it. In fact, although energy consumption is rising, there still exist more than one million people who cannot afford electricity, leading electricity networks acquire more relevance both in transmission and distribution field. Particularly, Enel is active in the fields of intelligent network (e.g. smart meter and innovative integrated technologies), off-grid electrification (with related initiatives in Latin American, Asia and Africa), efficient integrated energy mix and enhancement of energy efficiency through electric technologies (e.g. e-mobility). Generally speaking, what Enel is proposing is an integrated model between digitalization and low-carbon economy, capable of driving value and synergies.

The digitalization aspect will contribute to some benefits in every area of the global trading proposed, specifically: mitigation of global risk and creation of cash flow generation in the area of infrastructure and network platform, facilitation to energy access in global renewable energy source field, energy transition, digital platform proposition in e-solutions area, efficient use of energy and consumption awareness products in retail sector, asset optimization and predictability in thermal generation field\textsuperscript{139}.

Stakeholders’ satisfaction is a delicate issue, as it could cause conflict of interests with shareholders’ goals, but Enel is one of the most remarkable examples of how controversies can be efficiently managed, management which is perfectly mirrored by the remuneration policy Enel applies to its stakeholders in both short and long term period. The attention addressed towards third party appears important to be underlined, as it shows stakeholders’ confidence in what Enel does, increasing governance and environment.

\textsuperscript{139}Enel (2017, December). Investor Presentation., p.3.
company’s reputation. Basically, if stakeholders are overall satisfied, they will be more willing to be involved in Enel’s action plan, and this holds also when dealing with Social Responsible Investors: the more Enel is reliable, the more investors will be confident in undertaking investments.

Moreover, in order to face stakeholders’ needs, a materiality matrix has been conceived pursuant the most common International Standards, such as: Global Reporting Initiative (GRI), the Principles of Communication on Progress (COP) and the UN Global Compact Guidelines. The main objective is that of mapping stakeholders’ primary interests and integrate them to Enel’s industrial strategy at both group and country level, in order to clarify the Annual Financial Relations as best as possible and provide stakeholders with an integrated performance reporting\textsuperscript{140}. The process consists in the identification of the priority themes both for the Group and for the stakeholders, whose category priority is assigned on the basis of their relevance for the Group (e.g. Principle of Inclusivity). Additionally, an analysis on the stakeholders’ relevance attached to the different themes is carried out, as well as a scrutiny on the entity’s positioning for the different themes (Principle of Relevance). In 2016, thanks to the technological support and the implementation of a monitoring system to track stakeholders’ satisfaction against the Group’s actions on the several themes, Enel succeeded in involving a total of: 39 societies, 17 countries, 228 stakeholders. Holding’s Sustainability Unit channels and coordinates the priority analysis, to be further consolidated by the Holding to draw the materiality matrix of the Group\textsuperscript{141}.

Materiality analysis has showed a substantial alignment between what stakeholders require and the priorities defined by the Group on different themes, such as: business and governance, social and environmental themes\textsuperscript{142}.

\textsuperscript{140}Enel (2016). L’analisi delle priorità (c.d. materiality analysis), Sustainability Report 2016
\textsuperscript{141}Enel (2016)L’analisi delle priorità (c.d. materiality analysis), Sustainability Report 2016.
3.4.1 The Strategic Plan 2018-2020

Enel Group manages its green performance through Enel Green Power S.p.A and, insofar, it is the entity having the largest investment opportunities related to renewable energy sources.

Part of Enel investments in its support to environmental sustainability is devoted to the implementation of digitalized assets which are supposed to reduce nominal cost base by about 7% within 2020. The innovation is quite useful for the development of e-mobility, smart grids (which is intensively catching up more and more users, which are now 40 million), and, overall, industrial growth, supposed to reach € 24.6 billion in the period 2018-2020\textsuperscript{143}. Specifically, networks will ensure a dual energy communication channel, with an estimated capex of € 4.7 billion (with respect to about € 3 billion in 2017), coming from asset digitalisation\textsuperscript{144}. Actually, digitalization and technological path was the crucial point on which Enel focused in November 2017, during the Capital Market Day in London, when it presented its Strategic Plan 2018-2020. The Plan, estimating an amount of € 8.3 billion in renewable (to reach a total capacity of 7.8 GW) and € 5.3 billion investment in projects for the advanced digitalisation of assets, aims at increasing e-Solutions both in retail and network sectors, mainly concerning: smart meters, remote control, digitalization in customers’ engagement and more digitalization-oriented workforce.

Not by chance, networks and renewable are regarded as the main sources to contribute to both EBITDA increases, as clearly showed by the following graphs:

\textsuperscript{143} According to Enel’ estimations, digitalisation will accelerate industrial growth, by contributing to both a reduction in OPEX by € 0.5 billion thanks to energy efficiency and by increasing EBITDA growth coming from networks and e-solutions for an estimated amount of € 2.5 billion cumulated over the period 2018-2020.

\textsuperscript{144} Enel (2017, December) \textit{Enel Green Bond Framework}, p.2
At international level, Enel’s principal goal is that of establishing a modern and open distribution network for several utilities when the market is already developed, whereas, where the market is developing, the company has opted for satisfying electricity demand as best as possible, considering populations’ growth and the increase in the level of urbanization in these countries. Enel’s internationalization strategy turns out to be a remarkable difference from Intesa Sanpaolo, as it mainly affects the way the company deals with its stakeholders in foreign countries.

In particular, the majority of the clean investments the company has decided to undertake are placed in Latin America, thanks to the large customer base availability and thanks to the fact that technological path Enel is taking (pursuant the Strategic Plan 2018-2020) seems to be a good enabler for boosting the use of renewable energies sources. In fact, more than in other countries, in Latin America, digitalization and automation are regarded as key drivers for competitiveness, favouring the establishment of the company as “Best in class” in reducing costs and increasing in competitive advantage\(^{145}\). Moreover, Enel’s presence in ten countries in Latin America (i.e. Chile, Brazil, Argentina, Peru, Colombia, Uruguay, Mexico, Panama, Guatemala and Costa Rica) is also justified by the potential these countries show in terms of renewable energy sources, as well as absence of conflicts, absence

of terroristic threats and an increasing level of urbanization. All these reasons has led the company to invest € 10 billion in Latin America, out of which: € 3 billion in network development and more than € 5 billion in renewable energy sources. The area generates, overall, € 4 billion, about 30% (28.5%) of the total company’s EBITDA. Enel’s Strategic Plan forecasts an increase of EBITDA by 50% in Latin America, reaching a total share of 47%. Not by chance, according to the International Renewable Energy Agency (IRENA)\textsuperscript{146} data, the Region tripled the installed capacity from renewable energy sources: it is a sector that is remarkably increasing and which employs more than two millions of people. Therefore, the majority of the investments are deemed to both infrastructural networks and the renewable energy generation. Particularly, the combination between the local “Forward looking” regulative frameworks and the highest level of urbanization (80% in 2017) attracted the interests of many investors.

In order to comply to the sustainable path Enel has canvassed, the company is particularly focused on the social impact its green investments could generate. This is the reason why the Group performs a careful socio-demographic, economic and cultural investigation, before choosing the site where to operate: if the risk of people’s dismissal arises, relocation will be ensured, pursuant local legislation and by adopting the proper measures for the computation of the compensation. This is what happened matter in the case of Bocomina plant construction by Endesa Chile in 2016 and that of Emgesa in the area of El Quimbo.

