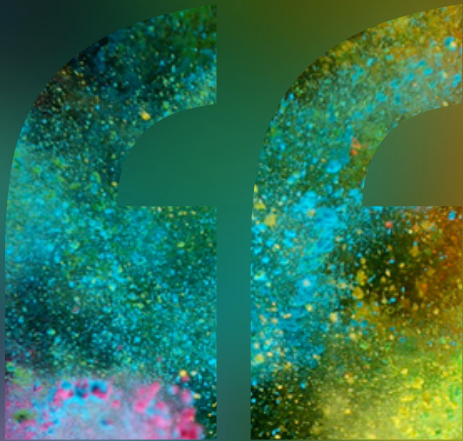


**C L I F F O R D**

**C H A N C E**



**HOW DATA AND DLT  
CAN ACCELERATE  
SUSTAINABLE  
FINANCE**



**— THOUGHT LEADERSHIP**

**DECEMBER 2021**



## HOW DATA AND DLT CAN ACCELERATE SUSTAINABLE FINANCE

"Greenwashing" – the making of unsubstantiated claims about the sustainability of an investment product – is high on regulators' agendas for 2022 and it is crucial that ESG capital markets are transparent for the benefit of both issuers and investors. Technology and innovation have an important role to play in addressing these risks and ensuring the continued growth of the sustainable finance market, which has surged in recent years and is worth in excess of US\$3 trillion.

### At a glance

The sustainable finance market has looked to establish market integrity and transparency through law and regulation, self-regulation stemming from the design and structure of the sustainable finance products themselves and the use of technology. In this article we will explore how technology companies are making a difference through harnessing ESG data and distributed ledger technology.

### Law and regulation

Regulation has played an important part in protecting and strengthening the integrity of sustainable finance, particularly in the capital markets, although regulatory regimes for sustainable finance remain under development across most jurisdictions.

In the EU, one of the first major developments in this area was the introduction of the Non-Financial Reporting Directive (NFRD), which introduced a requirement for large, listed companies, banks and insurance companies with more than 500 employees (Public Interest Entities) to include a non-financial statement as part of their annual public reporting obligations from 2018 onwards. The NFRD was a major step to countering greenwashing by ensuring that an issuer's ESG performance-related claims, which might be used to attract investors or even determine the pricing or structuring of sustainable finance products, are disclosed in line with common standards.

Earlier this year, the European Commission proposed to go even further, putting forward the Corporate Sustainability Reporting Directive (CSRD) which would amend the NFRD and in particular (i) extend its scope to all large companies and all companies listed on regulated markets (except listed micro-enterprises), (ii) require the auditing of reported information and (iii) require more detailed reporting requirements (including the requirement to report according to mandatory EU sustainability reporting standards). The CSRD shows that the market places a great deal of importance in ensuring that companies that may seek

to raise liquidity through sustainable finance, either for green, social and/or sustainable projects or for general corporate purposes (in the case of sustainability-linked loans and bonds), are credible from an ESG perspective when they come to market and can be held to account with regards to their ESG record.

The Sustainable Finance Disclosure Regulation (SFDR), part of the European Commission's Action Plan on Sustainable Finance, imposed mandatory ESG disclosure obligations for asset managers and other financial market participants with effect from 10 March 2021. As a result of the SFDR, asset managers such as AIFMs and UCITS managers are required to provide prescript and standardised disclosures on how ESG factors are integrated at both an entity and product level. Through the SFDR, the European Commission has sought to ensure that there is diligence at both ends of the spectrum, not just among issuers. The onus has been put on investors to ensure that they act with integrity when it comes to their ESG investing.

Whilst there has been a focus on good stewardship in the context of equity investments in companies for many years, for example via the UK Stewardship Code and EU Shareholder Rights Directive, the importance of debt funding to companies in enabling and accelerating the transition to a sustainable economy should not be underestimated. Indeed, many of the recent ESG-related regulatory initiatives have a broad scope, capturing both debt and equity investments.

In addition to the positive signals that may be created through disclosure requirements and investor appetite for sustainable investments, regulators and policy makers are also considering whether and how to disincentivise investments in 'brown' or unsustainable companies or assets, for example by ensuring financial institutions factor climate risks into their regulatory capital requirements via stress tests, potentially leading to increased regulatory capital requirements.

