SUSTAINABLE FINANCE FOR SUSTAINABLE DEVELOPMENT [(1)]

by

Giovanni Ferri and Bonnie Annette Acosta

(LUMSA University, Rome – Italy)

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[Please send comments to: g.ferri@lumsa.it – Do not quote without authors' consent]

Abstract

The paper explores how ethical and sustainable oriented finance is key to reach sustainable development by tackling environmental risk through green finance and showing empirical evidence on the link between finance and inequality. The theory provided puts in the right mindframe to analyze markets, intermediaries and instruments with a sustainable lens to focus on the benefits that have brought to sustainable development.

A discussion is presented between different intermediaries and highlights the benefits of cooperative banks especially the close relationship of customers and bank and the resilience it gives to Small and Medium Enterprises (SMEs) in difficult times. Different investments strategies are discussed walking through the evolution of Sustainable and Responsible Investing (SRI) funds and diving into the ESG analysis to use as criteria to allocate investments based on environmental, social and governance principles. Microfinance is introduced as a different market that has reached the people at the bottom of the pyramid and highlights the key role it will play to bring financial inclusion. Islamic finance and Fintech are also discussed. Different instruments are presented to understand the current landscape of how different investors are using innovative products to attack social and environmental problems.

Finally, five different ways are presented on how policies can strengthen and support sustainable development arguing that the most important is by promoting sustainable footprint certification.

JEL Classification Codes: D15, D25, G18, G24, G28, G38, M14, O35, P43, Q01, Q5, Q58.

Keywords: Sustainable Finance, SDGs, Green Bonds, Social Bonds, Socially Responsible Investment, Impact Investing, Alternative Banks, Microfinance, ESG Ratings, Fintech, Human Centered Business Model.

[1] The paper takes us to a journey of understanding the sustainability of finance and finance for sustainability to cover one of the six pillars of the Human-Centered Business Model (https://www.worldbank.org/en/events/2019/02/21/human-centered-business-model – HCBM). The HCBM aims to develop a detailed model and guidance on relevant processes and procedures, addressing the entire context needed for a sustainable and competitive 'business ecosystem', including fiscal, financial, legal and regulatory regimes, procurement conditions, and stakeholder's relationship. This paper aims to assess currently available financial instruments and identify innovative financial instruments that will ensure the financial sustainability of the Model.

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1. Introduction[2]

Every time in history we have seen major changes in the organization of production and society, we have also witnessed deep changes in financial structures, instruments and markets. Specific financial institutions may foster or, other things being equal, impede long term economic development (see e.g. Dosi, 1990; Kindleberger, 1983; Laeven et al., 2015). Along this reasoning, we should underline that the new financial policies and practices – e.g., equator principles, impact investing, responsible investment, etc. – require an adaptation from the enterprises which are now scrutinized and evaluated not only on their economic and financial performances but also on compliance witth integrity, social and environmental principles. While large enterprises possess human and financial capital to adapt to the requirements of the financial market, micro, small and medium enterprises (MSMEs) are struggling and need a tailored approach. Human-Centered Enterprises will build in their DNA these requirements.

In general terms, finance has a dual relationship with sustainability. Both dimensions of the relationship need to be functional to achieve sustainability. The first type of relationship pertains to the sustainability of finance in itself. From being the most stable part of the economy, in recent decades the financial sector has become highly unstable. And, indeed, the Great Recession at the turn of the latest decade originated from the Global Financial Crisis (GFC) of 2007-2009. If the financial sector is unstable, rather than supporting sustainability, it becomes a threat to sustainability in itself. The second relationship between finance and sustainability may go under the title "finance for sustainability". To that is devoted most of this paper. In this dimension of the finance-sustainability nexus we consider which forms of finance are appropriate to support sustainable development. Those forms of finance refer to the types of intermediaries and markets as well as to the instruments or contractual arrangements.

Finally, the finance-sustainability discourse has a crucial policy dimension. Appropriate policies regarding fiscal incentives, government intervention to support the advance of sustainability-oriented financial intermediaries and/or financial markets and/or financial instruments are going to be fundamental ingredients in the transition to sustainable development.

Along the lines just described, the rest of the paper is structured as follows.
In Section 2 we tackle the dual dimension of the finance-sustainability relationship distinguishing the inner sustainability of finance vs the contribution some specific financial forms can give to make socio-economies sustainable. Regarding the latter, we will offer a literature review and inventory of relevant financial-sector initiatives that pursue sustainability and SDGs.
Section 3 provides the backbone of the paper. It focuses on the ingredients of finance – intermediaries, instruments, and markets – needed to support sustainable development and their demand for economic, integrity, social and environmental performances.
In Section 4 we address how Human-Centered enterprises will match the demand of the financial sector for responsible investment.
Section 5 concludes summarizing our main contribution and proposing a set of actions to promote the evolution of finance which would make it functional to sustainability.

[2] The Human Centered Business Model (HCBM) is perhaps the most advanced proposal to promote a form of sustainable development that is both real and deeply rooted on current market principles and public policies. By centering on economic entities adopting spontaneously the most evolved principles supporting sustainable behavior, HCBM breeds a new type of enterprises which will prove key to help the transition from unsustainable traditional business to new ways of production friendly to the environment and to more equal societies.
As for any major innovation, the development of HCBM requires an enabling context. In turn, the enabling context demands a set of supportive ingredients. One of the crucial ingredients of the business ecosystem is finance.
In the following, we will address precisely this.
Namely, we will discuss how HCBM responds to the conditionalities/requirements of responsible investment and impact. Since, as said, HCBM is the leading hedge of the sustainability discourse, our discussion will be framed around the finance-sustainability relationship.

2. Sustainability of Finance vs Finance for Sustainability

2.1 Sustainability of Finance: How the Once Most Stable Industry Became Unstable[3]

Financial instability tends to intensify with the extent of the unfettered free market economy. Eventually, this triggers an epochal and systemic Great Crisis, which marks a turning point to move towards stricter regulation of the marketplace. By and large, freer markets sooner or later build imbalances and inefficiencies in price setting mechanisms and, consequently, in the allocation of resources. This occurs when excessively optimistic expectations about future developments evolve and the financial system fuels such misplaced assumptions, leading to excessive indebtedness in the economy. As a result, a speculative bubble − that is usually identified as such in retrospect − is formed. Corrections of the imbalances follow the bursting of the bubble, with negative repercussions on the already unstable financial system and generally on the economy.

Solving the crisis requires imposing limits on the free market, beyond the financial system, thereby often swinging the balance from the global to the national dimension of economic processes. This scenario is similar to what is usually known as de-globalization. However, over time, the regulatory framework tends to lose consistency and the economic system begins to operate again in an uncontrolled financial environment. In a sense, financial liberalization is a driver for economic growth but over time the perils of instability may outweigh those benefits. Thereafter, excessively optimistic expectations emerge leading to over-borrowing, misallocation of resources and the occurrence of a new speculative bubble. At this stage − it is just a question of time − a system-wide Great Crisis will occur thus completing the political economy cycle of finance that we describe as being a sequence of systemic crises, one after the others. What's more, in line with Charles P. Kindleberger (1978), if the Lending of Last Resort (LOLR) is heavily used to bail out financial institutions in a systemic crisis, this will backfire in terms of augmenting exponentially the moral hazard of the financial intermediaries and building the foundations of a new bigger crisis down the line. A case in point is LTCM (and also the abrupt drop of the Fed fund rate after the dot-com bubble burst) that, in the absence of re-regulation, was a keystone laid in 1998 for the GFC started in 2007.

Figure 1. Trust in industries – Global index for 2013

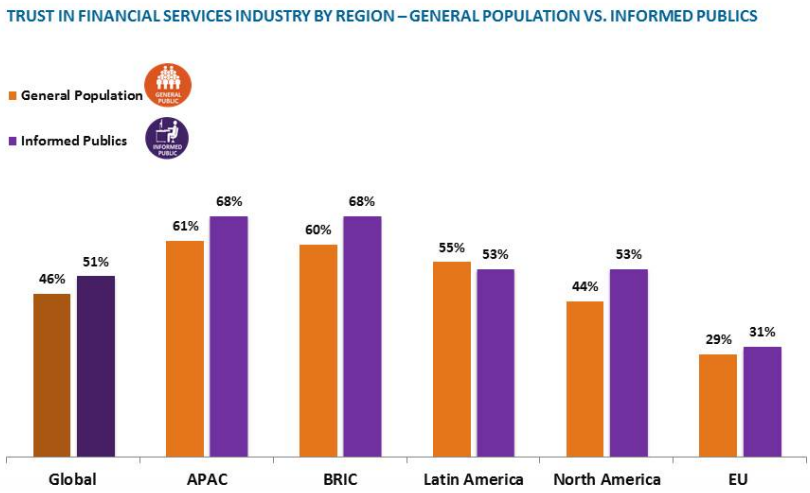
Source: Edelman (2014).

Ten years after the bankruptcy of Lehman Brothers epitomized the burst of the GFC we can only note that those who forecasted a quick re-regulation were wrong.[4] The rules of banking and finance have been revised but in less drastic ways than it happened in the 1930s. While the separation of

[3] This sub-section draws on D'Apice & Ferri (2010), Ferri (2015) and Ferri (2017).
[4] Among others, we held that view (D'Apice & Ferri, 2010).

commercial banking from financial markets was enforced in the U.S. in 1933 – the Glass-Steagall Act was the first bill signed by President Franklin D. Roosevelt – no comparable regulatory restriction has happened in the last decade. This time around the world was spared a depression by avoiding to repeat the mistakes of adopting procyclical economic policies, as done in the U.S. in the early 1930s. Indeed, after the burst of the GFC, central banks engaged in unorthodox expansionary monetary policies – Quantitative Easing – and, with the exception of Europe, expansionary fiscal policies. Also, while in the 1930s a key figure like Ferdinand Pecora – the famous prosecutor leading the Pecora Hearings – forcefully unveiled the misdoings of bankers in the run up to the Great Crash of Waal Street of 1929, no comparable personage emerged after the demise of Lehman (Ferri, 2017). Yet, the trace of misdoings by bankers was very evident even in the GFC era,[5] and that may help explain why trust in banking and finance has become so low (Figures 1) and has dipped more in rich countries than in emerging countries (Figure 2).

Figure 2. Trust in industries by region – index for 2013



Source: Edelman (2014).

Alternative banks as well as ethical- and sustainability-oriented finance look like a possible response to this situation.

2.2 Finance for Sustainability

We now turn to the other dimension of the finance-sustainability relationship. Namely, we look at finance for sustainability by discussing in general terms how ethical- and sustainability-oriented finance can give a major contribution to sustainable development (sub-section 2.2.1). In addition, we outline how positive outcomes for sustainability would come from: i) appropriately, tackling environmental risks in banking and finance (sub-section 2.2.2), and ii) making sure that the link between finance and inequality is kept on a beneficial mode (sub-section 2.2.3).

2.2.1 Ethical Finance up to the SDGs

An important role can be played by ethical finance and the recognition, also by law and regulation, of its usefulness in terms of a finance, but also of an economy, free from the exclusive objective of profit for its own sake, and instead more ethical, useful for collective well-being.

The usefulness of that is evident if we think that through ethical finance the financial investment, from a purely technical and maybe a little arid act, becomes a choice based on a system of values and ideals, or on religious faith, and, by this way, a tool for collective improvement and leverage for the dissemination of social values, well-being and virtuous behavior. Socially Responsible

[5] Independently, Ferri (2015) and Zingales (2015) have disclosed that the main global banks received sanctions of beyond $100 billion between 2010 and 2014 as a punishment for their misdoings.

Investment (SRI) funds thus become tools for "market discipline" and the propagation of ethical, fair, and sustainable behavior.

The ethical and sustainable finance sector offers a real alternative to traditional finance that, while maintaining the basic mechanisms (intermediation, collection of deposits, granting loans), tries to reformulate the reference values: persons rather than capital, ideas rather than assets, fair remuneration of the investment rather than speculation. Ethical and sustainable finance aims to introduce, as a benchmark, in addition to risk and return, also the compliance with principles of social, environmental and ethical/integrity principles, the effect of an investment on the real economy, tends to change financial behavior in a more social sense and to finance all the activities that move with a view to humanly and ecologically sustainable development. These, therefore, include traditional activities, but characterized by the respect of the principles of Corporate Social Responsibility (CSR), both of those of the nonprofit sector – social and international cooperation, ecology, protection of human rights, cultural and artistic activities, etc. –, and of those on the border as fair trade, organic farming, environmentally friendly production, alternative energy and, more generally, all those activities that produce a social and environmental benefit (Milano, 2010).

On this basis we can draw a taxonomy of the various financial activities that fall within the notion of ethical and sustainable finance, that is finance which: 1) fights against financial exclusion (microfinance and microcredit); 2) supports sectors commonly considered ethical by the collective conscience (here are the SRI funds); 3) respects laws and codes of conduct, operating according to the principles of CSR.

In the field of ethical and sustainable finance we therefore find (Ferri & Intonti, 2018):

- Special financial instruments: SRI funds and other asset management instruments, microcredit, financial and social inclusion tools (microfinance), migrant banking, third sector financing;
- Specialized financial intermediaries: ethical banks, ethical SGRs, specialized financial institutions;
- Traditional financial intermediaries with a focus on social responsibility.

These instruments and intermediaries, in choosing the economic subjects to whom the resources collected from the savers are to be allocated, select, in particular, virtuous, CSR-oriented enterprises – and therefore concerned of the impact of their business on communities –, respectful of the parameters of ethical evaluation ESG (Environmental, Social, Governance) or enterprises that base their operations on the fundamental ethical principles of the Social Doctrine of the Catholic Church: human dignity and common good (Ferri & Intonti, 2018). Or, depending on the objective chosen and the greater or less specialization, allocate resources to individuals in socio-economic difficulties often marginalized by traditional finance.

The importance of spreading ethical and sustainable finance and its instruments is effectively summarized by Pope Benedict XVI's message in his encyclical *Caritas in Veritate*:
"45. Striving to meet the deepest moral needs of the person also has important and beneficial repercussions at the level of economics. *The economy needs ethics in order to function correctly* — not any ethics whatsoever, but an ethics which is people-centred. Today we hear much talk of ethics in the world of economy, finance and business. Research centres and seminars in business ethics are on the rise; the system of ethical certification is spreading throughout the developed world as part of the movement of ideas associated with the responsibilities of business towards society. Banks are proposing "ethical" accounts and investment funds. "Ethical financing" is being developed, especially through micro-credit and, more generally, micro-finance. These processes are praiseworthy and deserve much support. Their positive effects are also being felt in the less developed areas of the world. It would be advisable, however, to develop a sound criterion of discernment, since the adjective "ethical" can be abused. When the word is used generically, it can lend itself to any number of interpretations, even to the point where it includes decisions and choices contrary to justice and authentic human welfare.
Much in fact depends on the underlying system of morality. On this subject the Church's social doctrine can make a specific contribution, since it is based on man's creation "in the image of God" (Gen 1:27), a datum which gives rise to the inviolable dignity of the human person and the

transcendent value of natural moral norms. When business ethics prescinds from these two pillars, it inevitably risks losing its distinctive nature and it falls prey to forms of exploitation; more specifically, it risks becoming subservient to existing economic and financial systems rather than correcting their dysfunctional aspects. Among other things, it risks being used to justify the financing of projects that are in reality unethical. The word “ethical”, then, should not be used to make ideological distinctions, as if to suggest that initiatives not formally so designated would not be ethical. Efforts are needed — and it is essential to say this — not only to create “ethical” sectors or segments of the economy or the world of finance, but to ensure that the whole economy — the whole of finance — is ethical, not merely by virtue of an external label, but by its respect for requirements intrinsic to its very nature. The Church's social teaching is quite clear on the subject, recalling that the economy, in all its branches, constitutes a sector of human activity.” (Pope Benedict XVI, 2009).

The need to correctly qualify the concept of ethics, referring to fundamental values, such as human dignity, and to natural moral norms brings us to the concept of sustainability, which is referred to in the literature to define SRI investments. According to the 1987 United Nations Brundtland Commission, sustainable development, from which the concept of sustainability is defined as that which "satisfies the needs of the current generation without compromising the ability of future generations to respond to their own". Pursuing sustainability necessarily implies a balance between three pillars: economic, social and environmental. Environmental sustainability refers to the balance between input (of natural resources) and output in the transformation processes, so that the outputs do not impair irreparably the inputs used, such as non-renewable resources. Economic sustainability, on the other hand, implies using the result produced by capital (natural, human and artificial) without compromising its ability to generate new income. Finally, social sustainability is based on the balance between intergenerational and infra-generational equity and respect for human rights. Sustainable development can be pursued with a finance based on the principles just stated and which, as such, can correctly be defined as ethical finance.

It is no coincidence that finance is also crucial in the Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda. In fact, finance is important across the board but mostly impacts four main areas of the SDGs (United Nations Global Compact/KPMG International, 2015):

1. ACCESS: Increase the financial inclusion of individuals (impacting SDGs 1, 2, 3, 4, 10), small and medium-sized enterprises (SDGs 5, 8) and governments (SDG 13). This includes access to secure services in: payment systems, remittances, savings, credit and insurance. These crucial financial services: i) facilitate secure payments of goods and services, including regional and international trade; ii) make it possible to smooth cash flows and consumption over time; iii) offer financial protection and iv) support more efficient capital allocation.
2. INVESTMENT: Investing in, financing and securing renewable energy (SDGs 7, 13) and other infrastructure projects (SDGs 6, 9). This includes: banks that raise capital through debt and capital markets for private and government investment; asset managers who invest as part of a diversified portfolio, as well as to meet the needs of impact investors; international financial institutions or development institutions and sovereign wealth funds to help reduce the investment risk for institutional investors; institutional investors and financial institutions with a longer-term investment horizon – such as pension funds and insurance enterprises – investing in infrastructure.
3. RISK: Leveraging risk experience to directly influence customer behavior and create more resilient nations through: i) developing innovative pricing models that promote more sustainable lifestyles and production (SDG 12) and ii) the sharing of non-proprietary risk data, risk analysis and risk governance to improve public policies and practices (SDG 11). This includes insurers working together to develop open source risk models that can inform disaster risk reduction policies and actions such as land zoning, building codes and investments in resilient infrastructures.
4. TRANSVERSAL EFFECTS: positively impacting the environmental, social and governance (ESG) practices of customers and investee enterprises (SDGs 13, 14, 15, 16). This can be achieved by: i) adopting the principles of good practices, policies and risk frameworks to drive business transactions and investments – especially on sensitive sectors or issues; ii) pricing reflecting ESG risks and opportunities; and iii) a guide to active investment.

SRI (Sustainable and Responsible Investing or Sustainable and Responsible Investment) funds consist of asset management entities that are socially responsible, sustainable or ethically oriented, which allow to achieve together economic goals (that is to obtain an adequate economic performance) and ethical goals. These entities, mainly in the form of open and closed-end mutual funds, investment enterprises with variable share capital, pension funds and Exchange Traded Funds (ETFs), allow choosing how to use the savings collected on the basis of environmental, social and good governance parameters (ESG variables) and can be managed and placed both by traditional intermediaries and by intermediaries that are alternative with specific and declared ethical guidelines.

Commonly accepted principles establish that a fund qualifies as ethical if:
i) it has an investment policy prohibiting the purchase of a set of securities and/or favoring the purchase of securities on the basis of criteria other than the maximization of the expected return and/or
ii) adheres to an investment process according to principles other than the maximization of the expected return (corporate governance of the fund).

Compared to traditional investment funds, SRI funds combine the objective of economic performance with ethical performance, based on respect for the principles and values of social responsibility. Hence, SRI funds' investment policy aims at sustainable investing as spelled out in the six Principles of Responsible Investment (PRI), set out by the United Nations:
PRI 1: We will incorporate ESG issues into investment analysis and decision-making processes.
PRI 2: We will be active owners and incorporate ESG issues into our ownership policies and practices.
PRI 3: We will seek appropriate disclosure on ESG issues by the entities in which we invest.
PRI 4: We will promote acceptance and implementation of the Principles within the investment industry.
PRI 5: We will work together to enhance our effectiveness in implementing the Principles.
PRI 6: We will each report on our activities and progress towards implementing the Principles.

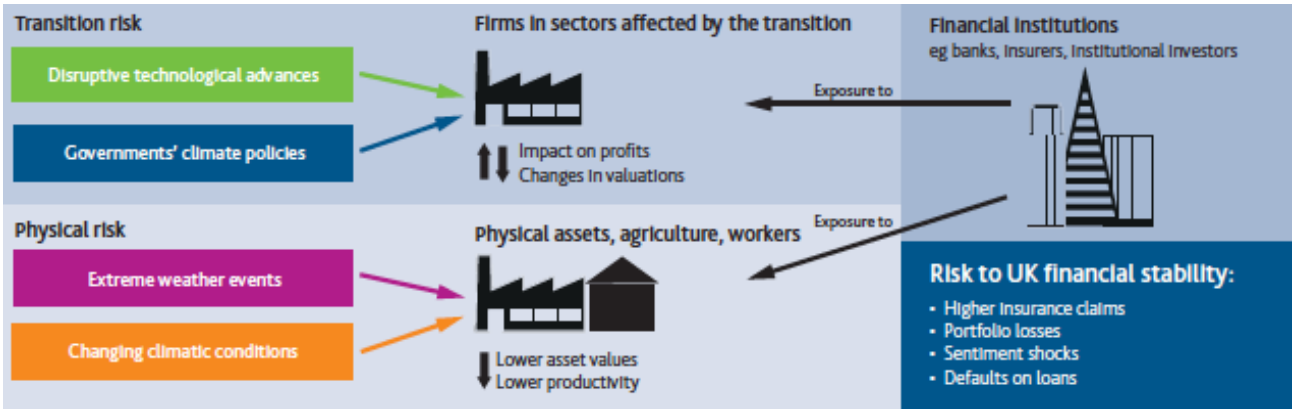
2.2.2 Tackling Environmental Risks in Banking and Finance

Banking and finance regulators are becoming increasingly aware that environmental problems translate into true risks as well as real opportunities.