In the first case, Endesa Chile committed itself to a series of negotiations with the Chilean Government between 2012 and 2014 to promote relocation plans and public/private work group, by establishing two funds amounting respectively € 420 and € 250 thousand, for developing people’s know-how and social projects for local community. In the second case, Emgesa was involved in the engineering project of El Quimbo, one of the most important hydroelectric investment in South America, ($1.2 billion). The project was far from being uncontested. Many controversies emerged from local communities which complained for their revenues to be reduced

\textsuperscript{146}It is an autonomous intergovernmental organization established in 2009. supporting countries in their transition towards low- carbon economy, by providing providing advices to governments: on renewable energy sources, capacity building and technology transfer.
by 30%, as well as for the environmental damages caused by the plant. These actions were the cause for the project to be suspended by the Court in 2015, to be, subsequently, opened and extended up to 2017, on precautionary basis, provided a €5.5 million collateral and the general fulfilment of environmental requirements.

3.4.2 The Issuance of the Green Bonds

Enel counts for 68% of long-term institutional investors who have showed interests in environmental sustainable businesses, providing satisfying economic results. Particularly, Enel counts for 150 Social Responsible Investors representing 8% of the total share in circulation\textsuperscript{147}.

The fact that investors are becoming more sustainable, combined to a debt structure largely relying on bonds’ issuances\textsuperscript{148}, has led the company to profoundly consider the use of Green Bonds as financial instruments to underpin eco-friendly projects.

What is interesting to notice is that Green Bonds allocation occurred mainly at international level in 2017 when, through a multi-country and multi-channel approach, the company was capable of allocate proceeds equals to 90% of the total fund raised (i.e. €1.1 billion) and when eligible projects exceeded planned organic renewable growth by 0.4 GW (i.e. 3.9 GW vs 3.5 GW). Specifically, the highest amount of allocation proceeds occurred in US and Brazil, where the company, having invested in solar and wind technologies, raised an amount of €400 and €350 million, respectively\textsuperscript{149}.

The first Green Bond Enel Finance International issued was on 9th January 2017, and it was worthy €1250 million. The Green Bond, which was rated in line with Enel’s rating, required a single payment fixed-rate 1% coupon. The issuance price was set at 99.001% and the effective yield on expiry is 1.137%, with maturity seven years and a yearly payable 1% yield. The Bond was listed in both Irish and

\textsuperscript{147}Enel (2016) Risultati 2016 e avanzamento Piano di Sostenibilità 2016-202\textsuperscript{2}. Sustainability Report
\textsuperscript{148}For the target > 3Q2018-2020, the debt maturity covered by bonds will be: 1.0, 2.6, 2.3, 1.5(€billion) exceeding both short term financing and bank loans. In addition, forecasts on >2021 estimates a share in bonds’ debt structure of 23.7 (€billion).
Luxembourg Stock Exchange for what concerns regulated market, and on Italian Stock Exchange for the unregulated one. The Bond has been taken-up by a total of €3 billion, with a highest participation of Social Responsible Investors who have provided the Group with a larger investment base. The net income from the issuance, undertaken by both Enel and Enel Finance International’s Euro Medium Term Notes, will be used to finance eligible green projects150, that is to say, all those projects respecting the Green Bond Principles 2016. Moreover, this issuance is also in line with the Sustainability Plan 2017-2019, which provides for a 12.4 billion refinancing also through the issuance of Green Bonds, helping also the achievement of the complete decarbonisation path by 2050.

After one year, on 9th January 2018, Enel International Finance issued its second Green Bond, issued for institutional investors. The Green Bond is worth €1 250 million and it requires a single payment from 16 September 2026, in a fixed-rate coupon of 1.125%, to be paid in arrears in September, starting from September 2018. The issuance price was set at 99.184% and the effective yield on expiry is 1.225%. The Green Bond was listed in the Irish Stock Exchange and Luxembourg Stock Exchange and on the multilateral negotiation being given a rating in line with Enel’s rating system, “ExtraMOT PRO”, managed by the Italian Stock Exchange. The Green Bond (e.g. BBB+ by S&P, Baa2 by Moody’s, BBB+ by Fitch) was been taken-up by a total of €3 billion. The net income, being got by the €35 000 000 000 Euro Medium Term Note Programme, is supposed to finance: development, construction and repowering renewable energy generation plants, building and management of transmission and distribution networks, as well as smart metering systems. The operation follows the Strategic Plan 2018-2020 which also deals with the refinancing of €10 billion by 2020 to be achieved also through the issuance of Green Bonds as financial instruments to underpin circular economy151.

150 Enel’s eligible green projects include: development, construction and repowering of renewable energy sources power plants, development of transmission and distribution networks in all the areas where Enel operates.

151 With this regard, the Group took part to the “Paris 2017 Climate Finance Day” in December 2017, the 11th, where the participants committed themselves to the issuance of Green Bonds for contributing to the development of this market.
In the Use of Proceeds, Enel’s contribution to sustainable development relies on the use of three specific Eligible Green Projects categories, aiming at both facing climate change mitigation and protection of natural resources. Each category is supposed to be approved by the relevant Issuer, EFI (i.e. Enel Finance International), and, when applicable, by the Guarantor, Enel S.p.A, plus a rating agency. The first category to be mentioned is that of Renewable Energy Projects (in accordance to the UN SGD 7, affordable clean energy and UN SDG 13, climate action), meaning the financing or refinancing of renewable energy plants, as well as the increase of hydro installed capacity up to 25 MW. Another Eligible Category where the Group has decided to operate is that of Transmission, Distribution and Smart Grid Projects (in accordance to the UN SDG 9, industry, innovation and infrastructure and UN SDG 13, climate action), mainly referring to: the improved connection between the renewable production units and the general network, to the management of electricity demand and a higher affordability of energy for consumers. Surely, the biggest and most tangible benefit associated to the first two Eligible Categories is the reduction of GHG emissions both in terms of renewable electricity generation and energy savings. Actually, Enel operates in another Category, which is defined in a more general way with respect to the aforementioned ones. In fact, this category is simply defined as “Other projects” (pursuant UN SDG 9, industry, innovation and infrastructure and UN SDG 11, sustainable cities and communities). With this definition, the Group substantially refers to three kinds of projects: Clean Transportation, which, intuitively, are all those projects deemed to the financing (and refinancing) of non-motorised, hybrid, rail and clean energy vehicles; projects related to the renovation and efficiency improvements of Green Buildings, and Decarbonising Technologies projects, all of them aimed at reducing the environmental impact generated by the transportation sector. Examples of Eligible Green Projects are, for instance, the Dominica 200 MW wind farm in Charcas, in Mexico, and the Adams project, 82.5 MW solar PV plant, in South Africa. In both of the projects, the main concern was that of combining stakeholders’

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and project development’s needs, as well as that of satisfying social needs through business and environmental actions\textsuperscript{153}.

Enel’s Evaluation process is carried out by an internal expertise which is in charge of: evaluating Green Bond’s process in the phase of implementation and allocation, double checking whether the allocation respects the Environmental and Social criteria, providing the annual report and granting for the independent auditor to provide the assurance report. Basically, there exist some eligibility criteria that process relies on, which are: the monitoring of the process as long as the capex is used, the integration of ESG practices (environmental strategy impact, social impact management and social practices at governance level) and the Eligible Green Projects, in the sense that the process should not entail any nuclear energy project, but it should be amenable to Eligible Green Projects’ categories and included in the Strategic Plan 2018-2020.

In the Managing of Proceeds, the Group is highly formalized, controlled by an external auditor, with the net proceeds allocated to Enel’s subsidiaries through intercompany loans and towards Eligible Green Projects. If a disbursement (missed eligibility criteria) or a pending event occurs, the fund will be respectively either reallocated or held in the form of Time Deposit or Cash.