## Self-regulation

In the absence of European wide or national legislation on ESG disclosure requirements in prospectuses, market actors have also cooperated to produce voluntary standards as part of a movement to ensure the transparency, accuracy and integrity of the information that is disclosed and reported by issuers to stakeholders through core components and key recommendations. For example, the International Capital Market Association has published the Green Bond Principles, the Social Bond Principles, the Sustainability Bond Guidelines and the Sustainability-Linked Bond Principles, a collection of voluntary frameworks with the stated mission and vision of promoting the role that global debt capital markets can play in financing progress towards environmental and social sustainability. Similar principles have been published by the Loan Market Association, Asia Pacific Loan Market Association and Loan Syndications & Trading Association for green, social and sustainability linked loans. The Climate Bond Initiative published the Climate Bond Standards in relation to climate bonds and in a move from industry-led self-regulation towards more formal regulation, an EU green bond standard was proposed by the European Commission as part of the European green deal investment plan of 14 January 2020, based on the recommendations of the Technical Expert Group on Sustainable Finance.

In addition, when it comes to the design and structuring of sustainable finance products, certain market practices have developed organically over time to ensure

that issuers and borrowers are kept in check and the financial products themselves are not viewed as 'flawed'. For example, in the sustainability-linked bond market, there are a number of contractual protections for investors that have become common-place. The below is a non-exhaustive selection of terms commonly seen in terms and conditions:

- should an issuer not meet its sustainability performance target(s), it is automatically subject to an interest rate step up and/or a one-off premium payment;
- there is a requirement for the issuer to audit its key performance indicator(s) relating to the sustainability performance target(s) as at the target observation date; and
- should an issuer not respect its sustainability reporting obligations, it is automatically subject to an interest rate step up and/or a one-off premium payment.

There is also a recognition that for the financial product to work, sustainability-linked bonds need to protect issuers too, and this is also reflected in the terms and conditions where, for example, issuers can recalibrate their sustainability performance targets (subject to various conditions precedent) should there be a significant change in the group's perimeter, a breakthrough in the quality of data accessibility or the calculation methodology of its sustainability performance targets.

## The role of technology

Although regulation, market practices and common standards can achieve much in terms of stimulating the development of sustainable finance markets, technology also has an important role to play. Two key ways in which technology companies are making a difference are: (a) by harnessing both raw and processed ESG data and (b) by exploring how distributed ledger technology might help to unlock further potential sources of liquidity, which may in turn be used for sustainable projects or to help the general development of companies making a positive environmental impact.



**The market for ESG data and services could exceed \$5 billion in global revenue by 2025.**



## The data revolution

Even though the first private players specialised in the collection of environmental, social and governance data emerged in the 1980s, there has been exponential growth in the number of technology companies using ESG data in recent years. In its mapping of stakeholders, products and services providing non-financial data, published in December 2020, the *Autorité des marchés financiers* (AMF), stated that spending on ESG data acquisition has increased significantly, from \$300 million in 2016 to nearly \$900 million in 2019 with the market for ESG data and services worth more than \$2 billion, a figure which, according to its estimates, could exceed \$5 billion in global revenue by 2025.

Technology companies such as market data providers, made up of general information providers (e.g. Bloomberg and Refinitiv), index producers (e.g. MSCI), and stock exchanges (e.g. the London Stock Exchange and Deutsche Borse), who provide basic products (raw or estimated data, indicators, ratings and rankings, indices etc), tools for portfolio analysis and screening tools for assessing investment trends and performance, and technology start-ups, such as CSRHub, whose main activity is the collection of data obtained from other providers and the aggregation of ratings, have sought to respond to the explosion of ESG data and in doing so are accelerating the development of sustainable finance.

The explosion of ESG data is the result of, among other things:

- More ESG data being published pursuant to regulations such as the NFRD (particularly raw data for the purpose of key performance indicators).
- Greater demand from investors who themselves are subject to regulation such as the SFRD.
- New technologies such as artificial intelligence, machine learning, scraping (automatic extraction of data from websites) and new techniques for transforming unstructured data into structured data making it easier than ever to produce, collect, process and analyse ESG data.

- A real business need for sustainable finance market actors to have access to good quality, reliable, easily comparable and easy to understand ESG data.

Unless an issuer can demonstrate that its ESG data is reliable, investors will be reluctant to invest in any of its sustainable financial products. Technology companies can use data to help issuers establish such credibility in various ways. For example, if the market recognises that an issuer is using state-of-the-art technology to measure its carbon emissions, enabling it to reduce to a minimum the number of estimations in its calculation methodology, it will gain credibility. Similarly, if an issuer can provide satellite imagery to demonstrate the environmental impact of its investment (such as the number of trees planted per year), they are likely to build trust with green investors. ESG data can also be used by technology companies in other ways to support issuers. For example, if an issuer, with the help of data aggregators, can demonstrate that its key performance indicator scores are better than other companies in its industry, other companies in its jurisdiction or among other companies with a similar market capitalisation, its sustainable finance products will be easier to market.