As the Bank of England (BoE) points out, financial institutions are exposed to two types of climate-related risks (Scott et al., 2017):

1. Transition risk: disruptive technological advances and governments' climate policies will affect firms in sectors exposed to the transition via impact on profits & changes in valuation;
2. Physical risk: extreme weather events & varying climatic conditions will affect physical assets (e.g. in agriculture) curbing asset values & productivity (Figure 3).

Figure 3. Primary Channels for Climate-Related Financial Risks

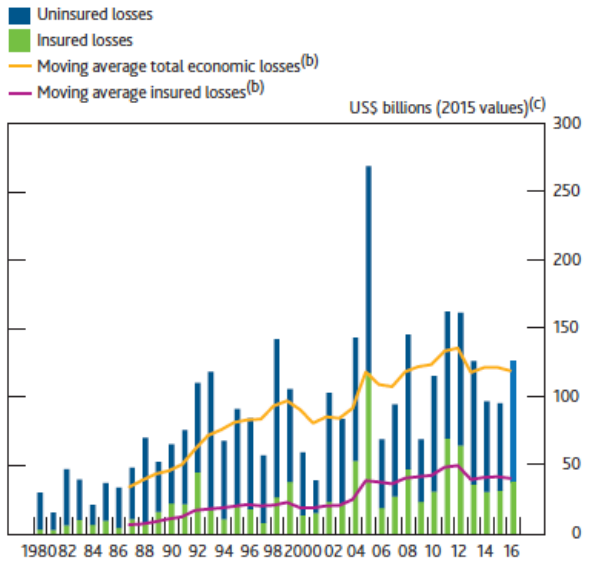


Source: Scott et al. (2017).

Scott et al. (2017) estimates that yearly weather-related losses worldwide tripled from the early 1980s to above 100 US$ bln in recent years, and only 1/3 of the losses are insured (Figure 4).

A key issue in this respect is measuring and disclosing banking and financial intermediaries' environmental risks. In Dec 2016, the Task Force on Climate-related Financial Disclosures (TCFD) at the Financial Supervisory Board (FSB) issued draft recommendations for disclosure on climate-related financial risks for enterprises to provide information to lenders, insurers, investors and other stakeholders (Figure 5):

Figure 4. Weather-Related Losses Worldwide (1980-2016)



Sources: Geo Risks Research, Munich Reinsurance Company and NatCatSERVICE 2017 (data does not account for reporting bias).

(a) Total Economic Losses = Insured + Uninsured losses.
(b) Eight-year moving average.
(c) Values as at 2015 adjusted for inflation based on country Consumer Prices Index.

Source: Scott et al. (2017).

Figure 5. Thematic Areas of Recommendations on Climate-Related Financial Disclosure

Source: TCFD (2016).

Table 1. Barriers to Green Finance as Identified by the G20-GFSG

Barrier	Description
Internalising environmental externalities	Financial investments can have both positive and negative environmental impacts, which in turn, lead to benefits, or costs, to the economy as a whole. Difficulties in internalising these externalities in financial decision making can lead to a sub-optimal allocation of capital.
Maturity mismatch	Constraints on long-term lending resulting from the need to finance short-term liabilities can particularly impact 'green' projects which often have high up-front costs but whose cost-saving results are manifested in the long-term.
Lack of clarity of green definitions	A lack of clarity on what constitutes a 'green investment' can be an obstacle to allocating financial resources to green projects.
Information asymmetry	A lack of disclosure of environmental-related information by companies can make it challenging for investors to fully assess risks and opportunities.
Inadequate analytical capacity	The level of understanding of the financial implications of environmental risks is still at an early stage.

Source: G20-GFSG (2016).

Figure 6. Scaling up Green Finance G20's View

Source: G20-GFSG (2016).

TCFD recommended:

- Governance: organization's governance on climate-related risks and opportunities (CRR&O).
- Strategy: actual and potential impacts of CRR&O on organization's businesses, strategy and financial planning (under different transition scenarios, including a 2℃ temperature increase scenario).
- Risk Management: processes used by the organization to identify, assess and manage CRR&O.

- Metrics and Targets: metrics and targets to assess and manage relevant CRR&O.

The recommendations also include financial sector metrics and examples of non-financial sector metrics, such as those relating to greenhouse gas emissions and energy and water efficiency. TCFD disclosures could significantly help financial sector analysts to better price CRR&O.

Scenario analysis, in particular, is a major innovation of the TCFD. The group recommends that firms describe how their strategies are likely to perform under various forward looking, climate-related scenarios. Firms could discuss the degree of robustness of their strategy, or how they can position themselves to take advantage of opportunities, or adapt to risks. This disclosure can help investors make more robust long-term investment decisions.
The TCFD's final report, including final recommendations, was published ahead of the G20 Summit in July 2017 and presented to G20 Leaders.

On a different side stands the issue of the barriers to green finance, which limit the ability of financial markets to support sustainable development. Indeed, moving to the opportunities side, the G20 Green Finance Study Group (G20-GFSG, 2016) identified the main barriers to green finance (Table 1). The G20-GFSG envisages 7 actions required to scale up green finance along its view (Figure 6):

1. Provide strategic policy signals and frameworks.
2. Promote voluntary principles for green finance.
3. Expand learning networks for capacity building.
4. Support the development of local green bond markets.
5. Promote international collaboration to facilitate cross-border investment in green bonds.
6. Encourage and facilitate knowledge sharing on environmental and financial risk.
7. Improve the measurement of green finance activities and their impacts.

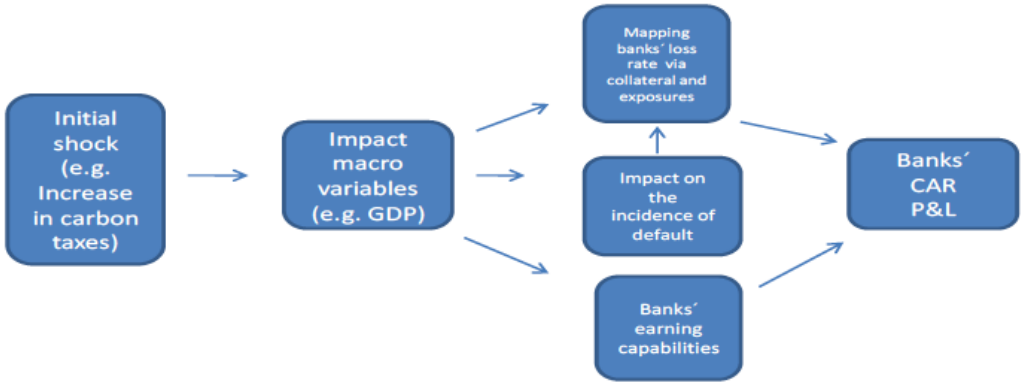
Returning to the risk side of the finance-environment relationship, the issue of measuring banks' climate-related risks has received some attention.
Some experts highlight the need to measure banks' climate-related risks (CRRs) and propose methods to measure them. Among the first attempts to quantify these risks, Nieto (2017) argues that: the direct (syndicated) loan exposure to high environmental risk sectors of the largest banks in EU, Switzerland, US, Japan & China on average at between 0.3 to 3.7% of total banking assets and €1.35 trillion in total as of December 2014.

Following the G20 Enhanced Disclosure Task Force advising to revise banks' prudential policy to consider environmental risks, Nieto says that:

- Better understanding the direct exposure to high environmental risk sectors demands a reliable and harmonized statistical framework that allows for detailed identification of sectors exposed to high environmental risks (SIC classifications).
- Develop credit registers to become a tool that facilitates the assessment of environmental risk drivers in 'carbon stress tests'.
- Environmental aspects should be considered in the revisions of the assessment methodology of the Basel Core Principles for Effective Bank Supervision.

According to Nieto the impact of climate-related risk on banks runs along the following carbon stress test (Figure 7). The initial shock – such as an increase in carbon taxes – affects the macro variables – like GDP – which, in turn, (i) dents banks' earning capabilities and (ii) raises banks' Non-Performing-Loans (NPLs) (potentially covered by collateral). Finally, (i) and (ii) combine to affect banks' capital asset ratios and profits & losses.

Figure 7. Stylized Representation of the Carbon Stress Test



Also, Nieto argues that the impact of climate-related risk on banks NPLs can be estimated as follows:

Table 2. Models for Climate Change Factors

Annex 1. Models for climate change factors

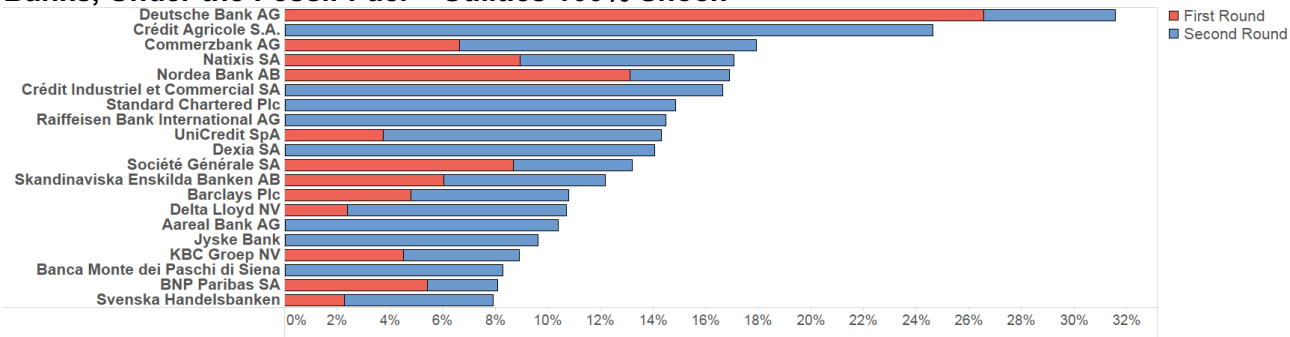
Models can be formulated to assess the sensitivity of loan quality, for each loan across loan portfolio categories, to changes in macroeconomic conditions as well as climate factors.

$$NPLi,t = \alpha_0 + \beta(Climate\ factor)_{i,t} + \alpha_1\ NPLi,t\text{-}1 + \sum_{s=0}^{K} \beta\ F,t-s\ \ MACRO\ F,t\text{-}s + \varepsilon_{i,t}$$

Where NPLi,t stands for the logit transformation of non-performing loans (NPLs) as a ratio over total loans of credit institution i in year t, α_0 stands for the fixed-effect for credit institution i, β gauges the specific climate factor i in year t and MACROF, t-s stands for macroeconomic factor F, in period t-s (s is the time lag).

A paper by Battiston et al. (2017) via a network analysis-based stress test finds that: For the Euro Area, while direct exposures to the fossil fuel sector are small (3-12%), the combined exposures to climate-policy relevant sectors are large (40-54%), heterogeneous, and possibly amplified by indirect exposures via financial counterparties (30-40%). Figures are ratios to a bank's own equity (Figure 8).

Figure 8. 1st and 2nd Round Losses Distribution for the 20 Most-Severely Affected EU Listed Banks, Under the Fossil-Fuel + Utilities 100% Shock



On their part, on the basis of a stock-flow-fund ecological macroeconomic model, Dafermos et al. (2018) study the effects of climate change on financial stability and the financial and global warming implications of a green quantitative easing (QE) program. They find that: 1) by destroying the capital of firms and reducing their profitability, climate change may gradually deteriorate the liquidity of firms, heightening default rates that could harm both the financial and the non-financial corporate sector;

2) climate change damages can induce a portfolio reallocation causing a gradual decline in the price of corporate bonds; 3) climate-induced financial instability might depress credit growth, exacerbating the negative impact of climate change on economic activity; 4) the implementation of a green corporate QE program can reduce climate-induced financial instability and restrict global warming.

On 3 March 2018 the EU Commission sent a communication to the EU Parliament, the EU Council & the European Central Bank on its Action Plan: Financing Sustainable Growth.
Specifically, this Action Plan aims to:

- reorient capital flows towards sustainable investment to achieve sustainable & inclusive growth;
- manage financial risks stemming from climate change, resource depletion, environmental degradation & social issues;
- foster transparency and long-termism in financial and economic activity.

Specifically, the EU Commission envisages 10 Actions:

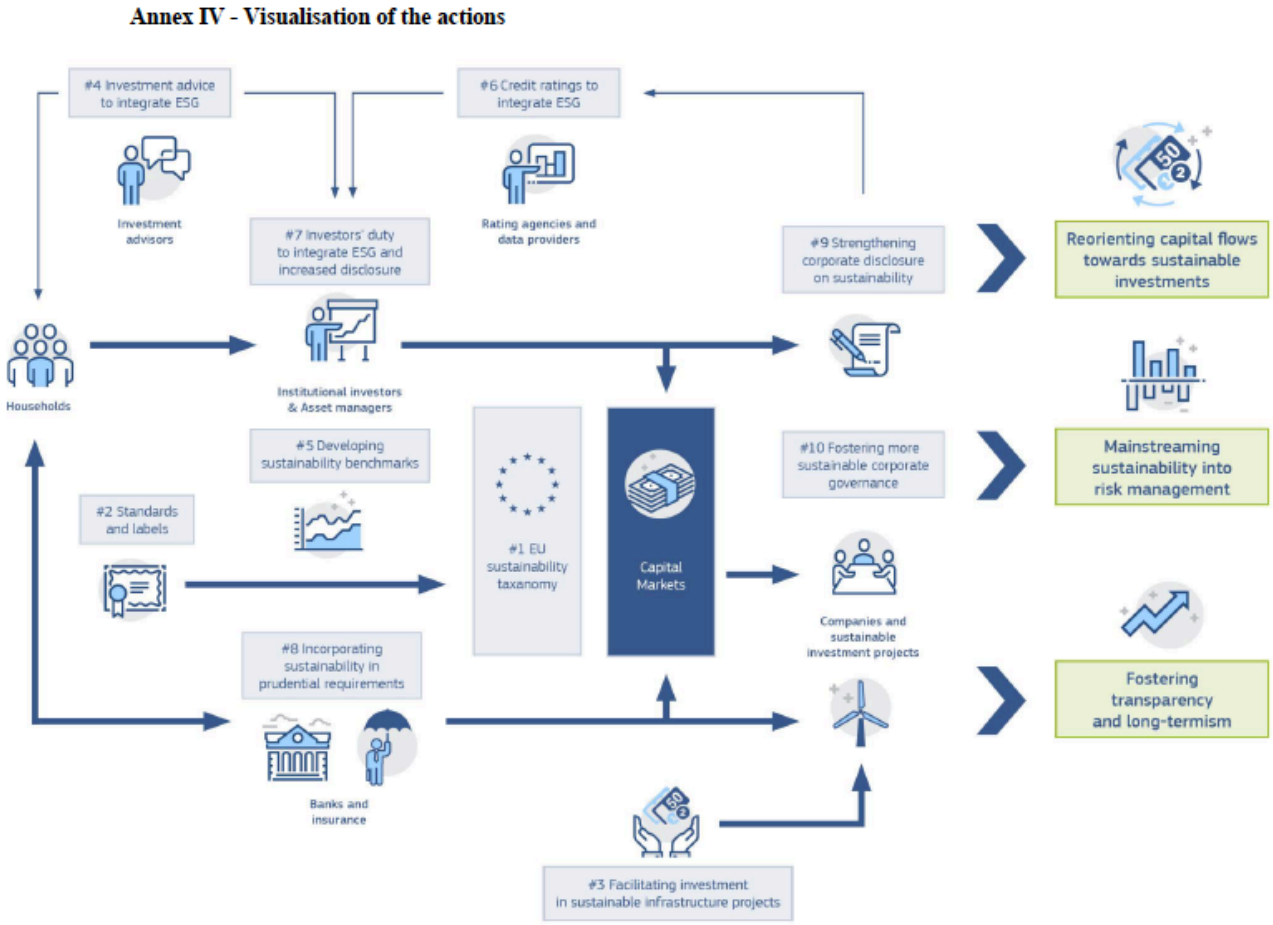
1. Establishing an EU classification system for sustainable activities;
2. Creating standards and labels for green financial products;
3. Fostering investment in sustainable projects;
4. Incorporating sustainability when providing financial advice;
5. Developing sustainability benchmarks;
6. Better integrating sustainability in ratings and market research;
7. Clarifying institutional investors' and asset managers' duties;
8. Incorporating sustainability in prudential requirements;
9. Strengthening sustainability disclosure & accounting rule-making;
10. Fostering sustainable corporate governance & attenuating short-termism in capital markets.

Among the 10 Actions, Action 8 (incorporating sustainability in prudential requirements) will perhaps impact banks the most:

1. The Commission will explore the feasibility of including risks related to climate and other environmental factors in institutions' risk management policies and the potential calibration of capital requirements of banks as part of the Capital Requirement Regulation and Directive (CRRD). This aims to take into account such factors, where this is justified from a risk perspective, to safeguard the coherence and effectiveness of the prudential framework and financial stability. Any recalibration of capital requirements, based on data and the assessment of the prudential risk of banks' exposures, would need to rely on and be coherent with the future EU taxonomy on sustainable activities (see Action 1).
2. In Q3 2018, the Commission will invite the European Insurance and Occupational Pensions Authority (EIOPA) to provide an opinion on the impact of prudential rules for insurance enterprises on sustainable investments, with a particular focus on climate change mitigation. The Commission will take this opinion into account in the report to be submitted to the European Parliament and Council by 1 January 2021 under the Solvency II Directive.

Action 8 will likely impact banks through a ‘green-supporting factor’ for prudential requirements. This means that the banks’ assets financing entities that will be defined “green” will be considered less risky and, thus, a lower capital allocation will be required against them in terms of a bank’s minimum capital requirements. Although it is still unclear how “green” assets will be identified we can imagine that the identification will take into account the Environment, Social, and Governance (ESG) ratings of the counterparts in which a bank is investing.
We may note that some experts (Van Lerven & Ryan-Collins, 2018) criticize this approach suggesting that a ‘brown penalizing or “add-on” factor’ would be a better alternative, where brown loans refer to fossil-fuel intensive & dependent assets.
In more general terms, the EU action should have a wide impact for green finance at large (Figure 9).

Figure 9. EU's Policy action favoring green finance



2.2.3 The Link Between Finance and Inequality: Keeping It Beneficial

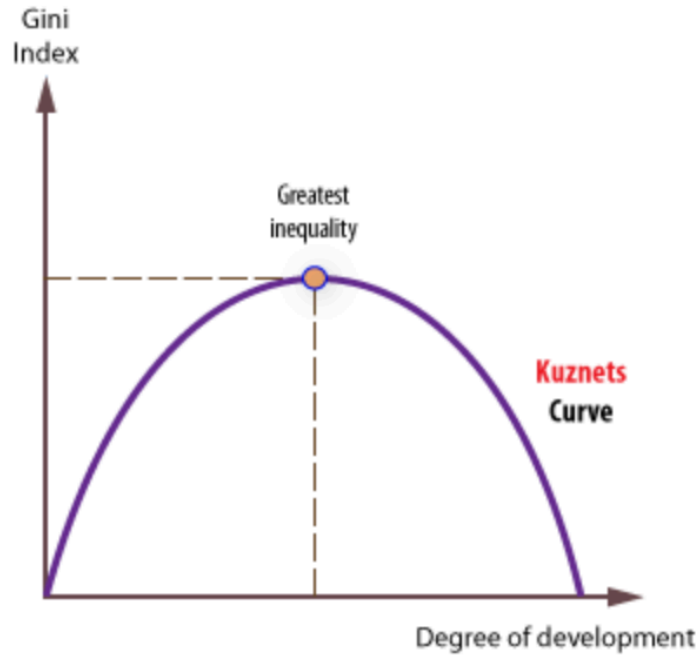
A crucial juncture in the finance-sustainability relationship has to do with how financial development impinges on the distribution of income and wealth. Specifically, the issue may be subdivided into two nested questions:

1) Does financial development always enhance growth? And, if so,
2) Does growth trickle down quickly?

In general, financial development is expected to enhance growth by enabling the efficient allocation of capital and reducing borrowing/financing constraints (Levine, 2005). However, this literature disregards the issue of which part of society benefits from the growth enabled by financial development. Growth may benefit the poor by creating more employment opportunities, but it may also favor entrepreneurs and profits.

The relationship between income distribution and economic development was initially studied by Kuznets (1955), who established the inverted U-shaped path of income inequality along economic development – the well-known Kuznets curve (Figure 10). Kuznets theorized that higher growth would first raise inequality – usually identified by rising values of the Gini index – but later on – after a certain threshold of development is reached – would cause lower inequality. Kuznets also reported empirical evidence consistent with his conjecture on data from the late 1800 to the early 1950s.

Figure 10. The Kuznets Curve



Kuznets argued that rural areas are more equal and have a lower average income compared to urban areas in the beginning of industrialization and thus through urbanization, a society becomes more unequal. When a new generation of former poor rural people who moved to cities is born, they can exploit the urban possibilities. Wages of lower-income groups rise, and overall income inequality narrows.

By and large, theory and evidence on the finance-inequality nexus do not seem to fully concur. Let's briefly summarize the issue. One factor backing Kuznets' argument of urban possibilities is financial development, enabling formerly poor migrants to choose the education they desire and build their own businesses – regardless of their inherited wealth. This is the basic reasoning why economic theories predict a negative impact of financial development on income inequality. Financial development fosters the free choice regarding education and the founding of businesses. Because both lead to growth and growth is associated with more jobs, average income will rise, and inequality will fall.

Three theoretical papers explaining the financial development/income inequality nexus are by Banerjee & Newman (1993), Galor & Zeira (1993) and Greenwood & Jovanovic (1990). While the first two predict that better developed financial markets lead to lower income inequality, the latter predicts an inverted-U-shaped relationship between financial development and income inequality. In the early stages of financial development – when only a small part of society benefits from this development – income inequality rises. But, after a certain stage of financial and economic development is reached, more financial development begins to reduce income inequality. While the specific mechanisms behind these predictions differ, the key reason why better developed financial markets – at least after some stage – lower income inequality is always that better credit availability allows household choices/decisions to hinge more on economic optimality and less on inherited wealth.

However, the econometric evidence is mixed. Clarke et al. (2006) and Beck et al. (2007) support the prediction of a linear negative influence of financial development on income inequality. Instead, some more recent studies Jaumotte et al. (2013) and Jauch & Watzka (2016) find that more finance increases income inequality. The latter would suggest a U-shaped curve (the opposite of Kuznets). Indeed, the signs of rising trends in income inequality – as measured by the income share of the top 1% of the income distribution – are neater and more visible for developed countries (Figure 11 focuses on four Anglo-Saxon countries) than for emerging economies (Figure 12).