Finally, the Group is entitled to report annual updates to investors, up to the maturity date, in association with a description of the project and the amount provided, as well as the remaining amount of the proceeds at the end of the period. The reporting is carried out on metrical basis, relying on avoidance of greenhouse emissions, implementation of social acts and potential beneficiaries.

The reporting is drafted pursuant Enel’s Sustainability Report and it has to be approved by the Green Bond Committee. Moreover, the report will show also some indicators associated to the Use of Proceeds and to the environmental benefits of Eligible Green Projects. Indicators are provided both at project level (project description, location, amount of allocated proceeds) and bond level (share of

financing and refinancing, share of unlocated cash/ cash equivalent and allocation by category). A good level is also registered in monitoring issue, which is carried out by the Planning & Control unit. Internal bodies are given the responsibility of collecting, consolidating and reporting data on the basis of responsibility matrix\textsuperscript{154}.

### 3.5 Enel’s Second Party Opinion

The External Review conducted by Vigeo Eiris in January 2018, confirms that Enel shows an advanced level of ESG performance, as well as a Green Bond Framework in line with its strategic priorities. Similarly to Intesa Sanpaolo’s Case, Enel was evaluated on the basis of: leadership, implementation and results.

According to Vigeo Eiris, Enel presents an advanced ESG performance level in environmental, social and governance fields. Concerning environmental connotation, Enel’ strategy has been considered overall comprehensive, thanks to its quantified targets in air CO\textsubscript{2} emissions and renewable energy targets, as well as to the advanced level of the demand-size management. From a social point of view, Enel has always addressed huge attention towards labour and human rights which it has formalized in the Global Framework Agreements. For example, the Group addresses several funds for sustaining fuel poverty, for managing demand-side and for providing needed people with assistance in the countries where it acts.

According to Vigeo Eiris, Enel, which covers the first position in the Electric & Gas Utilities out of 48 European companies, presents a defined, precise, relevant and measurable Eligible Green Bonds for what concerns its net of proceeds. Also, the Group’s for project evaluation is clearly defined, resulting to be good in terms of transparency and governance, with a good level of integration of ESG risks associated to Eligible Green Bonds. Finally, the management of proceeds is clearly defined with a transparent allocation process. The Group presents, also, a good level of commitments reporting, including the share of allocated funds and the reporting of environmental benefits, which provides Enel with a reasonable level of assurance in

reporting issue. Particularly, Enel tends to report ESG risk management at corporate level, whose indicators’ use are firmly suggested by the agency.

Finally, with regards to governance field, Enel shows an advanced ESG performance level, also in this case, by appealing to a good business behaviour fighting against corruption, with the support of both an internal and external audit processes. The internal control deals with issues, such as: corruption, climate change and pollution.

Delicate issue is that of controversies management, for sure, also considering many oppositions Enel has had to face in its internationalization process. Vigeo Eiris evaluated stakeholder-related ESG controversies and relative involvement on the basis of: severity (e.g. how much the controversy impacts on stakeholders’ interests), responsiveness (e.g. company’s willingness to dialogue with its stakeholders) and frequency (e.g. the number of controversies faced). According to Vigeo Eiris, in 2018 Enel registered frequent controversies in terms of: Business Behaviour, Environment, Human Resources, Community involvement and Human Rights. However, the company has always evidenced a high level of responsiveness, by appealing to remedial actions and transparent reporting in the majority of the cases. Out of the fifteen controversies investigated by the agency, Enel results to have a major involvement in: nuclear energy-related activities (representing the 10% of the total fuel energy mix used by Enel) coal (whose production activities accounts for 20-33%) and fossil fuels industry (with a total production of 50%).

The following graph clearly evidences how Enel is much more involved in controversies management at frequency and severity level\textsuperscript{155}.

To sum up, according to what was drew by Vigeo Eiris agency in 2017, it can be stated that Enel’s process for project evaluation and selection, as well as management of proceeds turn out to be clearly defined and good at transparency and governance level, as well as aligned with the Green Bond Principles. Reporting is also clearly defined, both in terms of fund allocation and environmental benefits, providing Enel with a good level of assurance in the reporting issue\textsuperscript{156}.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{Figure3.12.png}
\caption{Stakeholders -related ESG controversies and Involvement in controversial activities}
\end{figure}

\textsuperscript{156}Ibidem, p.2.
CONCLUSIONS

The analysis carried out has showed the relevance environmental sustainability is acquiring in the financial field, leading to the issuance of Green Bonds as proper instruments to sustain environmental protection. Although the unavoidable relevance this kind of market is acquiring, there still exist some obstacles hindering its expansion. The analysis has identified the main reasons why there are difficulties in Green Bonds’ Market development and why there exist differences across countries in approaching sustainable finance.

The first and most remarkable consideration is that issuers’ and investors’ doubts on the matter are hindering the development of the Green Bond Market. From issuers’ point of view, a huge obstacle is represented by the high costs of monitoring and verification during the pre-completion phases, as well as the possibility of suffering a loss in case of green clauses breach. From investors’ point of view, long-term investments and less mature technologies means higher risk.

Basically, these kinds of financial tools are really recent (the first issuance was in 2007) and this makes them appear less reliable to investors who are worried about performance risk and about an inappropriate use of the investment (i.e. Greenwashing risk). The situation is worsened by the lack of an effective standardized Green Bonds’ Framework, which makes the cost of the investment increase. In fact, although recent studies have demonstrated that Green Bonds price tighter than Non-Green Bonds in primary market, that Green Bonds outperform Vanilla Bonds in the secondary market and they are also less volatile than traditional bonds under stress condition, the number of investors still remains limited.

The analysis has been deemed towards the macroeconomic sphere, with the intent of understanding why some countries seem to be more prone than others in embarking a sustainable pattern. What has emerged from the investigation is that countries show differences in embracing long-term horizon investments, because of differences in political framework. Not by chance, when analysing US Green Bond Market, it has been evidenced how the market is being hindered in its expansion because of two main reasons: lack of political support and short-term profit culture. Concerning the
former, the huge obstacle is represented by Mr. Trump’s action plan and the threat to step back Paris Agreement because of the excessive economic effort being imputed by the Agreement. Regarding the latter, the study of US market has evidenced how US investors are indifferent whether to invest in green projects or not, as long as they are provided with their short-term profits. Additionally, with respect to other countries, US Green Bond investments have not showed any premium, but under specific circumstances and only in the secondary market, and this is another obstacle for investors to be confident in these kinds of investments.

The analysis has proceeded with the study of the Asian Market, with special focus on China, which, as first global polluter, is deeply involved in the terms of the Paris Agreement. Unlike US, green consciousness exists in China, which, combined to the flexibility of the well developed bond market, could be a good engine for the expansion of the Green Bonds’ market. The real obstacle is represented by the tight and restrictive legislation, which tends to control the development of the market. In fact, although the country establishes Public and Private Partnerships with Western countries, taking advantage on their technological expertise in the green field, the involvement of the Government is still too pressing. The major risk is that of nationalization of the project, as well as the risk foreign investors’ presence becomes ancillary. In the light of these events, relaxing timetable for policies on Green Bonds is necessary, where legislative actions act as promoters and not as controllers.

Additionally, the European Market has been investigated. What has been evidenced is that, Europe results to be the most active in financial sustainability, thanks to its financial structure and the advantages coming from political support (a notwithstanding example is the election of Mr. Macron in France and his policy to comply to Paris Agreement). Particularly, Italy is resulted to be one of the most active country in the field, reason why, the analysis has shifted towards an Italian empirical analysis.