Investors such as asset managers are sometimes faced with too much ESG data. Their ability to accurately assess the reliability of ESG data is key to their avoiding mis-selling and inaccurately assessing risks. Similarly, their capacity to analyse and interpret mountains of ESG data and compare different issuers is vital to making good investment decisions. Technology companies have been created and have adapted to help investors address these challenges, strengthening the credibility of ESG data and helping investors better understand it. For example, Green Assets Wallet, launched back in 2017, is a digital platform which seeks to streamline scattered ESG impact data, providing transparent impact data and third-party verification through a user-friendly interface. Investors can create portfolios on the platform and identify, evaluate and monitor investments, whilst having access to impact reports and other documents



directly uploaded by issuers and validators onto the platform, whose trustworthiness is reinforced by underlying blockchain technology. We are also aware of a meta-platform that is being developed in Asia which will use scraping technology to extract key ESG data from offering circulars, frameworks, allocation reports and other sources and present such data in a format which enables market actors, including, but not limited to, investors, to get instant access to ESG data on a variety of bases (by issuer, jurisdiction or industry, among other options). Again the aim is to use technology to ensure that the myriad of ESG data that is out there is a help to investors rather than a hindrance and that market credibility is maintained and if possible, strengthened.

Aside from issuers and investors, there is also a great deal of demand for clear and reliable ESG data from other market actors such as:

- Financial ratings agencies who need processed data in order to create non-financial ratings and scores – not only do certain rating agencies such as Moody's and S&P now incorporate ESG criteria into their analyses and credit ratings, but certain rating agencies have been acquiring ESG data providers directly (e.g. Trucost for S&P, Four Twenty Seven for Moody's), along with ESG ratings firms (e.g. RobecoSAM's ESG rating subsidiary for S&P, Vigeo Eiris for Moody's).
- Stock exchanges (such as the Luxembourg Stock Exchange), which may have opened "green segments" for the listing and trading of sustainable securities and need to ensure that the issuers and asset managers using their exchange are as "green" as they claim to be, in order to maintain market credibility.
- Audit and consulting firms, such as EY, who provide strategic and advisory services, alongside the auditing of ESG data and reporting assistance.

Fintech companies that harness data are also being helped by efforts to digitise ESG reported information. In its proposal for the CSRD published on 21 April 2021, the European Commission put forward a

requirement for companies to digitally 'tag' their sustainability information, to ensure that it would be machine-readable and could be fed into the European Single Access Point (ESAP) which is envisaged in the Capital Markets Union Action Plan. This kind of initiative is not limited to Europe. In its June 2021 report on sustainability-related issuer disclosures, the board of the International Organization of Securities Commissions reported that asset managers had been calling for enhanced digitisation and storage of sustainability information. They noted that asset managers fully supported the tagging of information and that calls had even been made for a 'global' central repository of information to be created. The UK government picked up on the demand for sustainability disclosures to be easily read and analysed electronically in its October 2021 report on greening the financial system. It is currently considering how to deliver an approach to digitisation of sustainability data that builds on the UK's existing digital infrastructure for reporting and the creation of a centralised UK register for ESG data is also being evaluated.

The efforts of companies that work with data is widely accepted as being vital in ensuring that the sustainable finance markets remain credible. Indeed such is its importance that there have been calls to regulate ESG data. In December 2020, the AMF and the *Autoriteit Financiële Markten* published a position paper proposing a European regulatory framework for providers of sustainability-related services. Their proposition was for regulation which would prevent the misallocation of investments and greenwashing, thereby ensuring investor protection. They suggested requirements on transparency on methodologies, management of conflicts of interest, internal control processes, and enhanced dialogue with companies subject to sustainability ratings.

ICMA have tried a softer approach, publishing a set of guidelines for impact database providers in June 2021. Such guidelines aim to increase transparency and promote best practice, with the goal of improving the flow and quality of data for the benefit of green, social,

sustainability or sustainability-linked bond investors, issuers, database providers and other relevant stakeholders by providing voluntary guidance relating to several topics relevant to database providers, including ethical standards, governance and data security, referencing impact calculation methodology and presentation of data.

However, these efforts to develop better practices among ESG data providers should take nothing away from the general recognition that ESG data can play a vital role in accelerating the development of sustainable finance. For example, the City of London Corporation and UK Financial Conduct Authority recently announced in October 2021 the second phase of their Digital Sandbox which will provide support to innovators looking to build and validate tech solutions in the area of ESG data and disclosure. Read more about the Digital Sandbox in the report [Sustainable digital finance: How technology can accelerate the transition to a sustainable economy.](#)

### **Distributed Ledger Technology**

Data is not the only consideration when looking at the contribution of Fintech to the sustainable finance market.