Figure 11. Income Inequality in Anglo-Saxon Countries

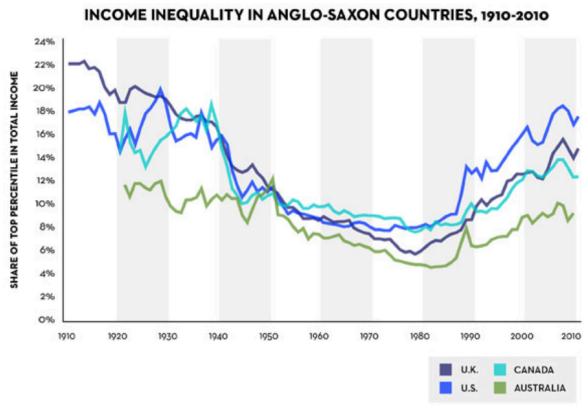
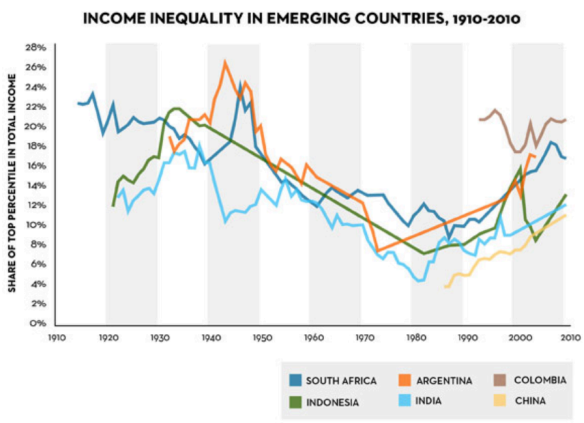


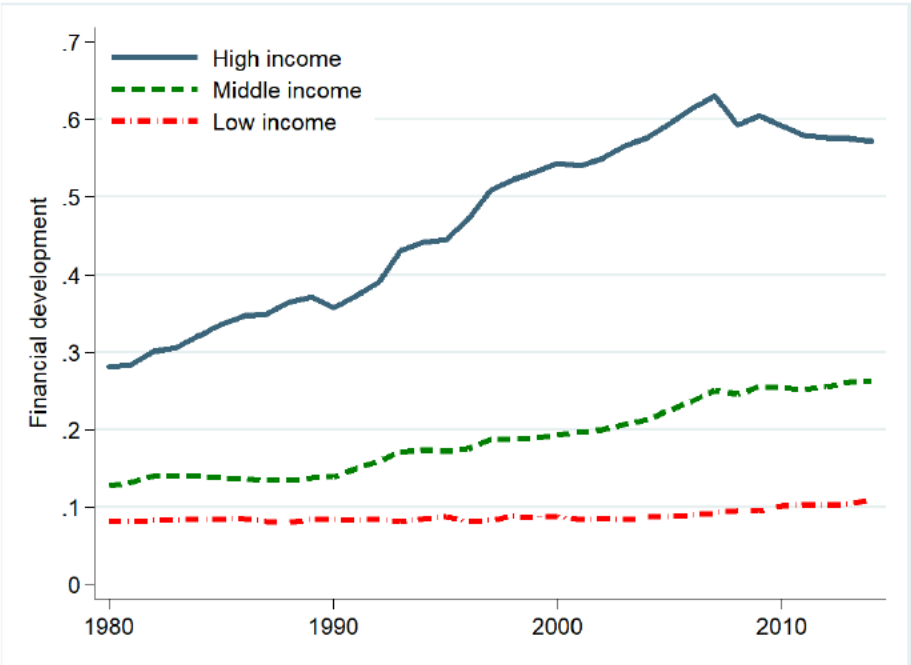
Figure 12. Income Inequality in Emerging Countries



And, indeed, as expected, the gap in terms of financial development between the high-income countries and the other countries kept increasing in recent decades (Figure 13).

The idea is gaining support that, above a certain threshold, financial development may benefit higher wage classes more. In particular, inequality could rise also due to the booming remuneration of senior executives (Kay, 2016). For Rajan (2010) wage stagnation and rising income inequality in the U.S. before the GFC encouraged low/middle-income households to borrow more to keep their consumption levels. Higher indebtedness, in turn, raised income transfers from indebted households to the wealthier, i.e. the funds providers, further exacerbating inequality. And, financial development boomed along the U-shaped curve.

Figure 13. Financial Development Over Time



Note: The graph shows unweighted averages of the Financial Development Indicator across high income, middle-income and low-income countries.

Sources: Svirydzenka (2016); authors' calculations.

There are various possible channels linking finance to raising inequality. Following Stiglitz (2015) there are 3 main channels in which more financial development can boost income inequality:

i) Rent seeking and top incomes: the mega compensation of CEOs in finance (Philippon & Reshef, 2012; Bebchuk et al, 2010), the implicit guarantee due to the Too-Big-To-Fail (TBTF; see Baker & Mc Arthur, 2009).
ii) More banks & financial markets could prod boom-bust cycles. Those who have access to financial markets and can get credit from banks (typically the well-off) can buy these assets, using them as collateral. As the bubble takes off, so does their wealth and society's inequality (Guzman & Stiglitz, 2016).
iii) Discriminatory lending & predatory behavior on weaker ranks of society are bound to increase inequality (Stiglitz, 2015).

New findings on the finance-inequality nexus are provided in a recent paper by Brei et al. (2018). They distinguish between bank finance vs market finance and estimate the following regression on data for 97 countries over 1989 and 2012:

$$Gini_{i,t} = \rho Gini_{i,t-1} + \alpha y_{i,t} + \alpha^* y_{i,t}^2 + \beta B_{i,t} + \beta^* B_{i,t}^2 + \gamma M_{i,t} + \gamma^* M_{i,t}^2 + \delta' X_{i,t} + \psi_i + \varepsilon_{i,t}$$

where $Gini_{i,t}$ is the logarithm of the Gini coefficient, $X_{i,t}$ represents a set of control variables, and *i* and t indicate countries and time periods, respectively. The key variables are $y_{i,t}$, the logarithm of GDP per capita. The two indicators of financial structure are as follows: $B_{i,t}$ is defined as the logarithm of the ratio of bank credit to GDP and $M_{i,t}$ indicates the logarithm of the ratio of stock market capitalization to GDP.

We must bear in mind the following:

- In the hypothesis that more finance continues to reduce inequality in a **linear** way, β and γ should be negative and statistically significant, while β^* and γ^* should be statistically insignificant.
- Along the **inverted U-shaped** hypothesis, β and γ should be significant and positive, while β^* and γ^* should be negative and statistically significant.
- Instead, for the **U-shaped** hypothesis, β and γ should be significant and negative, while β^* and γ^* should be positive and statistically significant.
- As for the coefficients on GDP per capita and its squared term, the Kuznets curve predicts that α should be significant and positive, while α^* should be negative and significant.

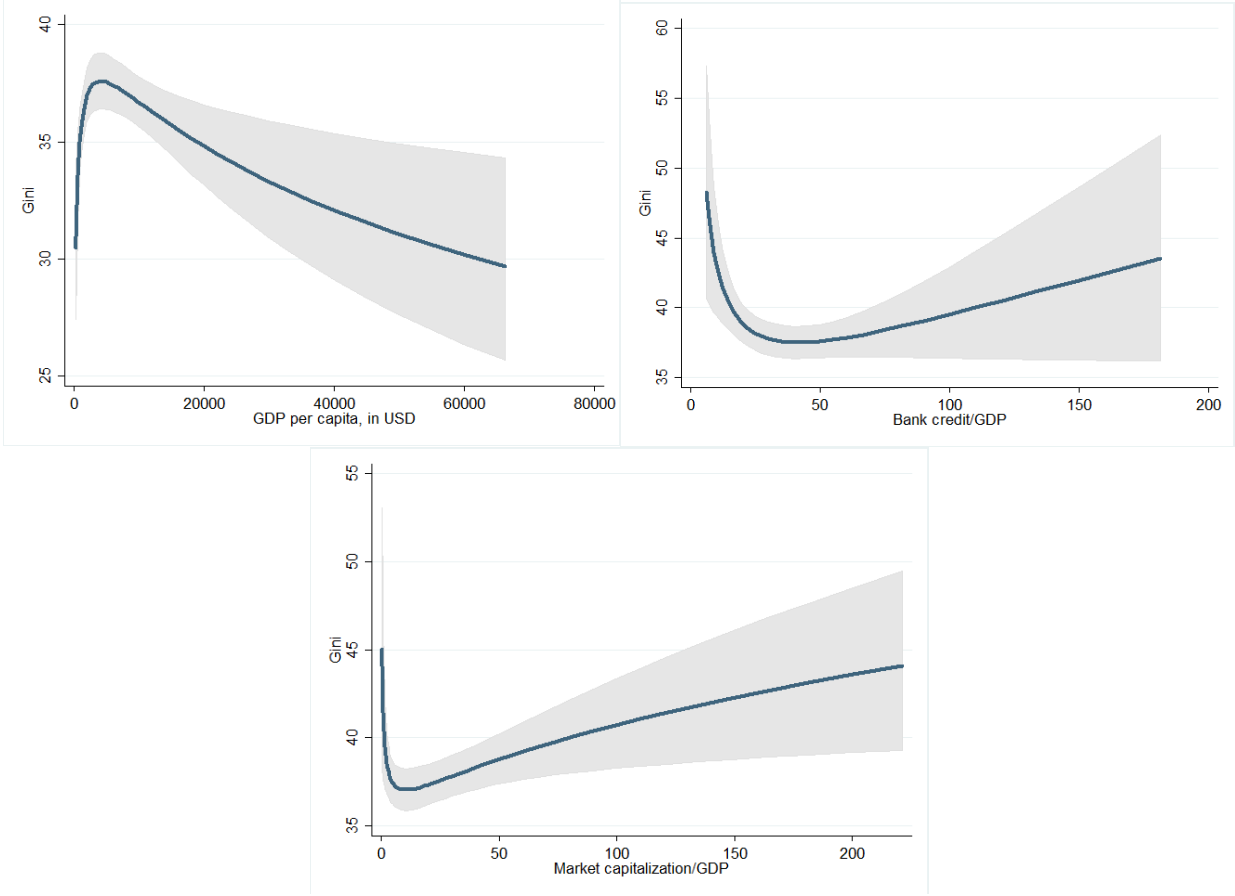
The results of Brei et al. (2018) provide support for the **U-shaped** hypothesis. Their findings, in fact, indicate that both higher bank and higher financial market activity relate to lower inequality up to a certain threshold. However, beyond that threshold higher financial market activity links with increasing inequality, something not detected for further increases in bank activity.

Those main findings may also be represented in graphical form. The limits of financial deepening on inequality emerge from Figure 14. The x-axis reports both credit/GDP & market capitalization/GDP variables, while the y-axis reports Gini. Income inequality drops as the ratio bank credit/GDP rises up to 41%. The related minimum for market capitalization is 10%. Based on these thresholds, 48 of the 97 countries are above the threshold for bank credit and 74 are above the threshold for market financing (43 countries exceed both thresholds).

These results concur with Delis et al. (2014) showing that securities market liberalization substantially increases income inequality. Splitting the sample into common and civil law countries, the non-linear effect of market-based financial development emerges in both groupings and is not too dissimilar. Finally, the negative correlation between bank-based financial development and inequality is stronger in civil law countries.

Thus, Brei et al. (2018) conclude that the role of finance in modern economic systems needs to be reassessed. More finance is definitely not always better. The main policy implication we can derive here regard particularly the rich countries. Namely, the impact of financial deregulation and that of financial innovation should be weighed against the possible negative consequences in terms of increasing inequality.

Figure 14. Link Between Income Inequality, Economic and Financial Development



3. Intermediaries, Instruments, and Markets

Regarding finance for sustainability we distinguish three different dimensions. First, we will consider the intermediaries that can be beneficial to supporting sustainable development. Next, we will focus on the specific instruments through which that support to sustainable development may attain. Finally, we will discuss the role of the markets where the previously mentioned intermediaries and instruments are bought and sold to match the pro-sustainability desire of savers and institutions with the financial needs of the entities engaged in promoting sustainable development.

3.1 Intermediaries

Among the intermediaries which can play an important role in supporting sustainable development we consider:

i) Alternative Banks – in some way or the other aiming to maximize stakeholder benefits or anyhow something going beyond pure profits.

ii) Ethical / SRI Asset Management – focused on providing to investors returns that are both financial and sustainability oriented.

iii) Microfinance – designed to promote financial inclusion and reduce credit rationing of marginal borrowers, especially in less developed set ups.

3.1.1 Alternative Banks

3.1.1.1 Commercial Banks vs Alternative Banks

Commercial banks are typically set up as joint stock (or private limited) enterprises. They focus on maximizing profits (or shareholder value). Thus, often they are called Shareholder value banks (**SHVBs**).
Alternative banks (ABs) can take various forms: ethical banks, social banks, cooperative banks and savings banks. In any case, their focus is not on maximizing profits but on maximizing value for the wide audience of stakeholders rather than simply the shareholders. Thus, often they are called Stakeholder value banks (**STVBs**). By maximizing stakeholder value they are by definition engaged in promoting social sustainability but more often than other bank types they also promote economic and environmental sustainability (Cornée & Szafarz, 2014; Weber & Feltmate, 2016).
In the following we will exemplify the main differences of Commercial banks (**SHVBs**) vs Cooperative banks (part of **STVBs**). However, it should be understood that the differences – between Commercial banks and Cooperative banks – which we will outline generally regard also those between Commercial banks and the other types of Alternative banks (ABs). The choice of focusing on Cooperative Banks is motivated by the fact that this part of the ABs sector has been more investigated than the rest.

3.1.1.2 Cooperative vs Commercial Banks

Specifically, we will argue that Cooperative Banks can: 1) promote financial inclusion by sustaining small business development; 2) be particularly beneficial to smooth credit to marginal borrowers at the time of a credit crunch; 3) offer a more democratic and representative form of intermediary through their specific governance / ownership set up.
The full list of items we will touch runs as follows:

A. Cooperative Banks Can Support **Small Business Development**:
A.1 Investing in a Relationship Lending Business Model
A.2 Overcoming Asymmetric Information: Less Credit Rationing, Lower Loan Rates

B. Cooperative Banks Are Particularly Critical in a **Credit Crunch**:
B.1 Defining and Measuring a Credit Crunch
B.2 Cooperative Banks Exhibit Less Quantity Credit Rationing
B.3 Cooperative Banks Practice Lower Increase in Loan Rates at Times of Stress
B.4 Cooperative Banks Are More Stable During Financial Stress

C. Specificity of Cooperative Banks' **Ownership / Governance**:
C.1 The Three Pillars of Cooperative Banks' Difference
C.2 The Three Main Challenges for Cooperative Banks' Future

Table 3. Credit Relationship Features at Local vs National Banks

Data from Bartoli et al. (2013)

	Local banks	National banks
RelLending/Other Lending	23,1	16,6
RelLend/TransLend (main)	80,0	53,8
N. Lending Banks	5,48	5,99
Audited firms	21,4	46,1
Relationship Length	14,75	12,92

3.1.1.3 Cooperative Banks and Small Business (SME) Development

A.1 Investing in a Relationship Lending Business Model

We see that cooperative banks (proxied by local banks; Table 3):

i) Relatively to other lending technologies, use Relationship Lending (RL) – rather than Transactional Lending (TL) – more than national (non-coop) banks (23.1 vs. 16.6%). Also RL/TL is 80% vs. only 53.8% at the other banks.
ii) Operate with lower multiple lenders (5.48 vs. 5.99 banks).
iii) Lend less frequently requiring audited statements (21.4 vs. 46.1%).
iv) Lend on the basis of longer relationships (14.75 vs. 12.92 years).

From EFIGE (Barba Navaretti et al., 2010), 2008 data on 15,000 firms in seven EU countries: Germany, France, Italy, Spain, United Kingdom, Austria, Hungary, we see that coop banks (proxied by local banks):

i) Lend more often to smaller firms (< 20 employees). The ratio of small firms to other firms is 1.04 vs. 0.91;
ii) Lend on the basis of longer relationships (14.83 vs. 13.69 years);
iii) Lend less frequently requiring collateral guarantees (41.88 vs. 51.97%) or considering balance sheet data (58.73 vs. 76.55%).

Table 4. Credit Relationship Features at Local vs National Banks in the EFIGE Database

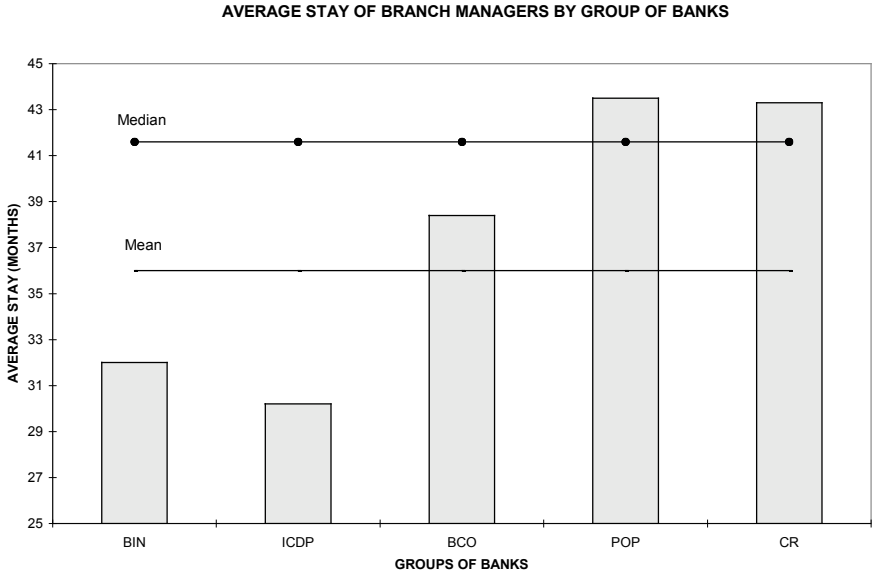
Data from EFIGE (2008)

	Local banks	National banks
Firms <20 / Firms >= 20	1,04	0,91
Relationship Length	14,83	13,69
Use of collateral guarantee	41,88	51,97
Use of balance sheet data	58,73	76,55

From Ferri (1997) we see that on data for the early 1990s Italy:

i) Cooperative banks – here identified with Popular Banks (POP) – and Savings Banks (CR) had a much longer average stay of branch managers, allowing them to use **more soft information**, than other bank types – all referring to commercial banks (BIN – Banche di Interesse Nazionale; ICDP – Istituti di Credito di Diritto Pubblico; BCO – Banche di Credito Ordinario) (Figure 15).

Figure 15. Average Stay of Branch Managers by Group of Banks



ii) Longer branch manager stay associated with lower bad debt ratios (Figure 16).

Figure 16. Average Stay of Branch Managers and Bad Debts/Loan Ratio

A.2 Overcoming Asymmetric Information: Less Rationing, Lower Loan Rates

Angelini et al. (1998), analyzing the effects of bank-firm relationships on loan cost and availability at Italian SMEs, study whether Banche di credito cooperativo (BCCs) play any special role and find that:

i) members have easier access to credit at BCCs (less credit rationing);
ii) loan rates increase with relationship length for all customers, but at BCCs this is the case for non-member customers only (i.e., no bank capture as the duration of the bank-firm relationship lengthens);
iii) the main distinctive features of BCCs relative to commercial banks stem from cooperative ownership.

In turn, Cannari & Signorini (1997) show that, vis-à-vis commercial banks, BCCs and Popular Banks (also cooperative) enjoy lower non-performing-loan ratio and ratio of overdraft loans to pre-committed loans. They interpret this as evidence of better use of soft information and less credit rationing. Cau et al. (2005) confirm that for Popular Banks on more recent data. Ferri et al. (2005) document that the probability of SME (especially in the less developed South) credit rationing is lower when its main bank is a Popular Bank (cooperative). Coccorese & Shaffer (2018) document that the presence of BCCs supports local economic development and growth.

Relevant evidence is available also for other European countries. For France we may refer to Ziane (2004), El Hajj Chehade & Vigneron (2007) and Bonnet et al. (2004). Namely, Ziane (2004) shows that: i) the probability of a firm being credit rationed increases in the number of banks it borrows from; ii) the number of banks a firm borrows from is systematically lower when the main bank is a cooperative bank. El Hajj Chehade & Vigneron (2007) find that: i) there is a strong tie between the firm's informational opacity and the choice of a decentralized bank (where cooperative banks are the bulk); ii) opaque firms are more likely to be credit constrained if they choose a hierarchical bank (a national level or foreign bank) as their main bank. Bonnet et al. (2004) argue that the presence of mutual banks may reduce the extent of financial constraints for new and/or innovative firms. For Germany we can mention Harm (1992) and Koetter & Wedow (2006). Harm (1992) documents the major role played by cooperative banks in financing the Mittlestand. Koetter & Wedow (2006) show that – contrary to what found for public sector banks – improving the efficiency of cooperative banks leads to higher economic development in their respective economic planning regions (Raumordnungsregionen), supposedly by reducing financing constraints for SMEs.

3.1.1.4 Cooperative Banks Are Key to Cure a Credit Crunch

B.1 Defining and measuring a Credit Crunch

According to the definition put forth by the Council of Economic Advisors (1991), a "credit crunch" is "a situation in which the supply of credit is restricted below the range usually identified with prevailing market interest rates and the profitability of investment projects".

The credit crunch damages the economy by reducing external finance available to "good" enterprises. Due to lack of credit, enterprises end up suffering illiquidity, which may lead them to curtailing output below potential (with job losses too) or to even go default. SMEs are typically the most damaged since they rely on bank credit as the exclusive source of external finance.