Concerning Italian banking sector, what has been drawn is that the sector has resulted to be unprepared in adopting this kind of approach, therefore, the analysis has been deemed to the investigation of reasons why there exists unclerarness on the matter. The first reason is quite intuitive and expectable: banking entities are deeply distant from the concept of environmental sustainability because of the nature of the

sector itself, which does not have any kind of experience in this field. In fact, the uncleanness found in Italian banking sector on this subject does not rely on the issuance of the bond, but on the fact that the bond is green, therefore, on the sustainability component of the financial instrument adopted. The second reason is strictly linked to the first one: since issuers do not have clear sustainability concept and the way to approach it, it derives that also stakeholders involved are not correctly acknowledged on the issue. In the light of these events, what seems reasonable to do is creating a more solid awareness on the matter, by better clarifying the framework and the guidelines issuers can refer to, in order for more Social Responsible Investors to be attracted. Ultimately, this solution will benefit the growth of the Green Bonds’ market, too. In fact, considering SRI investors are mainly buy and hold investors (i.e. long-term investors), the higher the period when the bond is held, the lower the price movements will be, by rendering the market more appealing in terms of return and reduced volatility. As the market becomes more attracting, demand will increase and the boost of the market is ensured.

With regard to the corporate sector it has been seen how this sector, overall, is more committed to financial sustainability than banking sector, by virtue of the kind of business performed by it. Obviously, since businesses differentiate from one entity to another, there exists discrepancy also in the corporate sector; for example energy and agricultural business are more concerned about environmental sustainability than luxury ones.

In the light of these events, an empirical analysis has been carried out by comparing the case of Intesa Sanpaolo, for what regards the Italian banking sector, and Enel, concerning the Italian corporate sector. What has been interesting to notice is that the two entities are following opposite paths to converge towards the same goal, that of financial sustainability. In the case of Intesa Sanpaolo, it is the financial sector approaching a more sustainable business, whereas in Enel case, it is the sustainable business approaching finance.

In fact, as a bank, Intesa Sanpaolo has had to structure its experience on a more sustainable business, whence the choice of issuing bonds for financing green projects. The fact that sustainability concept is completely new to the bank, as well
as to its investors, has made the bank work on training programmes in order for their stakeholders to be taught about sustainability issue. Therefore, Intesa Sanpaolo has spotted the importance to make investors aware about green matter. This is the hugest difference from all the other Italian Banks, and the main reason why other banks are still lagging in this field.

Concerning Enel, the company has showed more experience in dealing with climate change concern, mainly due to the fact that it is energy business reliant, and this is the reason why the path to embark environmental sustainability has resulted easier with respect to Intesa Sanpaolo. Not by chance, appealing to renewable energy sources and the goal of reaching a low-carbon economy has always been one of the main pillars in Enel’s strategic plan. In this sense, it can be stated that Enel is following an opposite path from that of Intesa Sanpaolo: sustainable finance (i.e. Social Responsible Investors) has approached the business, and not viceversa. In fact, given the fact that Enel already opted for a sustainable business, the commitment to sustainable finance was born when investors have started asking for the company to deal with more sustainable financial instruments, whence Enel’s choice of issuing bonds.

What just said makes another issue emerge in the comparison being analysed, that of reliability. Basically, Enel’s experience in energy field has made its reliability increase in terms of energy business management and low-carbon transition: investors feel safer when investing in the company’s Green Bonds and they are more confident their investments will be used for green purposes. This is a huge difference from Intesa Sanpaolo, since the bank’s business does not strictly rely on environmental concern, obstacle which may increase the suspect of Greenwashing in investors. Therefore, as bank, Intesa Sanpaolo is facing a reputational risk, which is largely minimized in the case of Enel. In fact, if being worried about environmental impact partially contributes to the increase in the reputation of an entity, the flip is that, whenever Green Bonds are not channelled as they are supposed to be, or whenever the breach of a green clause occurs, the image of the entity is damaged.

Lags in experiential years has also defined the differences in the issuances of Green Bonds. For Intesa Sanpaolo, whose main contribution to sustainability is dated only
in 2017, the issuance of Green Bonds primarily is aiming at financing Renewable Energy and Energy Efficiency projects, in order for the transition towards a low carbon economy and energy consumption reduction to occur. For Enel the issuances of Green Bonds mainly aim at financing Transmission, Distribution and Smart Grid Projects, as well as “Other Projects”, along with innovation and technological progress being experienced nowadays. What is interesting to notice is that, thanks to its experience in energy business, Enel is not only investing in clean projects based on the use of RES, but it is taking a further step, by combining the urgency to reduce environmental impact with that of embracing the current technological revolution.

What has been drawn insofar is that the experience Enel shows in renewable energy sources, undoubtedly, facilitates the company in being considered as sustainable. Not by chance, Second Party Opinion carried out by Vigeo Eiris has defined Enel’s ESG performance level advanced, in environmental, social and governance fields, while it has defined robust that of Intesa Sanpaolo. This result is quite predictable by virtue of the fact that Intesa Sanpaolo is a bank and of what has been explained above about Italian banking sector. It derives that it is too early for a bank to be sustainably experienced as an energy company, and, therefore, it is expectable that its ESG performance is not totally satisfying, still Intesa Sanpaolo shows a good result.

To sum up, it can be concluded that Green Bonds’ Market expansion is an overall trend among countries, but a common problem is the lack of a standardized framework. Moreover, Governments should act as facilitator in Green Bonds’ Market development by: channelling private capital flows towards green projects, reducing first-mover risk and other risks perceived in private investments, aggregating small-scale asset-backed projects, attracting investors and applying fiscal and tax incentives for SRI investors. Other than Governments, a fundamental role can be played also by banks, especially in Italy, where the political and economic uncertainty do not help investors to shift from one business to another. Therefore, the input to change should come from banks themselves, by starting considering the possibility of shifting towards a more sustainable business, also supported by data demonstrating how sustainable banks provide: higher credit, higher capitalization level, and a higher ROA level.
BIBLIOGRAPHY


Available at:


Alfi (2016) *European responsible Investing fund market*, pp.4-12

Available at:

American Society of Civil Engineers (2013,March) *Report Card for America’s Infrastructure*

Available at:


Available at:

Bolt, K., Cranston, G., Maddox, T., McCarthy, D., Vause, J., Vira, B.(2016) *Biodiversity at the Heart of Accounting for Natural Capital: the Key to Credibility*, Biodiversity Finance, pp.4-10


Available at:

Available at:

Available at:

CICERO (2014, September 8) ‘Second opinion’ on Nordic Investment Bank’s Environmental Bond Framework
Available at:
https://www.nib.int/filebank/a/1410449244/dcc241dc80abc64634952cd5b1bde0f/3987CICERO_NIB_Second_Opinion.pdf [Accessed on 23 May 2018]
CICERO (2015, November 23) ‘Second opinion’ on IFC’s Green Bond Framework
Available at:

Available at:

Available at:

Climate Bonds Initiative (2016) Bonds and Climate change, the State of the market 2016, pp.2-3
Available at:

Climate Bonds Initiative (2016) China Green Bond Market 2016, pp.2-4
Available at:

Climate Bonds Initiative (2017) Green Bond Pricing in the primary market, pp.3-14
Available at:
Available at: https://www.climatebonds.net/files/reports/the_green_bond_market_in_europe.pdf [Accessed on 18 May 2018]


Darby, M. (2017, January 1) *China is taking the green bond market by storm*, Climate Home News


Available at:

Enel (2017, December) *Enel Green Bond Framework*
Available at:

European Commission (2017) *Creating a stronger and more integrated European financial supervision for the capital Market*
Available at:
http://Creating a stronger and more integrated European financial supervision for the capital Market [Accessed 30 March 2018].