Distributed ledger technology has the potential to transform how debt securities are issued, traded and settled, potentially breaking down barriers to entry, particularly for SMEs, and providing new sources of liquidity for issuers, which could then be used for green, social or sustainable projects. Although the first forays into blockchain bond issuances have continued to use the current market infrastructure (as opposed to being 'native' issuances) and have not been green, social, sustainable or sustainability-linked bonds, the use of tokenised securities, smart contracts and digital currency (for the cash-leg of settlement), in early experiments such as those being carried out by the Banque de France and issuers such as the European Investment Bank, Société Générale and Banco Santander have suggested that the process for issuing bonds may become cheaper and quicker for issuers in the future.

As part of the Digital Finance Package, on 24 September 2020, the European Commission put forward legislative proposals (later approved on 24 November 2021) for a distributed ledger technology pilot regime for market infrastructures for financial instruments based on distributed ledger technology. The pilot regime, likely to be published in the Official Journal in the first half of 2022, will permit certain actors to request exemptions from specific requirements embedded in EU legislation (in particular the requirement for listed securities to be in book-entry form pursuant to Article 3 of the CSDR), so that a market for tokenised financial instruments can develop and eventually, a harmonised framework for distributed ledger technology can be put in place. There is every chance that a market for "green" tokenised financial instruments would follow very quickly and interest is growing in the potential of blockchain technology as a tool for sustainable financing. For example, the BIS Innovation Hub and Hong Kong Monetary Authority recently concluded Project Genesis, a green finance project to build prototype digital platforms using DLT that aim to enable green bond issuance with greater access to retail investors and improved transparency on the use of proceeds, in real time on an app.

A blockchain bonds market might be particularly interesting to SMEs who may face barriers to entry in certain jurisdictions and markets. SMEs in particular often have ambitions to make a positive impact on the environment, but they may lack the human or financial resources to, for example, put together a detailed green bond framework or respect the reporting expectations of mainstream capital market investors. There is hope in some circles that the use of distributed ledger technology may reduce issuance costs (due to the quicker time to market, fewer intermediaries, and cross-border exposure) and help them attract new sources of liquidity which could be put towards environmental or social projects.

Concerns have been raised about the negative environmental effects of the process for validating transactions on certain blockchain protocols such as



**Interest is growing in the potential of blockchain technology as a tool for sustainable financing.**



Bitcoin and Ethereum, in particular, that proof of work protocols can lead to high energy consumption and electronic hazardous waste. However, solutions to such issues are being developed. One such solution is the use of renewable energy to power the energy intensive mining, as seen in El Salvador where geothermal energy from the Tecapa volcano is being harnessed for bitcoin mining or in New York where hydraulic power, generated in New York state, is being considered as one of the main sources of power for the mining of the NewYorkCityCoin, the blockchain-based cryptocurrency which is being launched by New York's new mayor, Eric Adams. There are also alternatives to proof of work. Transactions can be validated by proof of stake (where mining capacity is linked to cryptocurrency ownership), proof of activity (where a random number of miners must sign off on the block of transactions using a crypto key before the block becomes part of the blockchain), proof of capacity (where miners allot a sizable volume of their hard drive to mining) and proof of storage (where miners allocate and share disk space in a distributed cloud). One alternative, suited to the capital markets context where

digital currency and tokenised securities issued on permissioned blockchain networks are likely to prevail, is 'byzantine fault tolerance' where consensus algorithms enable a decentralised network to function even in the presence of malfunctioning or malicious nodes. Such consensus algorithms were used to great success on the experiment in October 2021 where French government bonds were settled in central bank digital currency using blockchain technology and use a fraction of the energy of proof of work.

### **What's next?**

ESG issues are likely to remain at the forefront of the political and board agenda for many years to come as the world seeks to transition to net-zero emissions and recovers from the effects of the Covid-19 pandemic which brought an increased focus on social inequalities. Sustainable finance has a key role to play and it is hoped that technology and innovation can be used to address challenges surrounding the transparency and reliability of ESG data and improve access to liquidity which in turn will help accelerate sustainable growth.



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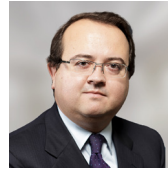
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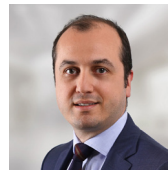
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