Perhaps the best-known event featuring an extensive credit crunch is the Asian crisis of 1997-98. Domaç et al. (1999) find evidence of a widespread credit crunch in the Asian crisis. Based on that experience – but this may be generalized to other credit crunch events – one or more of the following key features are observed during the credit crunch.

i) Increase in real interest rate (loan rate minus inflation);
ii) Rising spread loan rate vs. risk free rate (e.g. T-bills);
iii) Drop in (rate of growth) of real loans;
iv) Flight to quality by depositors: i) across national banks; ii) from national to foreign banks;
v) Flight to quality by banks (e.g. to central bank deposits and/or Treasury securities);
vi) Disproportionate drop in loans to SMEs;
vii) Increase in rejection rate of loan applications;
viii) Shortening maturity of loans;
ix) Drop in "pre-committed" credit lines.

Through their field findings Domaç et al. (1999) found pervasive indications of a credit crunch situation in the crisis affected countries

Table 5. Credit Crunch: Main Findings in the Asian Crisis

	Indonesia	Korea	Malaysia	Philippines	Thailand
Degree of increase in real terest rates following the crisis	Negative rates till summer '98; high real rates thereafter	High till summer '98 moderately high thereafter	Moderately high in the earlier part of '98; then declines	Moderately high in the latter part of '97; downward trend in '98	Moderately high in '97; downward trend in '98
Increasing spread between loan te and interest risk-free rate	Yes (but moderate since summer '98)	Yes	Yes	Yes	Yes (at least temporary third quarter '97)
Extent of decline in the growth real loans	Not in '97 but sharpest drop in '98	Sharp decline in first half of '98	Sharp decline in '98	Downward trend in '97; drop in '98	Slight upward trend in 1997 and sharp decline in 1998
Flight to quality by depositors 1 Among Domestic Banks	From private banks to state banks	From local banks to nationwide banks	Merchant banks & finance companies to commercial banks	From private banks and saving banks to commercial banks	From small banks to large banks
2 Domestic to Foreign Banks	Yes	Yes	Yes	NA	Yes
Evidence of flight to quality by nks (e.g. via larger purchase of curities)	Yes	Yes	Yes	Yes	NA
Evidence of disproportionate ntraction in loans to SMEs	Yes	Yes	Drop in share of small-size loans	Yes (drop in regions where SMEs concentrate)	NA
Higher rejection rate	NA	NA	Yes	NA	NA
Shortening in the maturity of nancial intermediation	Yes, strongly so	Yes	Yes	No, contrary evidence	NA
Evidence on contraction in pre-mmitted loans	NA	Yes	Yes	NA	NA

Source: Domac et al. (1999).

B.2 Cooperative Banks Exhibit Less Quantity Credit Rationing

Besides the evidence already provided in A.2 above, we can list some additional findings.

Using data from the ECB's Bank Lending Survey (BLS) data for 2007-2011 and using econometric techniques, Ferri et al. (2013) find that cooperative banks tend to restrict credit supply less than other banks (Table 6).

Still on ECB's BLS data, Ferri et al. (2013) also find econometric evidence that cooperative banks tend to raise loan rates and collateral requirements less than other banks (Table 7).

Table 6. The Smoothing Effect of Cooperative Banks on Loan Supply from ECB's BLS – 1

Dependent variable measured at diffusion index (backward looking), main explanatory variable share of banks' assets										
	Short term loans		Long term loans		Overall credit standards		Loans to SMEs		Loans to large enterprises	
stakeholder banks' share	**0.12792573**		**0.41523964**		**0.31698928**		**0.16664504**		**0.15336077**	
cooperative banks' share		**-3.0875028****		**-2.9470656***		**-4.4158229*****		**-3.0558448*****		**-3.4164865****
savings banks' share		**1.1080114****		**1.6112822****		**1.9258513*****		**1.3013648*****		**1.2238196***
interest rate										
L1.	-6.2272404	-9.360329	-8.1681122	-14.195546	-11.688821	-17.405269	-13.779236	-17.409033*	-12.772784	-17.746899
L2.	2.0820999	4.5935842	6.8904961	10.514177	6.2801476	11.064756*	7.3736027	9.9888121**	5.5539647	8.9131399
GDP growth										
L1.	-49.6667	-28.872928	-18.912336	6.0249507	-24.913352	25.98855	-7.1601996	34.811996	-135.72436	-124.61095
L2.	-63.322799	-72.420498	96.990509	95.825215	-19.617102	-28.97941	3.8118254	1.6292303	-61.16531	-75.256625
Dependent variable lags										
L1.	.48052271***	.38136367***	.24529866*	0.14729413	.262715**	0.07093541	.24956936**	0.11800329	.37984303***	.26651756**
L2.	0.09320964	0.03149126	0.07708213	0.01439165	0.18537272	0.085076	-0.01029816	-0.04209196	.23998565*	0.15153659
L3.	-0.21599081	-.26488814**	0.04529578	-0.03344297	-0.15544254	-.23527892**	-0.09706305	-.17346668*	-0.21611744	-.2757497**
L4.	-0.18330754	-.20523202*	-.24381299**	-.29430631**	-.19316248*	-.28149809**	-.18164095*	-.23415329**	-.24308017*	-.29051981**
sovereign bond yield	3.6250348***	4.2515834***	6.2534739***	7.45452***	5.2101012***	6.8173041***	5.1876211***	5.6924539***	4.1925727**	5.4418629***
crisis dummy	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
country dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
year dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
constant	-10.562404	59.508472*	-28.909826	45.312208	-21.451428	81.082831**	-15.009146	56.011808**	-10.103753	69.379411*
N	**84**	**84**	**84**	**84**	**84**	**84**	**84**	**84**	**84**	**84**
adjusted R2	**0.6854**	**0.7125**	**0.7340**	**0.7475**	**0.7156**	**0.7625**	**0.7607**	**0.7960**	**0.6703**	**0.6926**
*** p<0.1; ** p<0.05; *** p<0.01**										

Source: Ferri et al. (2013).

Table 7. The Smoothing Effect of Cooperative Banks on Loan Supply from ECB's BLS – 2

Dependent variable: Diffusion index of credit terms and conditions (backward looking), main explanatory variable share of banks' assets						
	Margin on average loans		Size of loans / credit lines		Collateral requirements	
Stakeholder banks' share	**-0.34178121**		**-0.17882343**		**-0.54804588**	
Cooperative banks' share		**-2.8791914*****		**-2.4578456*****		**-3.7350208*****
Savings banks' share		**0.48289849**		**0.66320151**		**0.63657801**
Dependent variable lag						
L1.	-0.07744326	-0.11020042	0.1554043	0.07451877	0.04195899	-0.03897314
L2.	0.07965344	0.04036398	.20886871*	0.13603993	0.05092964	0.00780398
L3.	-.16102824*	-.16596177*	-0.04406868	-0.08276991	0.08032208	0.03236564
L4.	-0.07556573	-0.05163979	0.05248369	0.04962335	.19033508**	.23260986***
interest rate						
L1.	-30.806575***	-31.938571***	-3.7099712	-5.6859538	-13.413144	-16.711167**
L2.	30.475***	32.982378***	3.2062149	5.4073905	15.706974***	20.004545***
GDP growth						
L1.	170.1951	263.79635*	-36.714775	16.777338	288.23951**	408.66861***
L2.	255.34572**	283.17929**	-24.544015	-5.3123764	9.6146799	61.34982
Sovereign bond yield	6.0003211***	5.7639848***	4.9269223***	4.9512055***	4.8230802***	4.6988967***
crisis dummy	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
country dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
year dummies	*YES*	*YES*	*YES*	*YES*	*YES*	*YES*
constant	-1.6162424	53.670122**	-12.163616	36.508932*	-1.0078063	67.092145***
N	**77**	**77**	**77**	**77**	**77**	**77**
adjusted R2	**0.8686**	**0.8845**	**0.6848**	**0.7194**	**0.7657**	**0.8295**
*** p<0.1; ** p<0.05; *** p<0.01**						

Source: Ferri et al. (2013).

On their part, also Ferri et al. (2014) study the differences in lending policies of banks with different ownership type, using micro-level data on Euro area banks over 1999-2011 to detect possible

variations in bank lending supply responses to changes in monetary policy. They find a difference at stakeholder vs shareholder banks:

i) After a monetary policy contraction, stakeholder banks curb their loan supply less than shareholder banks do;
ii) Among stakeholder banks, cooperative banks continued to smooth the impact of tighter monetary policy on their lending during the crisis period (2008-2011), while savings banks didn't;
iii) Stakeholder banks' propensity to smooth their lending cycles suggests that their presence in the economy has the potential to reduce credit supply volatility.

B.3 Cooperative Banks Increase Loan Rates Less at Times of Stress

Having a stable source of external finance also in terms of its cost is a very important ingredient particularly for marginal borrowers such as the small businesses. Here we can mention some direct or indirect evidence that cooperative banks provide benefits in this respect.

For Italy, we can refer to the direct evidence of Ferri & Pittaluga (1997) who show that BCCs raise loan rates less than commercial banks during times of tight monetary policy. Some indirect evidence comes, instead, from Conigiliani et al. (1997) who study the role of bank customer relationships during an intense monetary restriction. Conigiliani et al. (1997) find that, for firms with closer customer relationships the likelihood is lower that the borrowing rate strongly increases and/or credit limits become binding. Though this paper did not consider the difference across type of lending bank, it did show that the intensity of the bank-firm relationship was by far larger for the cooperative banks. Hence, also this evidence is broadly consistent with the hypothesis. Weth (2002) shows analogous findings for Germany.

B.4 Cooperative Banks Are More Stable During Financial Stress

A paper on mutual savings and finance enterprises (MSFCs) in Korea (Bongini et al., 2000), studies the Korean 1998 systemic financial crisis, comparing individual distress across a group of larger sized banks (commercial banks, merchant banking corporations) vs all the tiny-sized MSFCs. Their main findings are:

i) contrary to the TBTF Doctrine and the credit channel view, the percentage of distress was smaller at MSFCs;
ii) supporting the "peer monitoring" hypothesis, the extent of distress was smaller for MSFCs that kept closer to their origins – e.g. collecting a larger share of deposits as "credit mutual instalment savings" – and/or with longer business history in their local communities.

Studying the determinants of countries experiencing the 2008 Great Financial Crisis, Leogrande (2013) finds that countries with larger cooperative bank shares in their national banking system less likely suffered the crisis.

3.1.1.5 Specificity of Cooperative Banks' Ownership / Governance

C.1 The Three Pillars of Cooperative Banks' Difference:

1. While a commercial – Plc or joint stock – bank only focuses on maximizing profit, a cooperative bank has mutualistic purposes and works for a number of stakeholders, rather than for just a single group – that of the shareholders.
2. Customers have different incentives with a cooperative bank than with a commercial bank. In cooperative banks customers often are members too and, thus, appearing both as depositors and as shareholders may have incentives to peer monitor – the peer control that is at the root of the success of Yunus' Grameen Bank – that is, to provide information that can enable the bank to avoid lending to unworthy borrowers.
3. Governance differs. A commercial bank's shareholders count based on the number of shares held. On the contrary, in the cooperative bank each shareholder has one vote regardless of the number of shares held (**one-head one-vote principle**). This mode of governance raises the cooperative bank's democratic accountability and is combined with the mission of the cooperative

bank to the widest audience of stakeholders. In short, **diversity of mission**, **diversity of incentives** and **greater democratic representation** (favored by the one-head one-vote rule) push all along the cooperative bank to adopt the **relationship lending business model**.

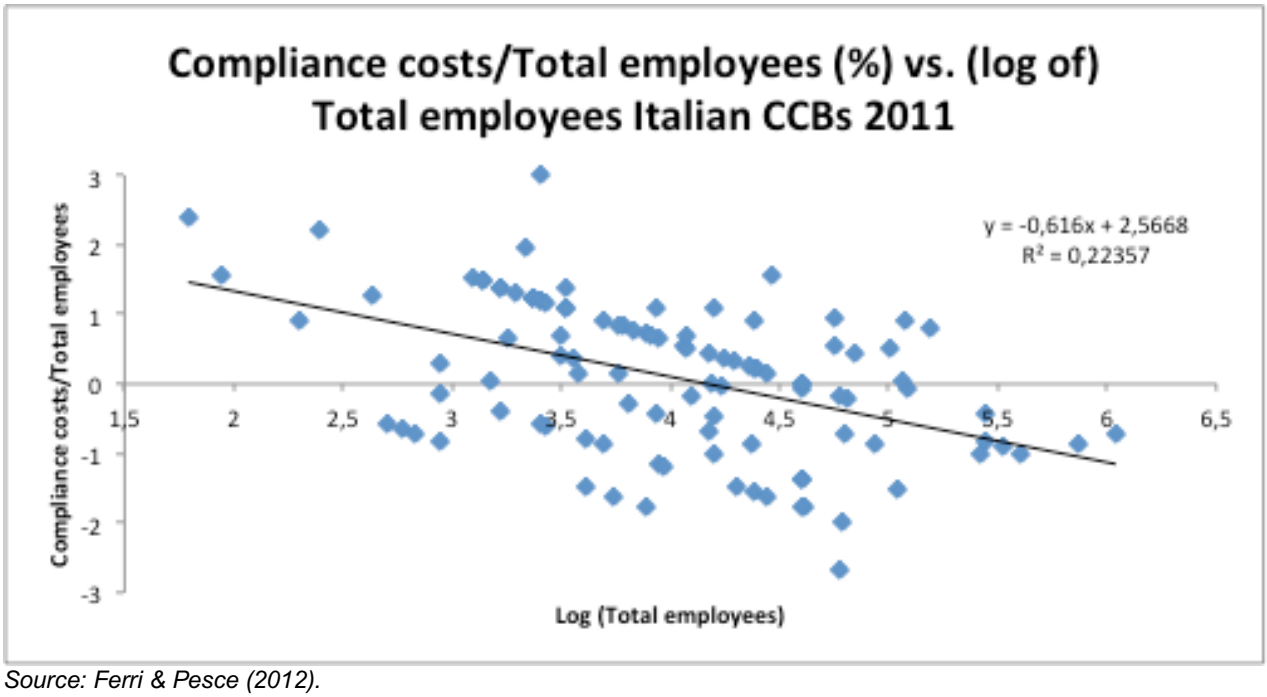
3.1.1.6 The Main Challenges for Cooperative Banks' Future

C.2 The Three Main Challenges for Cooperative Banks' Future

1. Credit cooperatives need to preserve their essence at both their network and individual levels. Those intrinsic values allowed them to survive and expand in the unfriendly environment of the past. But adequate action is needed to preserve those values while rejuvenating them. One of the key aspects is for cooperative banks to avoid engaging in 'inner-competition' – i.e., competition of a cooperative bank against another homologous cooperative banks – which might be disruptive. Indeed, Coccorese & Ferri (2019) argue that by weakening the functionality of the network, inner-competition does, in fact, endanger network-dependent scale economies. They find evidence supportive of this hypothesis on Italy's network of mutual cooperative banks (BCCs). Specifically, they find a worsening of performance both at incumbents and (even more) at aggressors when BCCs compete among themselves. Instead, the worsening is mild when BCCs compete with non-mutual comparable banks external to the BCC network. They conclude that inner-competition among cooperative banks is a negative sum game and, thus, limiting it would be desirable to preserve the stability of cooperative banking networks.
2. Credit cooperatives must find appropriate ways to shoulder the transition. At large, the increased support to their communities these banks provided while the commercial banks were retrenching during and after the GFC raised their exposure to the subsequent recession's enlarged credit risks.
3. Credit cooperatives should make regulators aware of the great perils of three main faults in regulation exemplified, e.g., in Basel 3:

- damaging SMEs;
- failing to recognize the pro-stability importance of a traditional/retail bank business model;
- disregarding that the increasing cost of regulatory compliance may interfere with safeguarding biodiversity in banking (Ayadi et al., 2012).

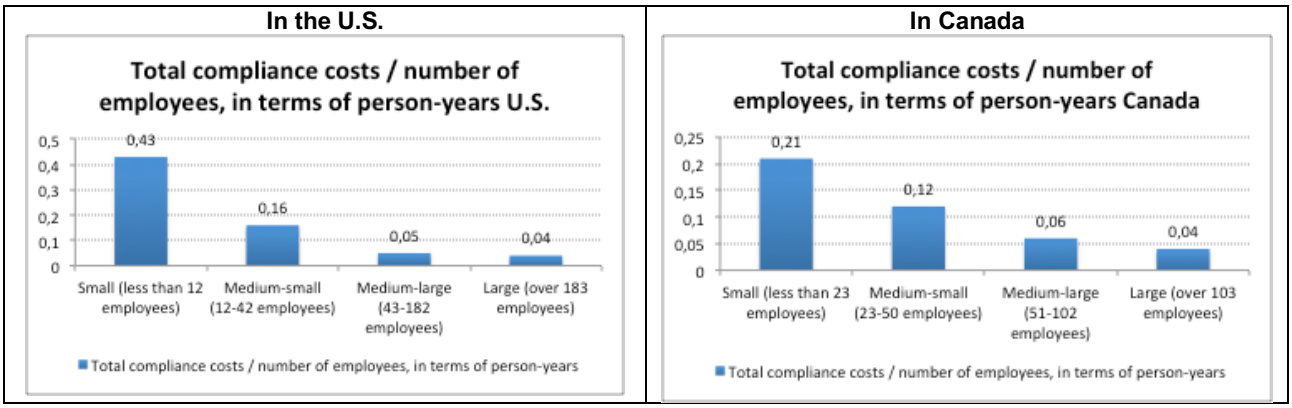
Figure 17. Regulatory Compliance Costs Build Artificial Economies of Scale at BCCs



Source: Ferri & Pesce (2012).

Expanding just on the last point, we can notice how increasing cost of regulatory compliance reflect a lack of proportionality and can endanger the smaller-sized cooperative banks. on the basis of an ad hoc survey run in 2011, Ferri & Pesce (2012) evidenced that BCCs in Italy were subject to economies of scale artificially induced by regulatory compliance costs (Figure 17). In practice, the share of employees devoted to regulatory compliance dropped by about 4% moving from the smaller-sized to the largest-sized BCCs. This sizable difference may have pushed many smaller-sized mutual banks to engage in growth strategies. In turn, that growth might lead those BCCs to drift away from their focus on local communities and to weaken their traditional relationship lending business model.
Similarly, Ferri & Kalmi (2014) find that something analogous holds for the Credit Unions in the U.S. (Figure 18 – left panel) and in Canada (Figure 18 – right panel).

Figure 18. Regulatory Compliance Costs Build Artificial Economies of Scale at Credit Unions



Source: Ferri & Kalmi (2014).

Still on the backlash of having a one-size-fits-all regulation of banking in the EU (contrary to the tiered approach in the U.S.), Corbet & Larkin (2017) argue that the uniformity of banking regulation within the EU restricted rather than encouraged sectoral development.

In turn, Butzbach & von Mettenheim (2015) hold that:

i) ABs share business models based on sustainable returns with longer time horizons, corporate missions that include social and public policy goals, and STV governance.
ii) Recent research finds that ABs often equal or outperform Plc banks' efficiency, profitability and risk management (see also Ferri et al., 2015). This contradicts the core ideas in contemporary banking theory and regulators' view of superiority of private ownership and market-based banking.
iii) Concepts and theories from banking studies help explain how alternative banks outperform private banks in core functions such as creating and managing liquidity, pooling deposits, and reducing information asymmetries and agency costs.
iv) However, heterodox theories of the firm and institutional approaches to competitive advantage broaden the scope of analysis to explain further historical, social, and organizational advantages (and risks) in alternative banking.
v) Thus, Alternative banks require, and may inspire, alternative theories of banking and new approaches to bank regulation.

On their part, Karl (2015) finds that ABs in EU/OECD are significantly more stable (in terms of z-score) than their conventional counterparts, while Deeg & Donnelly (2016) argue that:

a) Europe's Banking Union (BU) challenges the institutional mechanisms that ABs use to retain their status, goals, identity and carry out their operations;
b) Those ABs which held most closely to the traditional model faired best in the recent financial crises and have been impacted the least by BU. The opposite happened for those ABs that strayed from the traditional model and sought rapid expansion into new geographic or financial product markets.

3.1.1.7 Another Type of Alternative Banks: Islamic Finance

Islamic Finance provides a further variant which stands apart from commercial banks. Normally grouped under the umbrella of Islamic Finance are various types of financial institutions commonly inspired by Islamic principles, which make them sharia-compliant (where sharia means the Islamic law and its practical application through the development of Islamic economics). The key issue is that sharia prohibits interest payment on loans, which is identified as usury (riba).

In their review of Islamic Finance, Moisseron et al. (2015) link the development of this segment to the need of the Islamic elites to defend their traditions and values from Western supremacy, and distinguish three phases leading up to nowadays Islamic Finance. In the first phase, during the 19th century, the crucial question was how to reform traditional Islamic societies to compete or resist the Western cultural and material domination. The second phase, at the end of the 19th century, develops along the emancipation process of the Arab world and its central question becomes how to imagine an alternative and portray an Islamic society in the wave of decolonization. Finally, the third phase starts since 1950s, when a new body of ideas appeared with the notion of "Islamic economics", aiming to develop an alternative order, founded on Islamic principles, which would not depend on a socialist state but rather on individual entrepreneurship, though in an original way, different from the Western model. The aim was to promote efficiency and material progress while preserving Islamic ethics by having individual entrepreneurs accepting the rules of sharia. The new question then became how to make business sharia compliant. Islamic Finance develops around this principle and is chiefly directed towards: (i) the Muslims who want to be in accordance with their religion; (ii) those who are looking for a financial system based on ethical criteria; (iii) the entrepreneurs in developing countries that cannot find in the conventional financial system the means to fund their investment projects.

At the core of Islamic Finance we find various types of activities that all share the common principle of replacing interest rates payment with some form of participatory income, where a sharia compliant financial institutions gains a share in the profits of the borrower. Among the most common activities we find two types of Participatory operations: i) *Moudharaba*, in which a lender provides the funds and the other party provides the experience, expertise and management; profits are shared between the two players on a basis agreed upon in advance, but capital losses are assumed by the provider of the capital; ii) *Mousharaka*, a form of capital participation in which several partners fund a business, share profits according to a previously defined rate while losses are divided amongst themselves according to the level of their participation in the capital. Company management is entrusted either to all partners, or to part or only one of them.

Sidlo (2017) reports that the total assets of Islamic Finance were at $2.0 trillion in 2015, with an increase of 18.3% over 2012, and highlights that almost 80% of those assets is held by Islamic Banks, while 15% or so is accounted for by Sukuk (sharia-compliant bonds).