Available at:  

Available at:  
https://www.investireoggi.it/obbligazioni/le-obbligazioni-verdi-per-combattere-linquinamento/ [Accessed on 19 April 2018]

Available at:  

Hampl, B. (2018, April 18). Lotta al cambiamento climatico con le obbligazioni verdi, BancaMigros
Available at:  
https://blog.migrosbank.ch/it/lotta-al-cambiamento-climatico-con-le-obbligazioni-verdi/ [Accessed on 19 April 2018]

Available at:  

HSBC (2015, November 13) *HSBC commits USD 1 billion to Green Bond portfolio*

HSBC (2017, May 10) *Global Green Bonds*. Fixed Income Global Research, pp. 4-17


Available at: https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/ [Accessed on 20 February 2018]

Intesa Sanpaolo (2014, January) *Rules for the Environmental and Energy Policy*
Available at: https://www.google.it/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0ahUKEwj7IcyWrLTaAhUIGuwKHax_AacQFggqMAA&url=http%3A%2F%2Fwww.grupp.intesasanpaolo.com%2FscriptIsir0%2Fsi09%2FcontentData%2Fview%2Fen_Politica_Ambientale.pdf%3Fid%3DCTNT-04-0000000058942%26ct%3Dapplication%2Fpdf&usg=AOfvaw3DoEv6s2ar0Zh606kAVqwF [Accessed on 12 April 2018]

Intesa Sanpaolo (2017) *Consolidated Non-Financial Statement, Sustainability Report*
Available at:

Intesa Sanpaolo (2017, June 12) *Intesa Sanpaolo Green Bond Framework*
Available at:

Intesa Sanpaolo (2017, June) *Intesa Sanpaoalo Inaugural Green Bond, Presentation*
Available at :

Intesa Sanpaolo (2016) *Sustainability Report 2016*
Available at:

Available at:

[Available at:


Available at:

KPMG, Alfi, Luxflag (2017, April) *European responsible Investing Fund market*

Available at:

Kraemer-Eis, H. (2014, October) *Institutional non-bank lending and the role of Debt Funds*, European Investment Fund

Available at:


La posta, L. (2017, March 7) *Esg la formula vincente sui mercati*, Journal Sole24ore

Available at:
Levitt, B. and Brown, G. (2018, January 22) *Q&A: Sustainable Investing a Hot Trend in a Warming World*, OppenheimerFunds

Available at: https://www.weforum.org/agenda/2017/07/what-are-green-bonds-explainer [Accessed on 20 March 2018]


LSEG (2018, January) *Revealing the full picture-Your Guide to ESG reporting*, pp.4-56

Ludvigsen, P. (2015, November 24) *Advanced topics in green bonds: risk*, ENVIRONMENTAL FINANCE

McLoughlin, S. (2018, January 22) *China leads on solar energy*, HSBC
Available at:  

Available at:  


Naronte, G. (2014)*Green Bond: emesso in Cina il primo prodotto finanziario il cui rendimento sarà collegato all’andamento del carbon market*, Diritto24
Available at:  

Available at  
Neri V. (2017, June 16) *Apple emette un Green Bond: un miliardo di dollari per l’ambiente*, Lifegate
Available at: 
[www.lifegate.it](http://www.lifegate.it) [Accessed on 20 February 2018]

Ng, T.H., Tao, J.Y. (2016) *Bond financing for renewable energy in Asia*, Energy policy 95, pp.509-517

Novethic (2013, September) *Overview of ESG rating agencies*, Novethic Research, pp.4-6.
Available at: 

OECD (2015, December) *Green Bonds, Mobilising the debt capital markets for a low-carbon transition*
Available at: 


Available at:

Roda, E. (2017, March 21) Le Banche alla prova della sostenibilità, La Stampa
Available at:

Available at:

Available at:


Available at: https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf [Accessed on 10 May 2018]


Available at: https://www.cbd.int/financial/privatesector/china-Green%20Task%20Force%20Report.pdf [Accessed on 2 May 2018]

Unicredit (2018, January 26). *Green topics relevant for the covered bond sector*, Credit Research, pp.2-8


Available at: [https://www.e3g.org/docs/The_Sterling_Bond_Markets.pdf](https://www.e3g.org/docs/The_Sterling_Bond_Markets.pdf) [Accessed on 11 February 2018]


Volcovici, V. (2016, February 17) Apple issues $1.5 billion in green bonds in first sale, Reuters


Zhu, S. (2016, January 8) With New Guidelines, China’s Green bond Market Poised to Take Off in the Year of the Monkey, World Resources Institute

Available at: http://www.wri.org/blog/2016/09/china-champions-green-finance-g20 [Accessed on 30 April 2018]
SITOGRAPHY


https://www.climatebonds.net/ [Accessed on 12 February 2018]

https://it.wikipedia.org/wiki/Plain_vanilla [Accessed on 8 February 2018]


https://www.climatebonds.net/market/history [Accessed on 10 February 2018]


http://www.climateaction100.org/[Accessed on 21 March 2018]


www.unepfi.org/about/ [Accessed on 10 May 2018]


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Rome, June 2018
ABSTRACT

As humanity is using resources at a rate higher than that of their regeneration, which is causing both the exhaustion of resources and a deep environmental impact, the majority of the companies are shifting towards a more environmentally sustainable path, by implementing Environmental, Social and Governance practices (ESG practices) in their business, where, thanks to a more transparent degree of governance, current and future generations’ welfare will be preserved. Although the huge commitment countries are undertaking in relation to the matter, the debate is definitely heat, because of the “Divesting” issue of the shares linked to the fossil fuel, after the Paris Agreement signature (2016)\(^{157}\). Basically, the question is how addressing fuel and fossil investments and towards whom, in order to approach a low-carbon economy.

Environmental sustainability concept is spreading out not only among countries, but also among sectors, included the financial one. As green awareness is spreading out in this field, financial tools are supposed to be identified for reducing environmental impact. Insofar, bonds have been regarded as the most appropriate ones, given their large consistent part in the whole capital market, whence countries’ choice to issue Green Bonds.

In the light of these events, the dissertation will be divided into three main chapters: the first one will analyse the Green Bonds’ principles and their characteristics, as well as the advantages and disadvantages of the issuances, the second chapter will study the development of the market across countries, in order to understand why there exist differences across countries when dealing with green finance. Finally, the third chapter will be focusing on the comparison between two empirical cases, that of Intesa Sanpaolo and Enel, with the intent of understanding in which direction Italian corporate and financial institutions are going when speaking about green finance.

\(^{157}\text{Paris Agreement was signed with the goal of reducing GHG emissions to keep the temperature target at }2^\circ\text{C, with related effort to stay within }1.5^\circ\text{C, as well as reducing the peak of emission as soon as possible and reaching carbon neutrality within 2050. With this concern, the main areas of implementation are that of: renewable energy sources, energy efficiency, transportation, methane and other non-CO}_2\text{ gas.}
CHAPTER I: The emergence of Green Bonds as financial instruments to support environmental sustainability

In green finance, Green Bonds have resulted to be the most common financial tools used, both because of the consistent part bonds occupy in the capital market, and because of the long-term horizon they are based on. Basically, Green Bonds are ordinary bonds being proposed to any kind of global investors, aiming at financing eco-sustainable projects and being emitted in any currency by an investment grade issuer (e.g. AAA), who ensures the repayment at the end of maturity. The growth of the Green Bond Market started in 2007/2008, when the European Investment Bank and the World Bank issued the first two Green Bonds, being worthy, respectively, €600 million and $440 million. The graph below reports all the major events having occurred in Green Bond Market since 2007.