Various authors have argued that Islamic Finance is more stable and was somewhat more resilient to the GFC. Among them, Čihák & Hesse (2008) and Abedifar et al. (2013) show that small Islamic Banks were more stable than small Commercial Banks before the GFC. Akhtar & Jahromi (2017) find that there are benefits of Islamic stocks during the GFC, particularly during the early stage of the crisis. Also, Pappas et al. (2017), by applying a survival analysis based on the Cox proportional hazard model to a comprehensive sample of banks in 20 Middle and Far Eastern countries from 1995 to 2010, find that Islamic banks had a significantly lower risk of failure than that of their conventional peers. Beck et al. (2013) report that at the beginning of the GFC Islamic Banks had better-quality assets and a higher capitalization rate than Commercial Banks. However, other results challenge the evidence above or, at least, provide more nuances (see also Cerović et al., 2017). Among them, Čihák & Hesse (2008) and Abedifar et al. (2013) show that large Islamic Banks were less stable than large Commercial Banks, respectively before and after the GFC. Also, Doumpos et al. (2017) compare Islamic banks (IBs) with conventional banks (CBs) using a multicriteria methodology which captures different asset-liability and performance variables and find that generally the difference is not statistically significant.

Yet another issue is whether Islamic Finance reduces credit rationing and favors financial inclusion. This is claimed by Abdu et al. (2018), although Leon & Weill (2018) qualify this result as context dependent suggesting that Islamic banking development exerts a positive impact on access to credit only when conventional banking development is low. Consistently with this result, Caporale & Helmi (2018) find a causal relationship between the credit issued by of Islamic Banks and long-term GDP growth.

Finally, because of its potential higher stability and contribution to financial inclusion, some authors view Islamic Finance as a potential financial contributor to sustainable development and achieving the SDGs of the 2030 UN Agenda (Ahmed et al., 2015; Sidlo, 2017).

Table 8. Classifying SRI Funds by Investment Strategy

Eurosif	GSIA-equivalent	PRI-equivalent	EFAMA-equivalent
Exclusion of holdings from investment universe	Negative/ exclusionary screening	Negative/ exclusionary screening	Negative screening or Exclusion
Norms-based screening	Norms-based screening	Norms-based screening	Norms based approach (type of screening)
Best-in-Class investment selection	Positive/ best-in-class screening	Positive/ best-in-class screening	Best-in-Class policy (type of screening)
Sustainability themed investment	Sustainability-themed investing	Sustainability themed investing	Thematic investment (type of screening)
ESG integration	ESG integration	Integration of ESG issues	-
Engagement and voting on sustainability matters	Corporate engagement and shareholder action	Active ownership and engagement (three types): Active ownership Engagement (Proxy) voting and shareholder resolutions	Engagement (voting)
Impact investing	Impact/community investing	-	-

3.1.2 Ethical / SRI Asset Management

Based on the investment strategies used, SRI funds may be distinguished into passive funds, which seek to replicate the composition of an ethical index in the portfolio – e.g. the Dow Jones Sustainability Index or Ftse4Good indices –, and active funds, with an active investment management that selects investments based on ESG analyses, identifying a set of securities that meet environmental, social and governance requirements and may be acquired by the fund itself.

Eurosif (2016) identifies seven classes of SRI funds (Table 8): 1) using criteria for inclusion in the portfolio of socially responsible issuers; 2) sustainable, or intended for sustainable development projects in the sense previously highlighted; 3) best in class, which invest in the most valid ESG issuers of the various economic sectors; 4) using exclusion criteria, not investing in securities of ethically incorrect sectors; 5) investing in issuers that adhere to relevant self-regulatory ESG rules; 6) carrying out activities of engagement and sensitization of issuers to CSR; 7) investing in impact investing instruments, with positive effects (externality) on the reference territories.

3.1.2.4 The evolution of SRI Funds

The first SRI funds had religious motivations. Experiences date back to the 18th and 19th centuries when, in the US and UK, religious and mission-driven investors became pioneers of SRI investments: in particular, the Quakers prohibited their members' economic participation in the slave trade and the Methodists forbade to support enterprises that would damage neighbors or be contrary to religious morality. Around the 1930s, in the US, the diffusion of these investments responded to

the need to avoid financing the tobacco, alcohol and gambling industries – e.g., the Pioneer Fund established in 1928.
Between the '60s and' 70s, SRI funds flanked the religious with political motives, so the aversion to arms was due to the American participation in the Vietnam War – Foursquare Fund (1961), Pax World Fund (1971) and Dreyfus Third Century Fund (1972), three world peace funds that excluded from their investments enterprises involved in the war in Vietnam – and the consideration of social rights justified the international campaign against Apartheid – the Interfaith Center on Corporate Responsibility (ICCR), among the first movements to promote SRI, started in 1971, following the campaign against segregation in South Africa.

The evolution of SRI funds in the 1980s preludes to their flourishing in the 1990s: they move from a management based on the prohibition of investing in certain sectors not compliant with ethics, to more active management, where the choice of investments is oriented for example, towards enterprises operating in sectors with a positive social impact, such as recycling of materials, ecology, health protection, and the promotion of culture. In 1984 in England the first large ethical investment funds were created for the retail market: the Friend Provident Stewardship Trust.

Also, research centers and foundations are created to assess which enterprises meet ethical and ecological standards such as KLD Research & Analytics – a leading research and consulting company for investors oriented to socially responsible enterprises –, Ethibel – enabling individuals to invest in SRI funds –, EIRIS – Ethical Investment Research Service, set up in London in 1983 by churches and charitable works to identify positive (negative) criteria for choosing enterprises to include (exclude) in (from) the securities portfolio –, INAISE – International Association of Investors in a Social Economy founded in 1989 to support the development of financial enterprises that invest in enterprises that pay attention to economic and environmental sustainability and social solidarity.
In the 1990s SRI principles are definitely affirmed, also due to the negative consequences of the behavior of some enterprises – e.g., the accidents such as that of Bhopal in India in 1984 by Union Carbide or the one of Exxon Valdez tanker in 1989, similar to the more recent accident of British Petroleum in 2010, or the social aspects raised by controversial episodes, such as that of Nike in 1996 on the exploitation of child labor, or Nestlè for advertising campaigns on milk powder in the developing countries.

For investment practices, the evolution of the SRI funds starts with those of the first generation, based only on the exclusion of investments in unethical industrial sectors (eg tobacco and arms); then, from the mid-eighties, second generation funds spread, with the positive approach of selecting the deserving enterprises in terms of social and environmental issues and no longer just excluding sectors and enterprises not compliant with ethics; finally, since the mid-1990s, third generation funds have been established, which aim to reconcile adequate financial returns with support for sustainable development. To this end, these funds also evaluate the overall management of the company, examining its internal policies, relations with the company, impacts of production activities on the territory and ethical aspects of the company's policies.

Regarding investment policies, the evolution of the SRI funds starts with those of the first generation, based only on the exclusion of investments in unethical industrial sectors – e.g., tobacco and arms. Then, from the mid-1980s, second generation funds spread, with the positive approach of selecting the deserving enterprises in terms of social and environmental behavior. Finally, since the mid-1990s, third generation funds aim to reconcile adequate financial returns with support for sustainable development. To this end, these funds also evaluate the overall management of a company, examining its internal policies, relations with society, impacts of production on the territory and ethical aspects of the company's policies. At fourth generation SRI funds the selection of issuers, enterprises or states has become more stringent and hinges on tangible and reliable signals of ethical orientation, such as socio-environmental indicators, social and environmental certifications and ratings issued by specialized entities. The ratings of the issuers use precise parameters and the best in class approach, rewarding enterprises that, while operating in sectors at risk for socio-environmental sustainability (such as cars, chemistry, energy), have moved limiting the environmental impact and involving staff in management. Examples of such positive actions are launching projects for the development and use of renewable energy, adopting corporate ethical codes, redeveloping and reclaiming contaminated industrial sites, implementing health programs in

the communities in which they operate, committing to the growth of poor countries with microcredit projects and the development of local economies. Finally, fourth generation funds, evaluate the dialogue with the stakeholders and the respect of their rights (Ferri & Intonti, 2018).

3.1.2.5 ESG analysis and the socially responsible behavior of the issuers

The selection of enterprises or states in which the fund can invest is based on negative or positive ESG criteria. Funds that adopt negative selection criteria, of more remote use and of greater diffusion, determine their asset allocation – i.e. the economic sectors they invest – and carry out the activity of stock picking or security selection – i.e. the choice of single securities in which to invest in –, excluding enterprises that operate in non-socially responsible economic sectors and countries that have unethical conduct.

The enterprises usually excluded are those that make a significant part of business or useful in the production or marketing of weapons, tobacco, alcohol, genetically modified organisms, products harmful to human dignity (such as pornography) or operating in sectors such as gambling and nuclear energy. Moreover, enterprises may be excluded based on their business conduct – e.g., if relationships with workers or suppliers are lacking, if the business damages the environment, if resorted to offensive advertising. Further examples of exclusion concern enterprises that are formally accused of violating the International Convention on Biodiversity and Air, Water and Soil Pollution, or the International Conventions on Human Rights and ILO Conventions (International Labor Organization)

Excluded States are those violating human, civil and political rights, governed by oppressive regimes, practicing the death penalty or participating in military operations not authorized by supranational organizations.

Funds adopting positive selection criteria, instead, choose enterprises and states in which to invest actively assessing the socially responsible orientation in the environmental, social and governance field of potential issuers. For the environment, the selection favors enterprises that are sensitive to the environmental impact of their products and production processes, attentive to waste recycling, using energy-efficient heating systems and with low levels of pollution or States involved in the protection of environmental heritage and of animal and plant species.

In the social sphere, the deserving behaviors of enterprises and states are valued relating to human rights, rights of minors and workers, health and social security, commitment to social inclusion of disadvantaged groups and dialogue with communities and interest groups at every level. For businesses, attention is paid to avoiding excessive replacement of labor by "mechanical means", vocational training, education and staff welfare.

Examples of positive criteria in terms of governance are, for enterprises, the adoption of criteria of administrative transparency, non-discriminatory remuneration policies and compliance with relevant standards, absence of corruption, effective management of social and environmental risks, establishing stable and positive relationships with shareholders and other stakeholders. Pros for States are committing to safeguard and promote peace through diplomatic dialogue, support to less-developed countries, to those affected by wars or natural disasters and third world populations, renouncing to the death penalty and having a low rate of corruption in government structures.
An additional positive selection criterion is called Norm Based (Eurosif, 2016) and involves investing in enterprises that comply with ESG standards and international standards.

- *The Drivers of the ESG Analysis*

The ESG analysis assigns a score to each area – environmental, social, governance – and the three scores determine the overall social responsibility score (or ethical rating) of the issuer. This score must exceed a certain threshold to ensure that the issuer's securities are invested by the SRI fund.

For an issuing company, the analysis hinges on the documents prepared by it and publicly available (financial statement, sustainability report, integrated financial statement, policies, ethical code) with the addition of information provided by other organizations close to the company, such as trade unions, consumer associations, environmental associations and NGOs. For States, the analysis is on public sources, specialized databases, third parties involved in the ESG analysis of the issuers, information obtained through NGOs and international organizations (such as Amnesty International, ILO, Unicef, WHO, UNDP, World Bank), direct contacts and appropriate research on the press. For example, to assess the environmental behavior of a State, ratification of the Kyoto and Montreal protocols is verified with the secretariats of the same protocols, achievement of the initial objectives of the Kyoto Protocol, CO2 and other greenhouse gases emissions through information provided by the World Resources Institute, which also provides guidance on the use of water, deforestation, the use of fertilizers and waste management.
Table 9 summarizes the evaluations behind the ESG analysis, broken down by area – environment, social, governance.

Table 9. Areas of Evaluation Relevant for ESG

Environment Area	Social/Ethics Area	Governance Area
Climate change	Human rights	Remuneration
Management of water resources	Development of human capital	Independence of directors
Soil	Attraction of Talent	Compliance
Biodiversity	Equal opportunities and diversity	Corruption
Natural resources	Health and safety at the workplace	Shareholder rights
Use of energy from renewable sources	Relations with the community	Management of ESG risk (social and environmental risks)
Waste	Socio-economic development	Organization of the Board of Directors
Deforestation	Alcohol production	Code of ethics
	Tobacco production	
	Arms production	
	Experimentation on animals	
	Fur production	
	Pornography	
	Gamble	
	Alcohol production	

Source: Ferri & Intonti (2018).

- *Environmental Area*

In this context, the SRI fund verifies the attitude of the company or of the issuing State in protecting the environment. For enterprises, the assessment of the environmental impact of the activity and of the products is of particular importance to judge the profile of social responsibility, which is considered the most relevant area within the Triple Bottom Line approach, according to which performance evaluation not only concerns economic aspects, but also environmental and social aspects (Elkington, 1997).

For States, the environmental issue is a fundamental element of development, given that the ability to protect and manage natural resources in a conscious and sustainable way, respecting future generations, is crucial for the wellbeing of the territories and populations and therefore also for their capacity to grow. In this, also the papal encyclical letter "Laudato si'" strongly underlines the widespread deterioration of the "common home" and calls for "cultivating and preserving" the environment, checking pollution and climate change, taking care of the water and the loss of biodiversity to avoid the deterioration of the quality of human life, social degradation and the spread of iniquity (Pope Francis, 2015).

- *Social Area*

Social sustainability is the ability to guarantee conditions of well-being (safety, health, training) for all the stakeholders, especially the employees. In its non-financial analysis SRI funds primarily evaluate

respect for human rights. But the relevant issues range from the formation of human capital to the promotion of equal opportunities and to the health, safety and well-being of workers, beyond legal obligations. The issue of respecting human rights is key especially for multinational enterprises operating in developing countries and regards non-discrimination, respect for freedom of association, fight against child labor and forced labor and protection of the indigenous peoples, along the Universal Declaration of Human Rights, adopted by the UN General Assembly in 1948.

- *Corporate Governance Area*

The particularly complex and hot issue of the correct governance of the issuers concerns in particular the enterprises, but also the States are more and more evaluated on the basis of the modalities with which they are governed. The corporate governance system of a company essentially refers to the complex set of relationships between the managers of a company, its board of directors, its shareholders and other stakeholders (OECD, 2004).

- *The performance indicators of the ESG analysis*

Using the mentioned drivers raises problems of subjectivity of the ESG analysis. To make the analysis more objective, EFFAS, the European Federation of Financial Analysts Societies (EFFAS, 2009), indicates a series of absolute or relative Key Performance Indicators (KPIs) that detect the actual behavior of the issuer in the environmental, social and governance field and allow a comparison across different subjects, towards more aware investment choices. KPIs are exemplified in Table 10.

Table 10. Key Performance Indicators by Reference Area

Reference Area	***KPIs***
Energy efficiency	Total energy consumption Relative energy consumption
GHG emissions (greenhouse gases)	Total GHG emissions Relative GHG emissions
Staff turnover	Percentage of employees leaving per year / total employees
Training and specialization	Percentage of employees trained during the year / total employees Annual average training expenditure per employee
Staff	Structure of staff by age group Percentage of employees of retirement age in the following 5 years / total employees
Absenteeism	Annual number of days lost per employee
Disputes	Expenses and fines for trials, legal actions for anti-competitive and monopolistic behavior
Corruption	Sales in regions with a low rate of corruption / total sales
Revenue from new products	Sales from products at the end of the life cycle / total sales New or renewed products per year / total sales

Source: elaboration on EFFAS (2009).

3.1.1.4 Instruments for Checking and Guaranteeing the Ethicality of SRI funds

The quality of an SRI fund depends on the effectiveness of the selection criteria applied and, in general, of the ESG analysis either developed internally or outsourced. A robust ESG analysis is therefore the best guarantee that the fund is actually ethical. To this end, it is useful, to verify that the fund follows the EFFAS criteria or adopts an articulated ESG methodology that is adequately described in the information documents. Further elements are: i) having a competent ethics committee, ii) being supported by ethical advisors, iii) subscribing guidelines specifically prepared for the proper implementation of ethical investments, iv) using ethical benchmarks for the choice of

investments and for evaluating the fund's performance, v) undertaking engagement policies towards issuers.

- *Ethics Committees*

The Ethics Committee is the body of the Asset Management Company (AMC) for the administration or placement of SRI funds which, for advisory and guidance purposes, defines criteria of ethics and guidelines that the AMC implements in administering its own funds.

Composed generally by independent technicians of the scientific, academic, ecclesiastical or associative world, it ensures that a management style oriented towards ethics and CSR is maintained, in compliance with the mandate received from investors. More specifically it:
• checks the material made available by the manager on the management of the SRI funds;
• assesses compliance with the ethical criteria by the issuers present in the funds' portfolios;
• approves relations with the management reports of the funds;
• identifies, together with ethical advisors, the criteria to secure the ethicality of investments.

- *The mandatory CSR set aside policy in India*

The CSR movement is gaining strength transitioning from voluntary activities to the greater use of laws. Governments are now modifying the laisses faire approach and considering legal rules. India is at the forefront of this transition, in 2013 it enacted the Indian Companies Act stating a mandatory CSR spending of 2% of average net profits during the three immediately preceding financial years for all companies meeting specified financial thresholds. The act intends to create more accountability and government oversight of the private sector. Even though there is criticism that the act was formulated on the traditional understanding that top management is solely responsible for ethical behavior and CSR activity without making connection between company and stakeholders, the new law is waking up corporate India to its wider social responsibilities by increasing charitable spending (Varottil, 2018).

- *Ethical indices as benchmarks*

Ethical indices arise from reclassifying the main stock market indices, selecting the ethical enterprises included in the index. Therefore, considering only the socially responsible issuers from the traditional indices and excluding the other issuers instead. These ethical indices are used as reference benchmarks to evaluate the performance of a specific ethical investment with respect to the average market trend of reference, expressed by the index, and as tools to guide managers in their investment choices. Among these we can mention:
- The Dow Jones Sustainability Group Index (DJSGI) family of ethical indices, created in 1999 in collaboration between Dow Jones Indexes, STOXX Ltd. and the Swiss group Sam (Sustainable Asset Management);
- The Domini 400 Social Index (DSI) created in 1990 by the American ethical rating agency KLD starting from the S&P500 index;
- The FTSE4GOOD index family, created in 2001 by FTSE advised by EIRIS.

- *Engagement Policies in SRI Funds*

A strategic element of great importance for an SRI fund is enacting specific policies to interact with issuers to improve, on the one hand, the CSR profile of the potential targets of the fund and, on the other hand, the qualitative profile of the assets in which the fund has already invested. These interactions are called engagement policies and usually take a double form: i) dialogue with the company (soft engagement) and / or ii) exercise of active ownership (hard engagement or exercise of voting rights) (Sjöström, 2008). In both cases, the aim is to raise awareness and involve the issuers on CSR in order to induce them to a conduct that is ethical and respectful of the interests of all

stakeholders. These policies are therefore an instrument of "market discipline" able, through the lever of financial investment, to direct and guide enterprises in a virtuous sense.

Engagement actions may be seen as either an alternative or as a complement to ethical screening. Complementarity results when the SRI fund deliberately undertakes investment in targets that would not pass the initial ethical screening, with the intention to involve them in a process of raising responsibility through the exercise of forms of pressure. In this case, instead of "active", the shareholding is more properly called "critical", emphasizing the strong component of denunciation and contraposition with the target company – an example of a fund for critical share ownership is Aberdeen Ethical Engagement UK Fund (Eiris, 2008).

The active shareholding initiatives promoted by international investors are much more widespread and very incisive. These include ICCR (Interfaith Center on Corporate Responsibility) which in 1971 forced General Motors to withdraw its investments from South Africa, where racial discrimination was still very strong; the American pension fund CalPERS, promoter, since 1986, of many social resolutions based on ILO conventions, climate change and equal opportunities; the Norwegian government pension fund, which has long been a leader in active shareholding; finally, the Swiss initiative called Ethos.

The literature on active shareholding policies shows that the area of greatest intervention is corporate governance and the main players in the engagement are pension funds (Crutchley et al., 1998; English et al., 2004; Del Guercio & Hawkins, 1999; Faccio & Lasfer, 2000; Nesbitt, 1994; Smith, 1996), religious funds (including, as highlighted, ICCR) non-governmental institutions (Guay et al., 2004) and, more recently, some hedge funds (Brav et al., 2008; Becht et al., 2006; Pearson & Altman, 2006; Boyson & Mooradian, 2007).

On the effects of shareholder activism actions on enterprises results differ (Gillan & Starks, 1998, 2007; Black, 1998; Karpoff, 2001): some works find positive effects on business performance (Strickland et al., 1996; Black, 1992; Brav et al., 2008), especially if conducted intensively (Crutchley et al., 1998), but others highlight the absence or scarce relevance of such effects (Del Guercio & Hawkins, 1999; Song & Szewczyk, 2003; Wahal, 1996).

On the other hand, with regard to the effects of activist policies on the performance of an SRI fund implementing these policies, a contribution is found to stabilize the assets managed by the fund (Renneboog et al., 2007) and to lower the risk, given that it allows to control types of risk that are important, but often overlooked or underestimated, such as the reputational or legal risk of the investment portfolio (Renneboog et al., 2008).

- *The Specific Phases of the Engagement Activity*

When it applies soft engagement, the fund can adopt different methods of interaction with the issuer, from periodic or occasional meetings on specific topics, or conference calls, up to sending written communications and guidelines on the fund's expectations regarding ethical behavior. This is a practice of engagement available to both bond and equity funds.

In hard-engagement, which includes policies of active shareholding (or voting policies, at international level called shareholder activism or shareholder advocacy), we should count both the vote on items on the agenda of assemblies concerning ethical behavior, respect for the environment and good governance, and requests for integration of the agenda of the meetings with points relating to those profiles, to exercise the consequent voting rights. The engagement policies that fall within this second meaning are usually the prerogative of institutional investors whose investment strategy involves the subscription of shares and, as is evident, they do not lend themselves to being applied by bond-only funds.

The engagement process can open with the start of an initial phase of dialogue with the company, articulated in successive steps (O'Rourke, 2003; Becchetti, 2008). At the first step the SRI fund identifies themes and possible areas of intervention; the second step drafts a proposal or report to

highlight and communicate the issues and areas of intervention identified to the issuer; at the third step there is a real dialogue with the management, with periodic or occasional meetings and the request for information on the topics and the identified criticalities. Thereafter, the initiative can take three alternative routes:

1. the target company accepts the proposed requests and takes steps to remedy the anomalous situation identified, with consequent withdrawal of the proposal by the fund;
2. the company refuses to continue the dialogue and relations between the fund and the issuer are withdrawn;
3. if the investor is also a shareholder, he / she may request to include important matters on the agenda of the meetings and exercise the right to vote.

The last two ways of concluding the action, i.e. the refusal and the vote, if the latter leads to the non-acceptance of the proposal, can lead to two further critical phases:

i) possible disinvestment, called exit, as opposed to voice, with which the fund confines itself to giving a voice to its requests while maintaining the investment (Hirschman, 1970);
ii) public dissent (advocacy), in which the fund publicly expresses its opinion on the issuer's behavior.

In both cases, there is a clear risk of a decrease in the value of the share, especially for listed enterprises, as well as, in general, damage to the reputation of the entity involved.

3.1.1.5 Ethical Ratings

- *From ESG Analysis to Ethical Ratings for Issuers*

Eventually, the ESG score described above leads to the final step in which an ethical rating is assigned to the issuers considered by the SRI fund as potential targets. The process of elaborating the ethical rating involves four phases: i) information collection; ii) analysis of the same information; iii) verification of the data; iv) assignment of the final synthetic judgment, also expressed as a score, to establish the level of ESG responsibility of the rated subject.

The information to process the ethical rating is based on public sources – e.g. documents produced by the issuer (social reports, balance sheets, integrated balance sheets where existing, company presentations, websites) or by external parties (supervisory authorities, media, stakeholder associations) – or on questionnaires or interviews.

Though being very useful in orienting responsible investment choices, ethical ratings undergo some weaknesses (Wisebroad, 2007; Fenchel et al., 2005), as it also happens for traditional financial ratings (Finch, 2005; Ferri & Lacitignola, 2014). The biggest problem seems to be that ethical ratings are little comparable (Wisebroad, 2007). To solve this problem, a project to identify international guidelines was started – Global Initiative for Sustainability *Rating*s (GISR) – to outline appropriate principles (White, 2012). The approach adopted by the project consists of two levels: i) implementing a methodology of analysis, based on universally defined principles, problems and indicators; ii) attributing a "GISR compliant" certification, based on compliance with the provisions of the first level. The GISR accredits the sustainability ratings, the rankings and the indexes submitted to its attention, based on their alignment with the 12 principles in Table 11.

Table 11. GISR Principles for Accreditation of *Sustainability Ratings*

CORE	Framework
Process	
Transparency	A rating should be transparent to those whose decisions are affected by the application of such rating.
Impartiality	The design and application of a rating, whose primary users are external to the evaluated company, should be protected from undue influence by such company.
Continuous Improvement	Through periodic update, a rating should track and integrate the best-available science, measurement techniques, issues and indicators.
Inclusiveness	Development of a rating should identify and systematically engage those stakeholders whose decisions are influenced by the application of the rating.
Assurability	A rating should be designed to allow for independent, third-party assurance that its application comports with the GISR Principles.
Content	
Materiality	A rating should assess performance based on sustainability issues relevant to the decision-making of stakeholders for which a rating is designed.
Comprehensiveness	Evaluating one or more aspects of sustainability performance should systematically assess for impacts on human, intellectual, natural and social capital.
Sustainability Context	A rating should assess performance in the context of science-based thresholds and limits, or, if unavailable, widely-accepted norms pertaining to long-term human and ecological well-being.
Long-Term Horizon	A rating should enable the evaluation of the long-term performance of a company while simultaneously providing insights into short- and medium-term outcomes in alignment with the long-term.
Value Chain	A rating should reflect all portions of a company's value chain over which the company exercises significant influence.
Balance	A rating should utilize a mix of measurement techniques to capture historical and prospective performance.
Comparability	A rating should allow users to compare the performance of the same company over time and of different companies within the same time period.

Source: Global Initiative for Sustainability Ratings (GISR)

- *Rating of the Legality of Enterprises*

The importance of ethical ratings is now widely recognized, also to improve the possibilities and conditions of access to credit, not only banking, of enterprises. A proof of this, in Italy, is the Legislative Decree n. 1 of 24 January 2013 introducing the Rating of the legality of enterprises, to encourage promote behavior based on social responsibility.
Promoted since 2012 by Italy's Antitrust Authority (AGCM) to enhance the value of healthy and virtuous enterprises, the legality rating rewards enterprises acquiring it, especially at two fundamental junctures of their life: access to public tenders and access to credit.
The legality rating officially recognizes the ethical value of a company that operates according to legality and promotes that culture within its staff. The legality rating can help correct the economic distortions generated by the action of organized crime, as it favors the awarding of public tenders and granting credit to enterprises concretely committing to legality, adopting anti-corruption systems and ethical codes, denouncing rackets or actively joining associations to fight organized crime.

The legality rating varies between 1 and 3 stars and is based on the declarations that the enterprises forward to the Authority, via an online application, verified through cross-checks with the information held by the Public Administration. Though requesting it is voluntary, the legality rating is favored by frequent inclusion as a requisite for access to financing. Most important is that CSR-friendly behavior is required to achieve the highest legality rating.

Any bank lending to a firm must reward the firm's legality rating by reducing the time and costs for the loan concession and the bank must report in detail to the Bank of Italy justifying any failure to count the legality rating. Indeed, pursuant to Law 27/2012 and the subsequent ministerial regulation, the Bank of Italy yearly publishes the aggregated data on the effects of the "legality rating" in the granting of loans by the banking system. The recent report shows that in 2017, firms with legality

ratings, which requested and obtained financing from the banking system, were 4,400 (33.2% up from 2016; Table 12). The legality rating benefited 1,781 firms (39.4%, up from 32.9 in 2016) in the form of better economic conditions on loans (22.1%) and/or of shorter deadlines and costs of preliminary investigation (33.1%) while the share of firms with legality rating unable to receive credit dropped to 2.8% from 3.9 in 2016.

Table 12. Firms with Legality Rating Which Applied for Bank Loans (units)

Item	2016	2017
Enterprises financed and benefited from the legality rating (A)	1,119	1,781
Type of benefit (1)		
Reduction of investigation times	850	1,498
Better economic conditions when accessing or renegotiating the loan	623	1001
Reduction of the costs of preliminary investigation	396	662
Enterprises which were financed but did not benefit from the legality rating (B)	2,146	2. 619
Causes of exclusion from the benefit		
Prevalence of the internal rating	1,194	1,172
Bad documentation	811	1,197
Other	141	250
Financed enterprises (A + B)	3,265	4,400
Non-financed enterprises (C)	133	125
Total enterprises with legality rating (A + B + C)	3,398	4,525
(1) The sum of the recognized benefits may exceed the number of enterprises, since multiple benefits may be recognized.		

- *Ethical Rating Agencies and Their Business*

The various ethical rating agencies give a judgment on the social responsibility of issuers, considering variables that are not purely and exclusively economic. Often the issuers ask for the ethical rating both to assess the social impact of their business and their long-term value, and to promote their image with customers and investors more attentive to socially responsible investment and behavior. The evolution of the CSR field has moved from the pure and simple concept of social responsibility of the issuers to that of environmental and social performance, parameters both considered in the ethical rating.

The agencies collect data in different ways: by studying reports on CSR, social and mission budgets, through interviews, news reported by the media, independent interviews by analysts, or by an intense exchange of information between the analysts and the management of the company to be evaluated. Some agencies evaluate CSR only on non-financial variables, others on a combination of financial and non-financial elements.

The ethical ratings issued by the various specialized agencies are often not entirely comparable (Chatterji et al., 2009; Waddock, 2008; Scalet & Kelley, 2010). To improve comparability, each rating agency normally adopts the principles established by the major international organizations. The position is shared by the EU, which recommends (EU, 2011) that "for enterprises engaged in a formal approach to CSR, especially the largest enterprises, the mandatory guidance is provided by the guidelines and international principles, in particular the updated OECD (Guidelines for Multinational Enterprises), the ten principles of the United Nations Global Compact, the ISO 26000 (Guidance Standard on Social Responsibility), the Tripartite Principles Declaration on Multinational Enterprises, the Social Policies sanctioned by the ILO and the United Nations Guiding Principles on Business and Human Rights ".

Despite adherence in principle to international principles, a very significant problem is the non-uniformity in the evaluation criteria adopted by the various agencies. The problem lies not only in the different weight given to each of the relevant variables in determining the CSR, but also in the quantity and type of used variables, which can also differ decidedly from agency to agency. For) this makes the comparison of ethical ratings issued by the various agencies very problematic. The lack of homogeneity in the evaluation criteria undermines the ability of the stakeholders to discriminate against the least reliable agency from the most reliable one and gives the issuer the license to assert the highest rating among those obtained by different agencies.

The list of the chief ethical advisors in Europe includes: Castlefield (UK), ECPI (Italy), Eiris (UK), Ethical Investment Advice (UK), Oekom Research (Germany), Standard Ethics (UK), Sustainalytics (The Netherlands), Vigeo (France). The main operators of the field in the US are: CR Magazine, CSRHub, Innovest, KLD (Kinder Lyndenberg Domini), MSCI ESG Research, The Ethispere Institute.

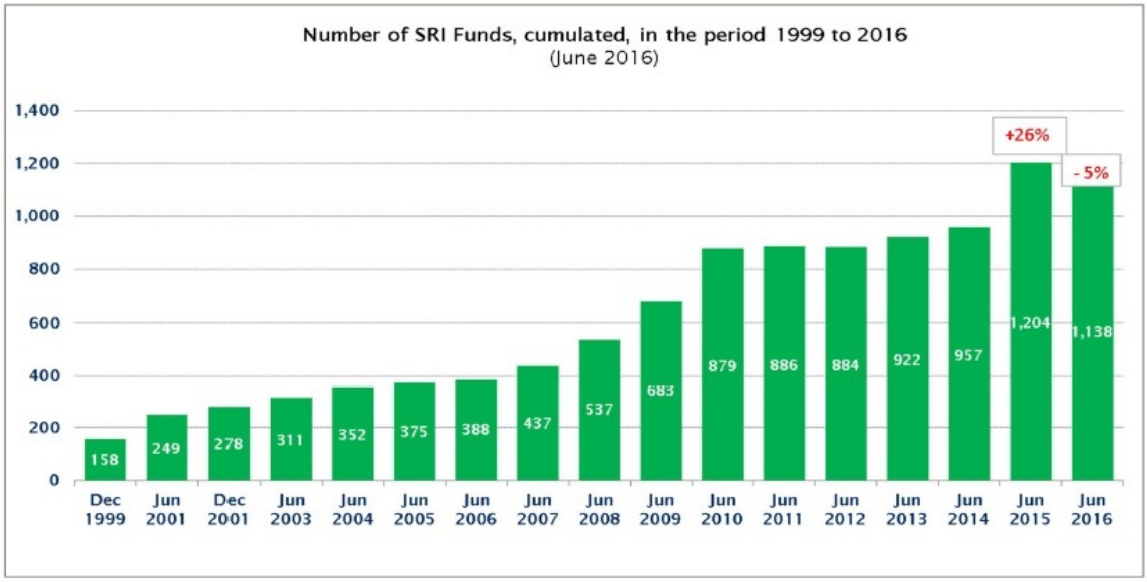
- *Ethical Ratings as Tools for Assessing SRI Funds*

Two of the agencies that are most active in assessing the ethical performance of SRI Funds are Ethibel, a Belgian agency, and Morningstar Inc., a US agency. In 2016, through a collaboration with Sustainalytics, the latter introduced its Morningstar Sustainability Rating (MSR) to satisfy the demand of investors paying attention to ESG performance. The MSR ranges from 1 to 5 globes.

3.1.1.6 Market Size of SRI Funds

To evaluate the market size of SRI funds we can rely on studies by Vigeo-Eiris – the annual report "Green, social and ethical funds in Europe" –, or Eurosip – the "European SRI Study" – or KPMG – see the "European Responsible Investing Fund Survey" in 2013 – or the GSIA – in 2012 it published the work "Global Sustainable Investment Review". To exemplify and also to strengthen comparability, hereafter we focus on the recent evolution of the market for SRI funds in Europe.
The number of SRI Funds has increased continuously over the years – excluding 2016 – with a visible acceleration after the GFC of 2007-2009 (Figure 19).

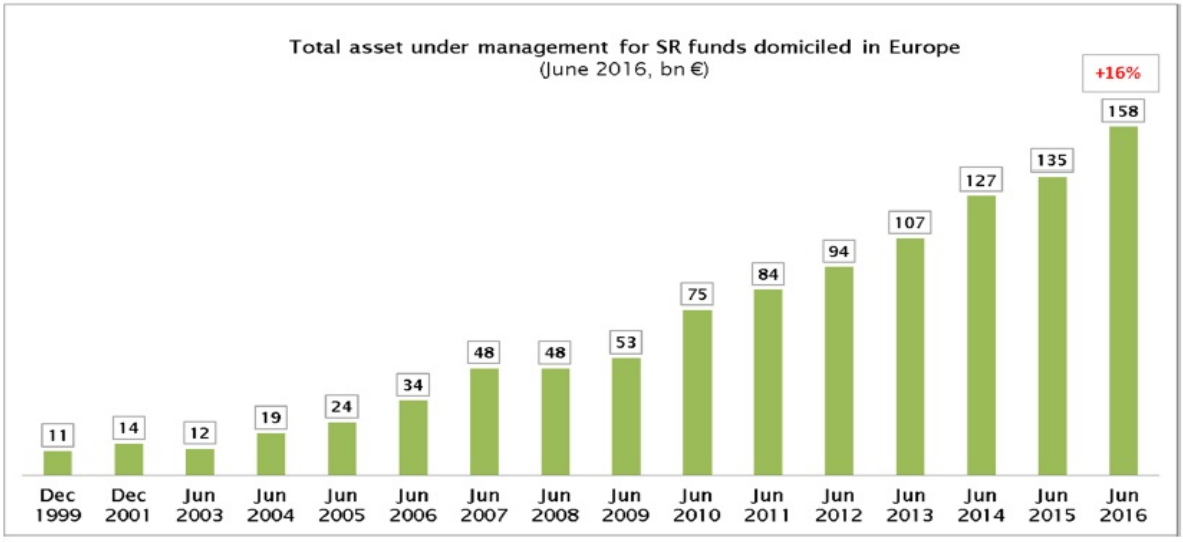
Figure 19. Evolution of the Number of SRI Funds in Europe



Source: Vigeo Eiris (2016)

At the same time, the size of the SRI industry kept increasing even more in terms of Assets Under Management (AUM; Figure 20).

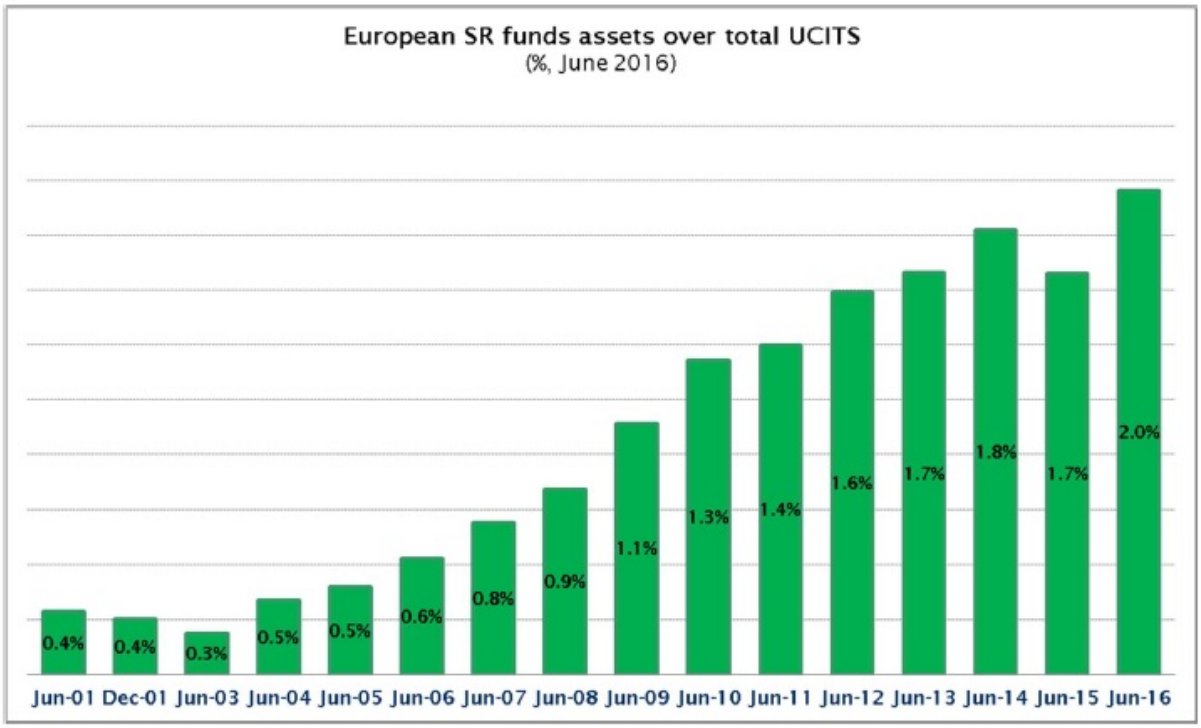
Figure 20. Total AUM of SRI Funds Domiciled in Europe



Source: Vigeo Eiris (2016)

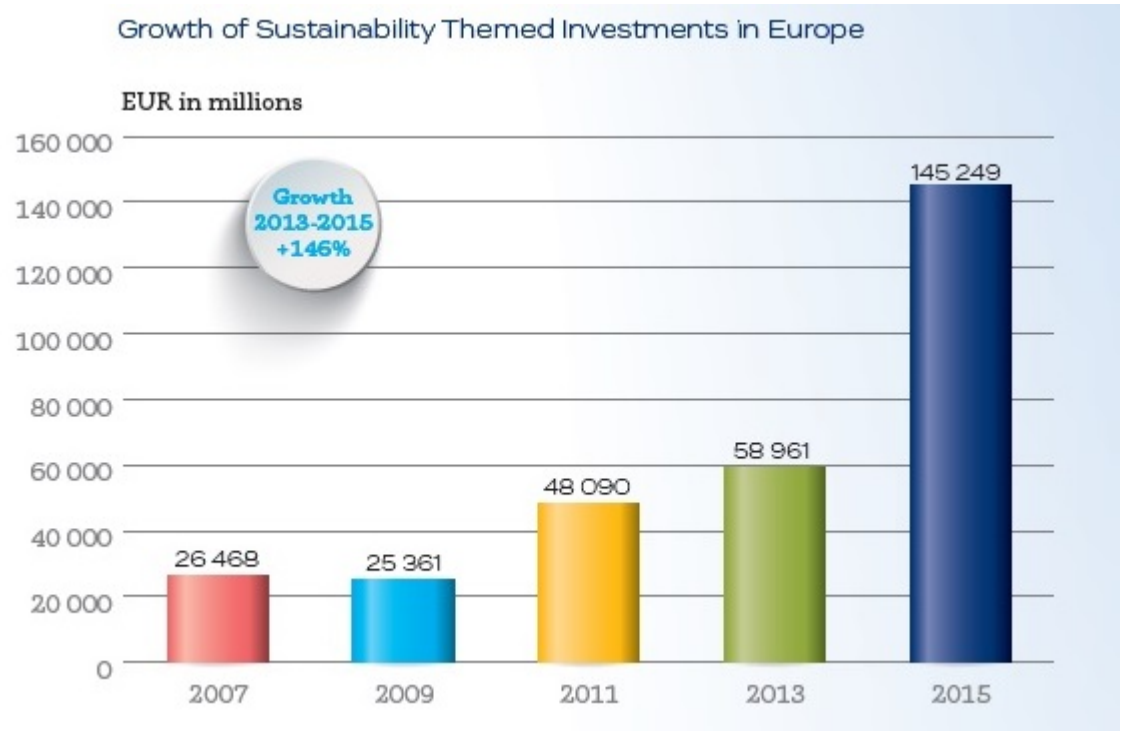
We must be aware that, in spite of their boom, SRI Funds still represent just 2% of the UCITS (Undertakings for Collective Investment in Transferable Securities) Funds industry in terms of AUM (Figure 21). But, at the same time, we notice that Sustainability Themed SRI Funds are buoyant (Figure 22).

Figure 21. Market Share in Europe: AUM of SRI Funds over AUM of Total UCITS Funds



Source: Vigeo Eiris (2016)

Figure 22. Growth of Sustainability Themed Investments in Europe



Source: Eurosif (2016)

3.1.2 Microfinance

3.1.2.1 The evolution of Microfinance

Microfinance is a term used to describe financial services, such as loans, savings, insurance and fund transfers to entrepreneurs, small businesses and individuals who lack access to traditional banking services especially in emerging countries. When loans to poor people without any financial security appeared to be an impossible idea, Dr. Mohammad Yunus developed micro-credit more than three decades ago.

Dr. Mohammad Yunus is considered the pioneer of modern microfinance. He experimented with making small loans, which he funded himself, to women in Bangladesh making bamboo furniture who had previously relied on loans with unfair and predatory terms to purchase raw materials. He discovered these very tiny loans, which traditional banks did not want to make due to the perceived risks and costs, could make a disproportionate difference to a poor person and given the chance they would pay them back creating a viable business model. This was the start of Grameen Bank in 1983, the first microfinance organization and community development bank to be authorized by national legislation and to operate as an independent bank (Yunus & Jolis, 1998). The bank opened many branches which are now present in over 80,000 villages (Grameen Bank).

The model was exported around the world through intermediaries of NGOs and financial institutions throughout the 1980s and 1990s and soon a full-fledged microfinance industry emerged in emerging countries. The model changed from rapid disbursements of subsidized loans to target sectors and populations, towards setting up and building local institutions that catered for the poor creating microfinance institutions (MFIs) that served the poor (Tietze & Villareal, 2003). In India a dozen MFIs expanded, in South America Accion and BancoSol opened up and ADIE began operations in Europe and the Mediterranean basin just to name a few (BNP Paribas, 2017). MFIs initially started out by providing microcredit but have expended now to other financial products.