As inferable from the graph, the remarkable development of the market was registered only at the end of 2015, with the emerging countries’ market entry, whose share accounted for 33% of the global issuance of Green Bonds, as well as the spreading of climate concern and the participation of the private sector.

Source: own. Elaboration, adapted from Bmo Global Asset Management and Climate Bonds Initiative

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Given the fact that Green Bonds are really recent instruments, International Capital Market Association drafted the so-called Green Bond Principles in 2016, in order for better defining the framework to be referred to. GBPs identify four main fields on which Green Bond issued is supposed to rely on: Use of Proceeds, prescribing the description of a Green Bond and the way it will be used for the green project, Process for project Evaluation and Selection, which consists in the issuer’s description of the project and the associated Green Bond, Management of Proceeds, which better explains the Use of Proceeds and Reporting, which has to be presented annually and which has to contain both qualitative and quantitative information in conformity to the transparency principle. Moreover, in their assessment of Use of Proceeds, many issuers seek for external help, the so called “External Review”\(^{159}\) (e.g.CICERO, Moody’s Green Bond Assessment and Standard & Poor). External Review plays an important role also in accentuating the difference between a bond which is green and a bond which is not, providing investors with a higher knowledge about the environmental benefits generated by the project itself.

Although Green Bond Market is clearly in expansion, there exist some obstacles from both the issuer’s and the investor’s point of view, slowing down the growth of the market. From the investor’s point of view, the biggest risk is that of “Greenwashing”: the mistreatment of the capital invested during the development phase of the project (i.e. not really taking care of the environment)\(^{160}\). Another pressing risk for investors is performance risk, which may arise whenever the issuer does not provide the investor with clear information, essential for the purchase of the bond, as well as from the use of a too mature technology. The difficulty for investors to totally catch eligible criteria is due to the lack of a standardized framework to be referred to, which leads investors to look more at the issuers’ credibility rather than the sustainable aspect of the project. A huge obstacle for investors may be represented also by the controversial jurisdiction associated to the Green Bonds issuances. In fact, even though Green Bonds pay a premium, it will always too difficult for the court to quantify the damages generated by an issuer’s non-

\(^{159}\) According to OECD, in October 2015, 60% of Green Projects have been undertaken a second – party review and this is path has remained flat over the past three years.

performance. Obviously, there are also benefits for investors when they decide to invest in green assets, such as the diversification of their portfolio and the reduction of political, commercial risk and environmental risks, generally associated to fossil fuel investments.\textsuperscript{161}

From issuers’ point of view, a huge obstacle is represented by the high up-front costs arising by the need of verification, monitoring, and administration and by the loss they may suffer whenever the breach of the green clauses occurs. Other risks for issuers may occur also when a company undertakes green projects, but other parts of its business still rely on environmental regulations (e.g. the use of a coal power plant), exposing the company to the credit risk.\textsuperscript{162}

All these difficulties are the main causes slowing down the Green Bond Market development, although evidences suggest how: Green Bonds price tighter than non-Green Bonds in primary market, they outperform non-green in the secondary market (especially for EUR denominated Green Bonds), and they are less volatile in times of stress.\textsuperscript{163} Specifically, the studies carried out by Climate Bonds Initiatives and HSBC in 2017, revealed, respectively, that EUR denominated Green Bonds priced -6.3 bps tighter than the Initial Price Talk (with a market average of -9.4bps), as well as than the two iBoxx indices (the one for the sector index to which the bond belongs, and the other one for iBoxx index having the same maturity and rating bucket), showing a more stable price for Green Bonds with respect to Vanilla bonds.

\textbf{CHAPTER II: The worldwide development of Green Bonds’ Market}

Investments in green projects have impressively increased worldwide, since they are not longer regarded as a form of niche investments. With matter of fact, in 2017, an increase of 38% year-on-year from the $ 40 billion issued in the first six months of 2016 was registered, for a total amount of about $55 billion, mainly coming from the following sectors: corporate (25%), financials (30%), multi-lateral entities (23%), and


sovereign and regional (12%)\textsuperscript{164}. Other than the change in kind of issuers involved, the market is also experiencing a profound transformation in the Use of Proceeds. Not by chance, in 2016 Green Bonds were mainly used for railways (67%) and energy (19%) projects\textsuperscript{165}, whereas in 2017 investments were delved towards energy efficiency and low consumption energy buildings projects (29%)\textsuperscript{166}, as well as low carbon transportation system\textsuperscript{167}.

Considering the development of the market, it can be stated that the Green Bond Market is more than ever a European market, with a 50% issuance in 2017, followed by Asia-Pacific regions (27%) and North America (13%) during the same year\textsuperscript{168}, as reported below:

At this point of the analysis, the thesis will proceed by investing the development of the Green Bond Market in China, US and Europe, by studying the differences existing among the countries.

The development of the Green Bond market in Asia has been due to both the emergence of the environmental pollution concern and the intent of minimizing the

\textsuperscript{165}Ibidem
\textsuperscript{166}Kidney, S. (2018, January 30). \textit{Green Bond: c’è anche l’Italia nel 2017 dei record. R\textsuperscript{E}ENERGIA.}
\textsuperscript{167}Ferrovie dello Stato issued its first Green Bond being worth €600 million in December 2017
\textsuperscript{168}Unicredit (2018, January 26). \textit{Green topics relevant for the covered bond sector. Credit Research.}
existing financial diversification of the region\textsuperscript{169}. Basically bonds seemed to be a suitable alternative to fill up the financial gap, as they provided investors with a more flexible financial tool and with long-term horizon investments than banks’ debt financing system. A hugest contribution to the boost in Asian Green Bond Market has been given by China (biggest carbon polluter), which witnessed an enormous Green Bond market growth in 2016 when financial institutions and corporations issued $ 18 billion of Green Bonds, representing 40\% of the global issuances.

Surely, the impressive boost of the Green Bond market has been supported by a more relaxed regulation being interested in the use of renewable energy sources and a “cleaner” coal as priority investments\textsuperscript{170}. Not by chance, Chinese Government ministries drafted the “Guidelines For Establishing the Green Financial System” in 2016, providing both a classification of the bonds as green and a general framework for the management of proceeds.

Green Bond Market in China has developed thanks to US’s and Europe’s support whose technological expertise China may take advantage on. With matter of fact, in order to increase foreign investments for renewable projects, China largely appeals to fiscal incentives to attract foreign investors. However, a huge obstacle for Chinese Green Bond Market to develop is the Chinese legislation which turns to be too restrictive. With matter of fact, when looking for foreign clean investments, China largely relies on the Clean Development Mechanism, according to which, an industrialized country invests in a developing country for the realization of a clean project. At the end, the Credit Emission Reductions (e.g. each CO\textsubscript{2} tonne reduction corresponds to one CER) generated by the new plant are sold to the developed country. Even though this mechanism allows the foreign investor to speculate on CER price between Chinese and European market, a huge risk the developed country face is that of nationalization of the project, rendering foreign actions ancillary. Therefore, many foreign investors could be discouraged in subscribing Chinese Green Bonds, as they could lose the control on the project development.