The first microcredit summit took place in Washington in 1997 where it was recognized the importance of microfinance as a crucial development tool for poverty reduction in the past two

decades. The United Nations, in its General Assembly Resolution passed on 18 December 1997, noted that in many countries, microcredit programs have succeeded in generating productive self-employment by providing access to small capital for people living in poverty as well as increased participation in the mainstream economic and political process of society (Tietze, 2007). In 2004, the G8 outlined the principles of microfinance tracing the contours of a new economic sector and the following year it was declared “international year of microcredit”.

3.1.2.2 Mechanisms of Microfinance

The mechanics of microfinance operation can be explained in three levels and with two principles. The first level is the borrowers who take out loans that they invest in microbusinesses, the second the loan delivery and recovery system, and the third the institution or organization that manages the delivery system. The principles are based on the client discipline where borrowers take responsibility for their decisions and agreements and secondly the institutional discipline where MFIs offer products with quality, efficiency and commitment (Tietze & Villareal, 2003).

There are two main ways to deliver credit in microfinance based on how loans are delivered and guaranteed. They can be group-based which involves lending to a group of people or individuals who are members of a group who grantee each other loans. This uses the principle of peer pressure from other group members as repayment incentive and reduces transaction costs and risks. The individual approach lends to individuals who are not members of a group that is jointly responsible for loan repayment and the lending is based on their ability to give assurances of repayment and some form of collateral or co-signer.

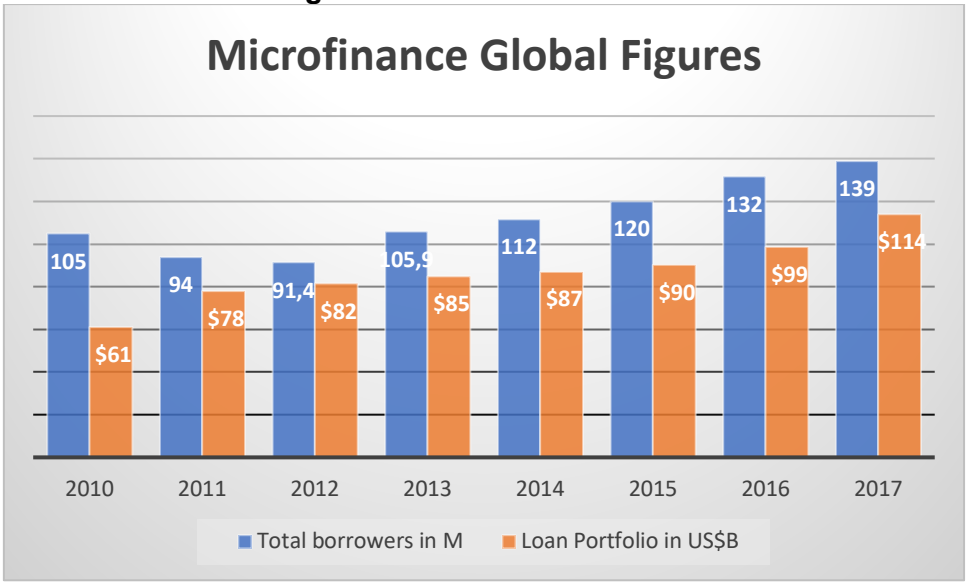
Microfinance is still evolving and each model must be adapted to the local context to fit and reflect local needs. MFIs need to take into consideration the country’s economic and social policy environment where it operates. Policies that affect the rate of inflation, growth rates, the stability of financial and other markets, investments, social services, infrastructure, and anything that can affects the ability to provide services (Tietze & Villareal, 2003).

Experiences of microfinance institutions have shown that there is a demand for savings and credit services among the poor that is rarely met because they do not have access. Many models have been developed with different methods, organizational structure and culture but the different models have proved that the poor have the capacity to repay loans, pay the real cost of loans and generate savings (Tietze & Villareal, 2003). Microfinance supports urgent consumer and other social needs related to their quality of life and smoothening consumption patterns, particularly when little or no income is generated. Microfinance helps not only at a personal level but also at the household level and throughout the communities by increasing their income and general income-earning capacity through the promotion of other income-generating activities and micro-enterprises (Tietze, 2007).

3.1.2.3 Market Size

At the end of 2017 MFIs reached an estimated 139 million low-income clients for about 114 billion US dollars, a growth of 5.6% in total borrowers and 15.6% in loan portfolio compared to the previous year (Figure 23). South Asia leads the global outreach in terms of borrowers, accounting for nearly two-thirds of global borrowers this in due to India being the region’s largest market. On the other hand, Latin America and the Caribbean are the largest regional portfolio by portfolio value with Mexico and Peru being the largest markets (Microfinance Barometer, 2018).

Figure 23. Microfinance Global Figures



Source: Microfinance Barometer

3.2 Instruments

3.2.1 Green Bonds / Cool bonds

Green bonds are fixed-income securities, both taxable and tax-exempt, that raise capital for use in projects or activities with specific climate or environmental sustainability purposes.[6] These bonds are structured the same way as standard bonds, with the same characteristics as standard bonds in terms of seniority, rating, execution process, and pricing, but with proceeds dedicated to climate or environmental projects.

The bonds carry the same rating as an issuer's other debt and are often structured under the issuer's medium-term notes programs. With a few exceptions, the bonds are full recourse to the issuer, meaning they are backed by the issuer's entire balance sheet so that investors are not exposed solely to the risk of the bond's underlying projects.

Green bonds (GBs) are bonds that must be aligned with the 4 core components of the International Capital Market Association's Green Bond Principles (GBPs).
The GBPs are a set of voluntary guidelines – initially released in January 2014 and revised in June 2016 – developed by a group of investors, issuers and underwriters.
They are non-prescriptive and aim to encourage the growth of the market without imposing overly obstructive barriers to entry. GBPs don't give specific environmental impact targets or impose limits on the categories of projects and activities that can be financed by GBs. Instead, their purpose is to promote integrity in the development of the green bond market by clarifying the approach for issuance of a green bond.
There are already over 100 members of GBPs, all of whom have issued, underwritten or placed, or invested in a GB.

The 4 GBP core components are the following:

1. Use of Proceeds. GBPs explicitly recognize several broad categories of potential eligible green projects, including but not limited to renewable energy, energy efficiency (e.g. efficient buildings), sustainable waste management, sustainable land use (e.g. sustainable forestry and agriculture), biodiversity conservation, clean transportation, sustainable water management and "climate change" (CC) adaptation.
2. Process for Project Evaluation and Selection addresses the decision-making process to determine which projects will be funded. The issuer should set up a transparent process to

[6] See also: https://www.climatebonds.net/market/explaining-green-bonds.

determine how the projects fit within the eligible green projects categories identified, it should determine the criteria under which projects will be eligible for use of the green bond proceeds, and should specify the environmental sustainability objectives of those projects.

3. Management of Proceeds addresses handling of funds that await investment. The Principles encourage transparency in tracking the proceeds from the green bonds via either allocation to a specific sub-portfolio, or use of an auditor or another third party.
4. Reporting addresses frequency of reports on use of proceeds, project descriptions, and expected environmental impact.

In GBs the proceeds will be exclusively applied to financing eligible green projects, aiming to address CC, natural resource depletion, biodiversity conservation and/or pollution.
The first green bond (Climate Awareness Bond) was issued in June 2007, by the European Investment Bank.
The largest issuers of GBs are supranational and state agency issuers.

By June 2017, a total stock outstanding of around USD 200 billion in green bonds had been issued. They still account for only a very small proportion of financial flows (0.2% of the total number of bonds outstanding, i.e. USD 100 trillion).

Among green bond investors, four major types of institutional investors may be identified:

1. Pure green investors, with green investing mandates, offering green bond funds;
2. Socially responsible investors, with established socially responsible mandates, but not necessarily required to buy bonds designated as green;
3. Asset managers that report a positive impact on franchise value for green investments;
4. Investors classified as banks/corporate/insurance, the treasuries of which move towards socially responsible investing.

Examples of GBs are:

- Climate awareness bond – EIB;[7]
- Green Bonds - World Bank (Innovative Finance for development solutions – Initiatives of the World Bank Group).

Table 13 provides additional examples and details on the main types of GBs.

Table 13. Types of Green Bonds

Type	Proceeds raised by bond sale are	Debt re-course	Example
Green "Use of Proceeds" Bond	Earmarked for green projects.	Standard/full re-course to the issuer; therefore same credit rating applies as to issuers other bonds.	EIB "Climate Awareness Bond" (backed by EIB)
Green "Use of Proceeds" Revenue Bond	Earmarked for green projects.	Revenue streams from the issuers though fees, taxes etc are the collateral for the debt.	Hawaii State (backed by fee on electricity bills of the state utilities)
Green Project Bond	Ring-fenced for the specific underlying green project(s).	Re-course is only to the project's assets and balance sheet.	Alta Wind Holdings LLC (backed by the Alta Wind project)
Green Securitized Bond	Either 1) earmarked for green project or 2) go directly into the underlying green projects.	Re-course is to a group of projects that have been grouped together (i.e. covered bond or other structures).	1) Northland Power (backed by solar farms) or 2) Solar City (backed by residential solar leases)

GBs are standard bonds with a green as a bonus feature (Table 14).

[7] See also: http://www.eib.org/investor_relations/cab/index.htm.

The GB market started as a response to specific investor demand and the market's key driver is still investor demand. The original demand came from Scandinavian pension funds, pioneering a holistic approach to managing their investments by exercising fiduciary responsibility along ESG criteria and aiming to long-term sustainability of their investment returns. Over time, more and more fixed-income investors have started incorporating ESG criteria into their investment process. They are also looking to reduce the climate risks in their portfolio and explicitly support projects with a climate focus.

GBs are a good fixed-income investment opportunity for these investors – the transparency and disclosure that GBs offer facilitate the ESG analysis and financial characteristics are comparable to other bonds. GB investors generally evaluate both the ESG credentials of issuers and the GB definition and process for a particular green bond issuer, to make sure they are consistent with their own expectations and requirements.

An interesting case study is offered by the large issuance by the World Bank in 2015 of a US$600 mln GB (Table 15).

Table 14. Comparing Standard Bonds and Green Bonds

Standard bonds vs. green "use of proceeds" bonds

- Flat pricing of green bond to conventional bonds (i.e. no additional cost)
- Same recourse to issuer
- Pari passu applies
- Bonus feature of "green" – positive environmental outcomes

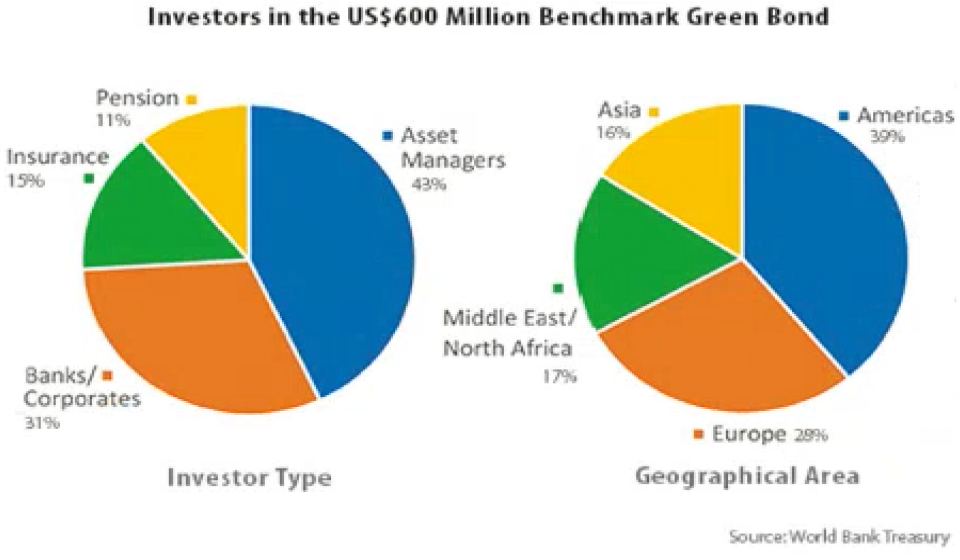
Cool Bonds are five-year AAA notes issued by the International Bank for Reconstruction and Development (IBRD) and linked to Certified Emission Reductions (CERs) set up under the Kyoto Protocol.
The first issuance, in June of 2008, was of US$25 million in Uridashi bonds—foreign bonds sold directly to Japanese household investors—whose ultimate returns will be linked to CERs generated by a Chinese hydropower plant.
The second issuance, in September of 2008, involved US$6.5 million in bonds linked to CERs from a Malaysian power plant. In both cases, investors are supporting demand for CERs from projects registered under the Protocol.

Some of the key advantages of Green and Cool bonds are:
i) Green and Cool Bonds are tied to carbon credits.
ii) Investors achieve three things at once: a) they help fight global warming, b) support World Bank Group efforts to fight poverty, and c) hedge their exposure to carbon credits.
iii) Cool Bonds, further, introduce the notion of tying bond returns to carbon credits and so of financing climate investments with frontloaded proceeds from carbon revenues.

Table 15. The Case of US$600 mln 10-year Issue GB by World Bank in 2015

Box 2: Case Study – World Bank US$600 million 10-year Green Bond

In March 2015, the World Bank issued US$600 million in 10-year bonds. The bonds were placed with 25 investors, including AP2, AP4, Blackrock, Deutsche Bank Treasury, Everence, Mirova, Nikko AM, Nippon Life Insurance, Trillium Asset Management, UN Joint Staff Pension Fund, and Zürcher Kantonalbank. Several investors highlighted their appreciation for the World Bank's practice to support transparency around its green bond program, as well as the financial characteristics and beneficial climate aspects of World Bank Green Bonds. Deutsche Bank, Morgan Stanley and SEB were the lead managers for the transaction.



3.2.2 Social Bonds

Social bonds (SBs) are designed to provide a solution to a particular social issue.
Examples from the IFC SB Program are:

- IFC launches Innovative SB Program, through Benchmark Bond. Washington, D.C., March 22, 2017—IFC, part of the World Bank Group, issued a $500 mln global benchmark bond, launching an innovative SB Program to expand financing for projects that benefit women-owned enterprises and low-income communities in emerging markets.[8]
- IFC projects: Banking on Women (BOW) Bond Program and Inclusive Bond Program.[9]

3.2.3 Other Sustainability Footprint Financial Assets

Sustainable Bonds/ Social and Development Impact Bonds

Sustainability bonds allow issuers to use the proceeds for both environmental and social projects – a hybrid of a GB and a SB. While commonly referred as a "bond", the solution replicates in essence a payment-for-result scheme. It cannot be compared to commercial bonds, green bonds or other impact bonds as an instrument.[10]

An example follows [see: http://www.undp.org/content/sdfinance/en/home/solutions/social-development-impact-bonds.html] :

[8] See also: https://ifcextapps.ifc.org/IFCExt/Pressroom/IFCPressRoom.nsf/0/4882F73A3AC1F50D852580EB005F2566.

[9] See also: http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/about+ifc_new/ifc+governance/investor+relations/socialbonds.

[10] See also: https://www.euromoney.com/article/b12kq32709kvlz/csr-bonds-are-sustainability-bonds-better-than-green?copyrightInfo=true.

A public-private partnership (PPP) that allows private (impact) investors to upfront capital for public projects that deliver social and environmental outcomes. If the project succeeds, the investors are repaid by the Government (Social Impact Bonds – SIBs) or an aid agency or other philanthropic funder (Development Impact Bonds – DIBs) with capital plus interest. If the project fails, the interest and part of the capital is lost. While commonly referred as a "bond", the solution replicates in essence a payment-for-result scheme. It cannot be compared to commercial bonds, GBs or other impact bonds as an instrument. The approach is also referred to as pay-for-success in the US & as a social benefit bond in Australia.

The SIB is a PPP where one or more investor(s) provide “upfront” capital for the realization of public projects that generate verifiable social and/or environmental outcomes. Under a typical model, the Government contracts an intermediary (or project sponsor) to implement a social/environmental project against a promise of a payment contingent on the social outcomes delivered by the project. The intermediary will raise the capital for the project—hence use of the term bond—from commercial and/or philanthropic investors. It will then contract a service provider to deliver the project’s outcomes. If the project fails to deliver, the Government does not pay and the investors will lose part or all of their capital. If the project is successful, the Government pays the intermediary and investors.

The objective of the SIB is to:

i) Align impact investment with measurable social and environmental outcomes;
ii) Grant affordable access to capital to public projects, particularly for preventive and conservation measures;
iii) Provide greater certainty on revenues for the execution of public projects thanks to the frontloading of all required resources; and
iv) Introduce rigorous approaches to performance management by closely link payments with performance—refocusing the social sector on outcomes and ensuring public resources are well spent.

The design of a SIB can be articulated in 6 steps (adapted from Social Finance):

1. Form a PPP on a priority subject area. The Government defines in the first instance the desired social/environmental outcomes to prioritize. It usually works with the intermediary, service provider(s) and forerunner investors to conduct pre-feasibility assessments.
2. Develop a detailed project & outcome metric. The intermediary works with the Government and the service provider(s) to design a payment for success metric, i.e. the metric for which payments will be released by the Government to the investors. Simplicity and manageable costs of measurement are key considerations. The intermediary usually drives the design, negotiation, and structuring phases.
3. Mobilize capital. The intermediary raises capital from impact investors and from philanthropy to provide upfront funding to the service provider in order to execute the project. The intermediary might also engage third parties in order to offer a partial guarantee to investors.
4. Deliver services. The service provider executes the project. The intermediary is responsible for oversight, performance management, course corrections, financial management and investor relations.
5. Validate outcomes. An independent evaluator measures the outcomes achieved by the project on the basis of the predetermined metric. The project might or might not achieve its stated outcomes.
6. Release of payments. When successful and based on the evaluation’s results, the Government repays the upfront capital plus an interest. If the project does not achieve its outcomes, there is no payment.

3.2.4 Impact Investing

Interest and activity around impact investment have increased significantly in the last decade as businesses, governments and communities seek new solutions to enable an inclusive and sustainable society. Key players have been philanthropists, charitable foundations and institutional investors that have been early adopters in implementing impact investment strategies. And while academic literature on impact investing is relatively new and still emerging (Ormiston et al., 2015), there is a substantial practitioner literature from organizations like the Global Impact Investing

Network (GIIN), the Rockefeller Foundation, Bridges Ventures and other advocacy and advisory organizations who are exploring this kind of investments (Lee-Chin Institute, 2018) and are looking to increase scrutiny of the sector so that the nature of ventures can be improved to bring more positive change to the beneficiaries targeted by impact investments (Jackson, 2013).

The 'impact' in impact investing has brought a new dimension to investing, going beyond traditional risk and return dimensions of investments, but also looking into solving society's problems. Impact investing is investment made with the intention to generate positive, measurable social and environmental impact investing in companies whose primary goals is to deliver the impact whilst also delivering competitive market returns (Global Impact Investing Network, 2018).

These impact driven businesses are businesses with profit purpose that lock in social mission through their governance and embedded in their business model, or are businesses seeking impact that set and maintain in social outcome objectives for a significant part of their activities without locking in their mission. It is important to note that impact investing differentiates from ESG investments and SRI since ESG limits investment to companies who track and evaluate their performance against key environment, social and governance metrics and SRI that are focused on investing in listed stocks that avoid ethically and environmentally questionable companies. Impact investors focus on one or a cluster of issues with a deliberate intention to make a positive social or environmental impact (Flyn et al., 2015).

Impact investing can be defined by the following four core characteristics:

- Intentionality: An investor's intention to have a positive social or environmental impact through investments;
- Investment with Return Expectations: Impact investments are expected to generate a financial return on capital or, at minimum, a return of capital;
- Range of Return Expectations and Asset Classes: Impact investments target financial returns that range from below market to risk-adjusted market rate, and can be made across asset classes, including but not limited to cash equivalents, fixed income, venture capital, and private equity;
- Impact Measurement: the commitment of the investor to measure and report the social and environmental performance and progress of underlying investments, ensuring transparency and accountability while informing the practice of impact investing and building the field (Global Impact Investing Network, 2018).

The key challenge of impact investing lays in impact measurement, how to assess the social value created with the investments made? There has been a number of tools created to assess the measurement but two are mentioned across the literature and are widely used, the Impact Reporting and Investments Standards (IRIS) and the Global Impact Investing Rating System (GIIRS) (Jackson, 2013). IRIS is a catalogue of metrics in social and environmental areas and does not claim to be an evaluation tool but rather to be used as complement to other valuations (IRIS, 2013). GIIRS, on the other hand, is a rating approach which is guided by the IRIS taxonomy and is more investor focused. It is used to assess companies as well as funds and their portfolio companies in areas of governance, employee rights and opportunities, community and the environment (Best & Harji, 2012). Beyond a focus on tools we know there is an ongoing debate around social impact assessment and investors are looking for the sophistication of impact measurement practices (Mudaliar et al., 2018).

3.2.4.1 Impact Investing Market Size and Risks

The investment activity in this segment has been growing through the years. In the 2018 Annual Impact Investor Survey made by GIIN, it estimated that in 2017 USD 35.5 billion investments were made in impact investments coming from fund managers, foundations, banks, family offices, pension funds and insurance companies. Fund managers and other intermediaries play a vital role within the ecosystem working to effectively channel capital between investors and investees, most commonly private debt is used to make investments followed by private equity (Mudaliar et al., 2018).

The challenges on this type of investments are the liquidity risks as usually transactions are done in private markets in emerging countries where there is a lack of suitable exit options, lack of

government support for the market, and thus a country and currency risk. Investors also see as a challenge the impact measurement practices and the quality of investment opportunities in markets where investments are needed the most (Mudaliar et al., 2018).

3.3 Digital Markets for Sustainable Financial Services

A new wave of innovation is currently coming to finance from Fintech. Though only part of this regards sustainable finance, the Fintech revolution may be providing some important innovations able to favor financial inclusion and sustainable development. In the first place, digital transformations can allow marginal clients to gain easy and cheap access to payments services and also to other traditional financial services once prerogative of (physical) banks and financial institutions. Secondly, Fintech opens up to the area of crowd funding which may enlarge the participants – on both the demand and supply side – enabling a cheap and effective channeling of funds from savers to investors. Even though both these areas are rapidly evolving and it is rather difficult to offer a comprehensive survey of their features and potential, their possible impact is so deep and wide-ranging that they deserve to be discussed in any case.

Financial technology better known as fintech is the technological innovation for the finance industry to deliver financial services. It covers everything from mobile payment platforms to high-frequency trading, and from crowdfunding and virtual currencies to blockchain. Fintech innovations promise to bring more efficiency, accessibility and less vulnerability to financial systems. The innovation looks to bypass traditional banks and funding channels. In particular, this should regard those who are unbanked or sectors that are perceived as high risk or the exposure is unknown like low-carbon economy and circular economy where lack of knowledge and risk to asses and value instruments make traditional banking and investors feel insecure.

Innovation can move financial networks to a more decentralized structure with lower concentration risks and higher resilience, and not to mention the diversification of credit and liquidity risk within the financial system. Fintech can increase competition, lower fees, attract new clients, offer services in places where it was impossible before and reduce concentration of businesses to make it easier to enter the market for smaller companies. Fintech can bring a new level of transparency with blockchain with higher control from regulators and policymakers, and Blockchain technology can allow small companies who do not have access to bond or equity markets to issue tokes to finance themselves (DTCC, 2017).

Innovation on financial services can drive development by expanding to users who lack access to these services by changing the way products are delivered. Fintech innovation in two segments, cashless digital transactions and peer to peer lending platforms, have increased efficiency and expanded access in developing areas helping people escape poverty by facilitating investment in their health, education, and businesses. They facilitate managing financial emergencies such as a job loss or crop failure, and can help people manage financial risk by making it easier to collect money from distant friends and relatives when times are tough (Demirgüc-Kunt et al., 2018).

According to Fintech providers, Fintech offers exciting developments in the financial services with an exponential growth across sectors and markets worldwide. The innovations have the potential to revolutionize global finance by making it more inclusive, decentralized and stable (DTCC, 2017).

There are also critical views identifying a dark side of Fintech. For example, Bartlett et al. (2017) find that Fintech lenders do not eliminate racial discrimination in lending. Lagarde (2018) underlines that crypto currencies pose serious concerns regarding financial integrity. Jakšič & Marinč (2018) claim that relationship banking is still vital to support banking stability, even though relationship banking should itself incorporate some of the progressive elements of Fintech. On more general grounds, Liberti & Petersen (2018) discuss how Fintech will likely shift the balance from soft (subjective) information in favor of hard (objective) information. However, the authors admonish that this transformation has not only pros but also cons.

3.3.1 Payments

Incremental and radical disruptive innovation has significantly impacted the way we use cash and current baking. A new way to exchange payments and conduct financial transactions has been possible with mobile phones and internet. Technology giants have moved into the financial sphere as payment service providers (PSPs), leveraging deep customer knowledge to provide a broad range of financial services. Payments made through their technology platforms are facilitating higher account use, globally, 52% of adults have sent or received digital payments in 2015, up from 42% in 2014 (Demirgüc-Kunt et al., 2018).

The switch to digital banking is benefiting not only developed markets but also emerging countries. Mature markets like the US, Canada, Europe, Japan, Australia are ahead of non-cash transactions but regions like Latin America and Central Europe, Middle East and Africa are having an accelerated growth rate of non-cash transaction driven by financial inclusion efforts and adoption of mobile payments (Bose & Mellado 2018).

Innovation is going to play different roles according to the different players of the transactions. Payments from government to people like pension funds, social benefits, unemployment benefits and payments for educational and medical expenses not only save cost to governments when using digital payments but also reduce corruption and improve efficiency (Demirgüc-Kunt et al., 2018). In India the leakage of funds for pension payments dropped by 47% when the payments were made through biometric smart cards rather than being handed out in cash (Muralidharan et al., 2016). Digital services are not only reducing costs for expansion but also are being more efficient saving time of users. In Niger, distributing social transfers through mobile phones rather than in cash reduced the variable cost of administering the benefits by 20% and saved the recipients 20 hours on average in overall travel and wait time to obtain the payments (Aker et al., 2016).

Payments for work, which include wages of the private sector, are probably the most common for digital transactions. In high income countries 85% of adults wage earners receive wage payments into an account while in developing countries is about 46%, but companies are still paying wages in cash to about 230 million unbanked adults worldwide. Switching to electronic payrolls and using mobile phones and internet can help workers join the formal financial system (Demirgüc-Kunt et al., 2018).

Other payment for work includes the sale of agricultural products or self-employment. In the agricultural industry in developing countries almost all workers receive payments in cash, except in countries such as Ghana, Kenya and Zambia where 40% agricultural payments are received through digital payments and in most cases a mobile money account. The difference with these developing countries is attributed to the development of mobile money accounts like M-PESA[11] (Demirgüc-Kunt et al., 2018).

In Kenya, M-PESA was founded in 2007 as Fintech innovation responded to an unmet market need. People in Kenya had cell phones but no debit cards, and poor physical infrastructure made going to the bank burdensome, particularly for rural populations. An opportunity existed for anyone who could design a technology to facilitate cash transfers using the existing telecom network and M-PESA stepped into the role. The telecom company Safaricom already had a monopoly on the telecom network in Kenya and M-PESA simply partnered up with them to add their service and by 2014 had penetrated 90% of the market. It simply required the right technological innovation to deliver a service that was convenient and efficient, and the infrastructure already existed to support it (Mas & Radcliffe, 2010). Digital payments have the greatest asset that it can be deployed to leverage existing infrastructure to make finance more inclusive.

[11] M stands for mobile, while PESA is the Swahili word for money.

3.3.2 Crowd Funding: Credit vs Equity

Crowdfunding is an internet enabled way for businesses to raise money in the form of donation's or investments from multiple individuals. This new way to raise capital emerged after the 2008 financial crises with traditional banks less willing to lend to artisans, entrepreneurs and early stage enterprises. This innovation in the financial markets has leveraged technology to address the lack of capital for entrepreneurs around the world with new possibilities in equity, debt and rewards-based. Crowdfunding uses two major forces, the widespread adoption of information and communication technology (ICT) to provide the infrastructure needed to reach millions of investors and the technology based social networks that allows investors to interact and build trust among people with little connection (World Bank, 2013).

In less than a decade crowdfunding has gained traction in developed countries, mainly in the US, UK, Australia and the Netherlands but it is also spreading across the developing world (World Bank, 2013). Since its creation in 2009, the US platform Kickstarter has taken crowdfunding to unprecedented heights collecting more than $2.2 billion in pledges, from 10 million backers, to fund 100,000 creative projects and start-ups in such diversified areas as technology, sports, films, music, and the arts (Lacasse & Lambert, 2016).

There are five different models for crowdfunding, in the Online Lending platforms borrowers obtain a loan and investors purchase notes backed by payments. This is the most popular crowdfunding business model raising US$64 billion in 2015 (Wills & Jablonska, 2015). An Equity crowdfunding model is useful when a promoter wants to attract venture capital from the crowd instead of investment bankers. It generally includes the issue of shares, subject to compliance and national regulations. In the US, equity crowdfunding was made legal through the JOBS act in 2013 but other countries like Canada still need policy.

In a Pre-Sales crowdfunding model, a new product or service is placed online, and funders are asked whether they are interested in ordering it and paying for it in advance. This process replaces traditional market research, as well as validating demand and providing working capital. Non-profit organizations use a platform to collect donations and simply use the platform to update donors on the progress of their ventures. The last model is the reward-based model which collects donations for a small venture or social project by giving a symbolic reward, usually non-financial.
The key for crowdfunding to work is trust and as such a regulatory framework is needed to create a regulated online marketplace that can facilitate capital formation, provide protection to investors and show transparency. On the other hand, a strong social media penetration and internet usage is also needed to promote technology trends and harness a cultural shift (World Bank, 2013).

While the models are being a phenomenon of the developed world, they have potential in developing nations to use emerging technology like social media, lean-start-up methods, and mobile technology to make entrepreneurial funding systems more efficient and effective and open up deal flow to a much wider audience that can bring more investment opportunities. Crowdfunding platforms can channel individual savings in developing countries to projects within their own city, country or region. It is estimated that there are up to 344 million households in the developing world, with an average of at least US$10,000 a year and at least three months of savings, that are able to make small crowdfund investments in community businesses, this could add up to US$96 billion a year by 2025 (World Bank, 2013).

Crowdfunding has the potential to provide returns to individual investors, change societal norms, return capital to home country and provide investment opportunities to channel savings as well as generate wealth, innovation and jobs (World Bank, 2013).

4. Promoting Sustainable Footprint Certification

As we have seen, a central issue to engage in pro-sustainable investment requires empowering financial institutions with reliable judgments on the sustainable footprint of the issuers of the financial assets they are going to acquire. Certainly, as discussed, the current status in this respect does not

imply that we have to start from scratch. The example we have repeatedly cited is how sustainability oriented financial institutions find guidance in the ESG ratings and in impact investing measures. However, those ratings and measures need to be improved in various respects to take full account of the new scenario provided by the 2030 UN Agenda as well as by the current progress in technology and the digital economy.

The SDGs represent a real corporate perspective (Schramade, 2017) and they may be tracked along the global supply chain (Muñoz-Torres et al., 2018a). Inderst & Stewart (2018) move a long way showing how ESG criteria can be incorporated into Fixed Income Investment. Schramade & Schoenmaker (2018) highlight the need for fundamental analysis (that is, going well beyond ESG ratings) to properly assess a company's transition preparedness, which in their view is the essence of corporate sustainability.

Le Guenedal et al. (2018) find a clear change over 2010-2013 vs 2014-2017 in terms of the impact of ESG investing in terms of investment performance. While ESG investing does not add value in terms of return, risk and drawdown during the first sub-period, the opposite holds for the 2014-2017 period, when ESG investing was rewarded by the market, especially in the Eurozone followed by North America. In their view, ESG investing does make a lot of sense for both active and passive management. They argue that, as Europe is the first ESG market and represents more than half of global assets that are managed using ESG strategies, ESG investing has been largely integrated by European institutional investors, and so European stock prices started to be influenced by this trend along a feedback loop between extra-financial risks and asset pricing.

Escrig-Olmedo et al. (2019) run a comparative analysis of the public information provided by the most representative ESG rating and information provider agencies in the financial market in 2008 vs 2018. Their findings show that ESG rating agencies have integrated new criteria into their assessment models to measure corporate performance more accurately and robustly in order to respond to new global challenges. By the same token, Shah & Clark (2018) argue that there is an increasing acceptance of the investment merits of investing with ESG considerations across large parts of the investment industry. They claim that the next era of ESG investing will witness an increase in the complexity and nuance of incorporating ESG factors into investment processes. In particular, ESG investing will require a major change in the orientation of the financial sector as a whole, including regulation and behavior of financial actors. Muñoz-Torres et al. (2018b) aim to show whether assessment methods adopted by eight ESG agencies are consistent with the Integrative ESG Sustainable Value Framework proposed according to the literature and sustainable business models (SBMs) conceptualization. Their results indicate that ESG rating agencies identify the short-term results in the internal organizational perspective mainly in the environmental dimension, whereas social aspects are emphasized from the external organizational perspective. However, ESG rating agencies are not driving a more SBMs that must integrate ESG criteria in a holistic way with a short-term and long-term perspective. In turn, Mooij (2018) describes some current shortcomings and limitations of ESG ratings. This raises also the possibility of a fruitful interaction between public and private sustainability monitoring and reporting (van der Esch & Steurer, 2014).

By using ESG ratings, Ioannou & Serafeim (2019) explore the extent of adoption of sustainability practices over time and the implications for firm performance. For almost all industries, sustainability practices seem to converge within an industry over time, implying that they spread as common practices. However, distinguishing between a set of sustainability practices on which companies converge within an industry (*common practices*) and a set on which they do not (*strategic practices*), the adoption of strategic sustainability practices seems significantly and positively associated with both return on capital and expectations of future performance, whereas the adoption of common sustainability practices is reliably correlated only with expectations of future performance.

Chou (2018) finds that organizational orientations and industrial category affect the extent of responsible innovation by enterprises. Specifically, long-term orientation and organizational virtue orientation are positively associated with responsible innovation, while profitability orientation is negatively correlated. Also, the positive relationship between both long-term and organizational virtue orientation and responsible innovation is weaker in the industrial products category than in the consumer products category.

Studying the evolution of S&P credit ratings, Cubas-Díaz & Martínez Sedano (2018) find that companies with higher sustainability performance tend to have higher credit ratings, though having a less consistent performance over time seems to have no effect.

Using newly available materiality classifications of sustainability topics, Khan et al. (2016) develop a novel dataset by hand-mapping sustainability investments classified as material for each industry into firm-specific sustainability ratings. They find that firms with good ratings on material sustainability issues significantly outperform firms with poor ratings on these issues. See also Carvalho et al. (2016) for an analysis of how non-financial ratings can affect firm performance in the economy at large.

Finally, Gianfrate (2018) discusses to what extent financial hedging of institutional investment portfolios is feasible and how policy-making could shape markets and instruments to make the financial global system more resilient to possible climate-related regulatory shocks.

In general terms, ICT seems to provide very promising interactions with the measurement and application of the SDGs (Wu et al., 2018). Specifically, use of the Blockchain technology, as a distributed digital ledger technology which ensures transparency, traceability, and security, may allow better, more in depth and reliable assessment of productive chains' sustainability (Saberi et al., 2018; Nikolakis et al., 2018). In turn, this could really strengthen the meaning of ESG ratings and other measures to drive SRI and impact investing (Sulkowski, 2018).

5. Conclusions and Recommendations

This is the end of the journey by which we tried to shed light on the sustainability of finance and finance for sustainability.[12] Namely, we addressed how keeping finance sustainable has become a key ingredient of sustainable development as well as how financial arrangements are demanding that businesses evolve along a trajectory consistent with sustainable development.

We discussed how ethical and sustainable oriented finance is key to reach sustainable development by tackling environmental risk through green finance and showing empirical evidence on the link between finance and inequality. The theory provided puts in the right mindframe to analyze markets, intermediaries and instruments with a sustainable lens to focus on the benefits that have brought to sustainable development.

We discussed the diversities among different intermediaries and highlighted the benefits of Alternative Banks especially the close relationship of customers and bank and the resilience it gives to Small and Medium Enterprises (SMEs) in difficult times. Different investments strategies were discussed walking through the evolution of Sustainable and Responsible Investing (SRI) funds and diving into the ESG analysis to use as criteria to allocate investments based on environmental, social and governance principles. Microfinance was introduced as a different market that has reached the people at the bottom of the pyramid and highlights the key role it will play to bring financial inclusion. Islamic finance and Fintech were also discussed. Different instruments were presented to understand the current landscape of how different investors are using innovative products to attack social and environmental problems.

At the end of our journey, we should also consider how policies can strengthen and support sustainable development.

[12] Though our aim was to cover one of the six pillars of the Human-Centered Business Model (HCBM), the argumentation has been more general and refers to "sustainable finance for sustainable development". The HCBM purports to provide a detailed prototype and guidance on relevant processes and procedures, addressing the entire context needed for a sustainable and competitive 'business ecosystem', including fiscal, financial, legal and regulatory regimes, procurement conditions, and stakeholder's relationship. Along the HCBM spirit, this paper aimed to assess currently available financial instruments and identify innovative financial instruments that will ensure the financial sustainability of the Model.

We should state upfront that there is a wide set of policies needed to accelerate the adaptation of the financial sector to make it more supportive to the transition to sustainable development. Most public policies will, in fact, change the framework and the incentives for the many actors involved in the sustainability discourse. See, among others, Maimbo & Zadek (2017) for an overarching in depth discussion of how the financial sector should evolve to fully promote the adoption of a sustainable development model and Delmas & Durandi (2017) for wide ranging insights on how to measure the impact of the progress of sustainable behavior in terms of societal wellbeing.

For the sake of parsimony, we will briefly outline only five key policies.

First and foremost, policies to upgrade the finance-sustainability nexus have to ensure financial inclusion. This is particularly needed in the developing and emerging world where masses of people are still deprived of decent opportunities for self-promotion, but growing inequality is creating pockets of poverty and financial exclusion also in the rich countries. Naturally, along what we discussed above, policies to promote financial inclusion need to leverage both on ICT and the digital economy and on securing a friendly (or at least neutral) regulatory framework.

Second, a wide range of fiscal measures would definitely help or hinder the pro-sustainable development evolution in the financial system (Robinson, 2014; De Nederlandsche Bank, 2017). On one hand negative tax incentives should be deployed to penalize short-term investments (e.g., some type of Tobin tax). On the other hand, tax exemptions should be provided to incentivize long-term investments.

Third, accounting policies are key to accelerate the adaptation of the financial system to undertake the challenge of sustainability. Specifically, improving the disclosure of non-financial information and matching the information need of the new metrics presiding by the sustainable footprint measures. Also, given the fact that sustainable financial investment generates long-term values, some reflections are in order on whether continuous time marking-to-market accounting should be reconsidered and adapted to allow financial investment avoiding short-termism.

Fourth, various public policies would certainly gain in effectiveness if they could operate within the framework of enriched Public Private Partnerships (PPP) approaches. In particular, the public sector and the private sector can join efforts to both commit to long-term value creation. This will produce a positive feedback effect between private sector initiatives and the action of public bodies. When the private and public sector work together this favors the build-up of trust, making it easier to undertake some investments that would otherwise be shelved and/or to expand and improve innovation.

Fifth, and last but certainly not least, public actions should be thought in order to facilitate the certification of sustainable footprint behavior. We do believe that appropriate forms of certification are crucial to set in motion the private sector initiative along a transformative path that we could label “Transforming brown profits into green profits”. Only credibly certified sustainable behavior can elicit consumers choosing the “right” consumer products as well as, here, savers choosing the “right” financial assets. Only then, this market-friendly transformation mechanism – which seems to be at the core of the 2030 UN Agenda – will become truly functional. Therefore, policies favoring this would perhaps be the most important ones. In view of this, we provided a further discussion on this aspect.

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7. List of Acronyms

ABs = Alternative Banks
AGCM = Autorità Garante della Concorrenza e del Mercato (Italy's Antitrust Authority)
AMC = Asset Management Company
AUM = Assets Under Management
BCC = Banche di Credito Cooperativo (mutual type of cooperative banks in Italy)
BCO = Banche di Credito Ordinario (type of commercial banks in Italy until 1990s)
BIN = Banche di Interesse Nazionale (type of commercial banks in Italy until 1990s)
BIS = Bank for International Settlements
BLS = Bank Lending Survey
BoE = Bank of England
BOW = Banking on Women
CAR = Capital Asset Ratio
CC = Climate Change
CEPS = Centre for European Policy Studies
CERs = Certified Emission Reductions
CO2 = Carbon Dioxide
CR = Savings Banks (type of STVB banks in Italy until the 1990s)
CRRD = Capital Requirement Regulation and Directive
CRRs = Climate-Related Risks
CRR&O = Climate-Related Risks and Opportunities
CSR = Corporate Social Responsibility
DIB = Development Impact Bond
DJSGI = Dow Jones Sustainability Group Index
DNA = Deoxyribo-Nucleic Acid (meaning the inner foundation of any entity)
DSI = Domini 400 Social Index
DTCC = (The) Depository Trust & Clearing Corporation
ECB = European Central Bank
EFFAS = European Federation of Financial Analysts Societies
EFIGE = European Firms in a Global Economy
EIB = European Investment Bank
EIOPA = European Insurance and Occupational Pensions Authority
EIRIS = Ethical Investment Research Service
ESG = Environment, Social, and Governance
ETFs = Exchange Traded Funds
EU = European Union
EUROSIF = European Sustainable Investment Forum
FSB = Financial Supervisory Board
GBs = Green Bonds
GBPs = Green Bond Principles (by the International Capital Market Association)
GFC = Global Financial Crisis
GHG = Green-House Gas (Emissions)
GIIN = Global Impact Investing Network
GIIRS = Global Impact Investing Rating System
GISR = Global Initiative for Sustainability Ratings
GSIA = Global Sustainable Investment Alliance
G7 = Group of 7 (Canada, France, Germany, Italy, Japan, UK, US)
G8 = Group of 8 (G7 plus Russia)
G20 = Group of 20 (G8 plus Argentina, Australia, Brazil, China, India, Indonesia, Mexico, Saudi Arabia, South Africa, South Korea, Turkey)
G20-GFSG = G20 Green Finance Study Group
IBRD = International Bank for Reconstruction and Development
ICCR = Interfaith Center on Corporate Responsibility
ICDP = Istituti di Credito di Diritto Pubblico (type of commercial banks in Italy until 1990s)
ICT = Information and Communication Technology
IFC = International Finance Corporation
ILO = International Labor Office

IMF = International Monetary Fund
INAISE = International Association of Investors in a Social Economy
IRIS = Impact Reporting and Investments Standards
ISO = International Organization for Standardization
J. = Journal (in the List of References)
LOLR = Lending of Last Resort
LTCM = Long-Term Capital Management
MFIs = Micro-Finance Institutions
MSFCs = Mutual Savings and Finance Companies (type of mutual banks in Korea)
MSMEs = Micro, Small and Medium-Sized Enterprises
MSR = Morningstar Sustainability Rating
NBER = National Bureau of Economic Research
NGOs = Non-Government Organizations
NPLs = Non-Performing-Loans
P&L = Profits and Losses
POP = Popular Banks (type of STVB cooperative banks in Italy)
PPP = Public-Private Partnership
PRI = Principles of Responsible Investment
PSPs = Payment Service Providers
QE = Quantitative Easing
RL = Relationship Lending
Rev. = Review
SBMs = Sustainable Business Models
SBs = Social bonds
SDGs = Sustainable Development Goals
SHVBs = Shareholder Value Banks
SIB = Social Impact Bond
SMEs = Small and Medium-Sized Enterprises
SRI = Socially Responsible Investment (funds)
STVBs = Stakeholder Value Banks
TBTF = Too-Big-To-Fail
TCFD = Task Force on Climate-related Financial Disclosures
TL = Transactional Lending
UNDP = United Nations Development Program
UNICEF = United Nations International Children's Emergency Fund
WB = World Bank
WHO = World Health Organization
WP = WP

8. List of Tables

9. List of Figures