\textsuperscript{170} Darby, M. (2017, January 1) \textit{China is taking the Green Bond market by storm}, Climate Home News.
It seems clear that Chinese national legislation could be a promoter of the Green Bond Market, if it facilitated: the reduction of intervention in clean projects, the establishment of Public and Private Partnerships arrangements to raise funds where Government only defines responsibilities and contracts, a better treatment for banks backed by Green Bonds, tax-free Green Bonds for institutional investors.

Considering US Green Bond market, it can be inferred that the highest growth occurred in 2016, when the market registered a total issuance of $118 billion labelled Green Bonds. However, Green Bonds investments currently represent only less than one per cent of the global bond sales worldwide, definitely a small percentage if compared to the $3.8 trillion of state and local government bonds issued in 2016. Several causes have been identified for the small growth of US Green Bond Market, among these: immaturity of the market, lack of political support to climate challenges, low confidence on the issue (especially from corporate entities) and tax-exempt status of municipal bonds, which makes them more favourite with respect to other forms of bonds.

Some market experts believe that Green Bond market cannot develop as it should because of the lack of supply, which cannot counterbalance the excessive demand of the Green Bonds (which are usually oversubscribed). According to them, demand is strong because it comes from social responsible investors and asset owners, representing a fast-growing constituency. This perspective is contrasted by those who fairly state that only a part of SRI investments is green, and, therefore, it is quite likely that demand does not outstrip supply. Moreover, they think that the oversubscription is not a sufficient demonstration for ascertaining a good level of demand, as it may occur for every bond of US fixed income market when it perform better than other markets.

The illiquidity of the market, instead, may be justified by both investors’ and issuers’ scepticism in dealing with Green Bonds. Concerning the former ones, it can be stated that US investors do not subscribe these kinds of investments, since they are long-term horizon based, while US culture is profoundly short-term profit based. Moreover, investors, as mainly SRI investors, are buy and hold investors, being willing to keep their bond rather than trading it.
On the other hand, to issuers, external review and administration costs represent a huge burden to shoulder. The situation is worsened by the fact that, even in case the bond is sold at premium price (which will compensate issuers for their extra costs), investors would not be prone to sacrifice their yields, just for environmental concern.

The situation is becoming still more delicate since Mr. Trump’s election in 2016. In fact, Trump’s threat of stepping back Paris Agreement, regarded as too expensive (reduction of carbon emission of 26-28% within 2025, as established under the terms of Paris Agreement terms, would cost $8 trillion) is not facilitating the growth of the Green Bond market. The biggest concern is that other countries, such as India, Malaysia and Indonesia would follow the same path, when US should be the pioneer in supporting low-carbon transition.

On the contrary, Government should be promoter in spreading out green culture among investors by establishing a more clear and harmonized framework to be refer to, as well as by combining green projects from different agencies to reach a more liquid and eligible index for Green Bonds.

In terms of sustainable finance, European markets have performed better than the other markets, thanks to its already existing financial structure and the advantage coming from political support, which makes Europe be the pioneer in the field of sustainable finance with respect to the other regions.

Europe counts for 145 Green Bond issuers, especially operating in energy sector (36%), representing one third of the global issuances and a total market value of €122 billion from 2007 (cumulative green bond issuance 2007-Q12018). The following graphs show the European Green Bond Market by issuer and sector:

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Particularly, non-financial corporations have largely contributed to one third of Green Bonds’ issuances up to date, considering that the top issuers come from energy and property sectors and financial institutions. The latter ones count for 100 Green Bonds issued by 20 commercial banks, and they have also seen the participation of Credit Agricole CIB (France) and BerlinHyp. Finally, there are government-backed entities, such as: Poland (it was the first one to issue a sovereign green bond), France, which has become the largest contributor worldwide thanks to its Green OAT emission, and local Swedish Governments.

France is followed by: Germany, Spain and Italy, issuing respectively: more than €10 billion (for what concerns Germany), and issuances from €1 to €10 billion for Spain and Italy.

Italian Green Bond Market, being worthy €5.1 billion\(^{173}\), is largely covered by private companies and public entities, while financial institutions cover only a small percentage of the issuances (8%), as evidenced by the following chart:

Particularly, Italy was one of the first countries entering the market in 2014 with Hera’s Green Bond, being worthy €500 million and having financed 26 sustainable green projects. The country also issued a smaller bond, being worthy €3.2 million by Enna Energia, in order to finance renewable projects. In 2018, Enel, the first Italian issuer opened with a € 1.25 billion bond, aimed at financing both RES electricity generation and energy efficiency projects and reaching a total issuance value € 25 billion.

Forecasts on Green Bonds’ issuances are quite positive in Italy, especially after that the Italian Green Fund announced its first emission being worthy € 70 million, aimed at financing Efficient Energy projects by the first quarter of the current year. An additional option could be potential emissions by the State, that is to say, the issuance of green BTP. A solution such as this, could grant Italy with a position among the capitalist countries.

CHAPTER III: THE COMPARISON BETWEEN INTESA SANPAOLO AND ENEL

Despite the overall adoption of ESG practices by all Italian sectors, there still exist unavoidable discrepancies between banking and corporate entities. In terms of green finance, Italian banks are still lagging with respect to the European average: Green Bonds issued by Italian Banks are only three. According to a study conducted by ShareAction in 2015, the main obstacle relies on the lack of green awareness existing among banking issuers\(^\text{174}\) which hinders their stakeholders from investing their capitals in environmental sustainable businesses. Moreover, the situation is worsened by the economic and political instability of Italian landscape which does not facilitate the switch. What may contributes to the spread of green finance across banks would be the support they could grant to corporate entities (like the agricultural ones) by providing both insurances from all the possible arising risks, and financial tools to underpin green projects.

On the contrary, Italian companies are more involved in environmental sustainability, showing a more advanced production system with respect to the


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European ones, at least in terms of CO$_2$ emissions and energy efficiency. Intuitively, the degree of commitment towards environmental sustainable projects depends on the kind of business performed by the entity and on the degree of being risk taking: intangible assets (e.g. associated to reputation) increase the revenues of the companies, but they could also weaken the business, since enterprises would be more focused of solving environmental problems, rather being focused on the performance itself\(^ {175}\).

Overall, what can be drawn is that Italian corporations are being more involved in green finance matter than Italian banking system, thanks to the spur coming from their stakeholders who look for green projects to be invested in.

With respect to what analysed before, the final part of the dissertation will be focusing on two empirical cases, by investigating both the case of Intesa Sanpaolo, the Italian leading bank in the support to green finance, and the case of Enel, the largest Italian corporate Green Bonds’ issuer.

Intesa Sanpaolo is firmly committing itself to adopt a more sustainable business from an environmental point of view. Not by chance, its Business Plan 2014-2017\(^ {176}\) shows targets for 2022 and 2037, including both CO$_2$ emission reduction by 37%, and an increase in the share of renewable energy sources up to 81\(^ {177}\).

What is interesting to notice is that Intesa Sanpaolo is performing better than other Italian banks, thanks to the involvement of its stakeholders in the green field. In fact, Intesa Sanpaolo launched several initiatives in 2017 (e.g. City Bank’s programme for training employees in line with the ISO 50001 and European Bank for Reconstruction and Development training on socio-environmental risks\(^ {178}\)), involving more than two thousands employees. Moreover, the Bank is carefully focused on the assessment of clients’ creditworthiness, as well as on the choice of


\(^ {176}\)The business plan implied a solid and valid value creation, driven by: 11.8% rote, 10% roe and €4.5 billion net income, with a roe well above the cost of capital. The plan mirrored contributions from all the banks, focusing on a more fee-intensive business, in order to keep a low interest rate.


contracting with socially and environmentally responsible suppliers, in line with the environmental, energy and quality performance certifications\textsuperscript{179}. Clearly, the choice of adopting a more environmental sustainable business has exposed the Group to the reputational risk, since the mismanagement of ESG practices may deteriorate the Bank’s image.

The importance stressed by the Bank on green investments has led the Group to establish the first Italian environmental asset management, the Eurizon Capital, which selects all the green investments compliant to the Green Bond Principles, as well as respecting the principles of: clean technologies use, GHG reduction and biodiversity protection. By doing so, Eurizon Capital, being currently worthy € 2,390 million (e.g. 5.6% of the total Italian funds), commits itself to provide accurate and adequate information in order to better clarify the Bank’s responsible investment process.

Intesa Sanpaolo is also a pioneer in Italian green financial landscape. In fact it is the first Italian Bank having issued a Green Bond in June 2017. The Bond was taken up by a total amount of € 2 billion, to be invested in renewable energy and energy efficiency projects, the so-called “Eligible Categories”, whose main benefits associated are respectively: increase in RES supply and efficiency in infrastructural network. With matter of fact, for every issuance performed, the Bank relies on the following scheme: Use of Proceeds (the only kind of financing considered as eligible is that provided by Mediocredito Italiano), Process for project Evaluation and Selection, Management of Proceeds, Monitor and Reporting.

In June 2017, Intesa Sanpaolo was subject to the verification of Second Party Opinion by Vigeo Eiris, which defined the Bank’s overall ESG performance as robust\textsuperscript{180} in environmental and social domain, but limited at governance level, because of the transparency improving margins the Bank showed on executives’ remuneration\textsuperscript{181}, and because of the lack of formal policy for fighting corruption and

\textsuperscript{179}Intesa Sanpaolo( 2014, January). Rules for the Environmental and Energy Policy, pp.4-5.
\textsuperscript{181}The Board is composed by a majority of independent directors and the Corporate Social Responsibility reports through the Chief Governance Officer to the Managing Director and
bribery. Finally, Vigeo Eiris revealed a good level of responsiveness in terms of controversies management. This is a further witness of the importance the Bank gives to third parties involved, since a low level of management controversies could damage stakeholders’ interest.

Enel is one of the most important producer in terms of clean energy, also thanks to the activities experienced during the energy crisis in 70s, having provided the company with a remarkable experience in energy field. The decarbonization path the company has embarked, following both Sustainable Development Goals and Paris Agreement, implies targets for both 2020 and 2050, respectively minus 70% within 2020 and zero CO₂ emissions by 2050. Generally speaking, what Enel is proposing is an integrated model between digitalization and low-carbon economy, capable of mitigating global risk and of facilitating energy transition.

Another aspect to be underlined is that of management of stakeholders’ interests, increasing company’s reputation. Basically, the more Enel is reliable, the more investors will be confident in undertaking investments. Company’s reliability has increased also thanks to the social concern Enel has showed in its process of internationalization, especially in Latin America, where it invested € 10 billion, 30% of the total company’s EBITDA. In this area, the combination among the local “Forward looking” regulative frameworks and the potentiality the region has showed in terms of renewable energy sources, attracted the interests of many investors.

Overall, Enel counts for 68% of institutional environmental sustainable investors, representing 8% of the total share in circulation. The fact that investors are becoming more sustainable, combined to a debt structure largely relying on bonds’

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CEO and Board of Directors.


183 Responsiveness is scaled up: Proactive, Remediate, Reactive, Non-Communicative. While the frequency of controversies as: Isolated, Occasional, Frequent, Persistent.

184 UN Sustainable Development Goals are universal call actions implemented with the aim of: ending poverty, protecting the environment, enjoying universal peace and prosperity. Exactly, they are seventeen goals, interconnected with one another, and providing clear guidelines and targets for all countries to underpin sustainable development.


issuances has led to the proceeds allocation equal to 90% of the fund raised (i.e. € 1.1 billion).

Specifically, the company issued two Green Bonds on January 2017 and January 2018, following respectively the Sustainability Plan 2017-2019\(^{188}\) and the Strategic Plan 2018-2020\(^{189}\). Like in the case of Intesa Sanpaolo, the scheme followed includes: Use of Proceeds, Process for project Evaluation and Selection, Management of Proceeds, Monitor and Reporting.

The Eligible categories where to allocate proceeds are: Renewable Energy Projects, Transmission, Distribution and Smart Grid Projects and “Other projects” (e.g. Decarbonising Technologies projects in transportation sector ), whose main benefit is the reduction of GHG emissions. Enel’s evaluation process is carried out by an internal expertise which is in charge of evaluating Green Bond’s process in the phase of implementation and allocation, checking Environmental and Social criteria, and ensuring Eligibility of Green Projects, pursuant the Strategic Plan 2018-2020.

Vigeo Eiris, in January 2018, confirmed that Enel has an advanced level of ESG performance, in environmental, governance also in social fields thanks to the management of demand-side and to the assistance provided to people in the countries where it acts.

Overall, the company presents a defined and clear Eligible Green Bonds net of Proceeds, as well as a good level in management of proceeds and in reporting issue.

Delicate issue is that of controversies management, also considering many oppositions Enel has had to face in its internationalization process in 2018 in terms of: Business Behaviour, Environment, Human Resources, and Human Rights. However, the company has always evidenced a high level of responsiveness.

What can be inferred from the empirical comparison is that the two entities are following opposite paths to converge towards the same goal, that of financial

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\(^{188}\) The Plan implies a € 5.3 billion increase in renewable Energy sources, new renewable capacity equal to 8 GW by 2019 and the reduction of fossil fuel plant. Moreover, it forecasts a net production(%) of respectively: renewable(15), hydroelectric(30) and nuclear(11) at zero emission level, plus a share of carbon(26), CCGT(11), Oil & Gas(7).

\(^{189}\) The plan forecasts an industrial growth of €24.6 billion and an estimated capex of € 4.7 billion coming from asset digitalization. The plan is mainly structures for increasing e-Solutions, also in Latin America, where digitalization-oriented workforce forecasts an in crease of EBITDA by 50%.
sustainability. In the case of Intesa Sanpaolo, it is the financial sector approaching a more sustainable business, whereas in Enel case, it is the sustainable business approaching finance.

In fact, as a bank, Intesa Sanpaolo has had to structure its experience on a more sustainable business, whence the choice of issuing bonds for financing green projects. On the contrary, in the case of Enel, the company, having opted already for a more sustainable business, has decided to issue green bonds when investors have started asking for the company to deal with more sustainable financial instruments.

The major difference spotted between the two entities consists in energy experience field, which has impacted on the choice of Green Bonds’ Eligible Categories. In fact, Intesa Sanpaolo’s Green Bonds primarily aim at financing Renewable Energy projects, while Enel’s choice has been that of investing Transmission, Distribution and Smart Grid Projects. With matter of fact, the company, whose sustainable business has been already consolidated, has decided to upgrade the use of its net proceeds, not only by investing in RES projects, but also contributing to the technological development being experienced nowadays.

Finally, the last difference emerged was that of reliability. Basically, Enel’s experience in energy field has made its reliability increase in terms of energy business management and low-carbon transition: investors feel safer when investing in the company’s Green Bonds and they are more confident that their investments will be used for green purposes. This turned out a huge difference from Intesa Sanpaolo, since the bank’s business, not so experienced on environmental issues, may face the Greenwashing risk, reducing the share of investors involved in green projects.