GREEN FINANCE AND SUSTAINABILITY DISCLOSURES IN THE TRANSITION TO A GLOBAL GREEN ECONOMY

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Abstract

Sustainable development and climate change are governing themes of the 21st century, and since the landmark treaty of the Paris Agreement in 2015, legislation has increasingly been geared towards fostering sustainable investment strategies. As governments begin to adopt the social and economic transitions necessary to achieve their targets for a green economy, it seems inevitable that green financing has gained great momentum over the last decade. By boosting cash flows from public, private and non-profit sectors to sustainable development initiatives, green financing better manages social and environmental risks, offering the possibility of meeting now often legally binding sustainable development goals. An assessment of challenges and opportunities has led to the identification of two key contributions to the spatially variegated green finance landscape– **first, the establishment of a common ground in green finance standards and disclosures, and second, the exploitation of new financial instruments and markets to expand green finance for environmentally and socially conscious projects.** Driven by shifting policies, international treaties and legislation, the development of the global economy demands standardisation and international cooperation to drive and support sustainable industrialisation with economic partners

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We hope that our work will enrich international public discourse on green financial policies.

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Executive Summary

This paper explores key aspects of challenges and opportunities in the global green finance landscape to identify best practices and criteria. By examining areas of Europe, North America and Asia, a variegated landscape of green finance, its definitions, taxonomy and enforcement is presented. Typical projects involve renewable energy and energy efficiency, sustainable use of natural resources, biodiversity conservation, pollution prevention and control, and circular economy initiatives. Opportunities in green renting and green securitization are also considered, as well as markets across the world, such as green sukuk, green free trade agreements and crowdsourcing. The role of private sector and international organisations in supporting regulatory and compliance frameworks and forging partnerships on both a unilateral and multilateral scale has been deemed essential.

This paper concludes that the trajectories of green finance will be shaped by the following challenges and opportunities:

Challenges

- Variation in regulatory systems and leadership
- Variation in green finance taxonomy and reporting standards

Opportunities

- New green finance instruments, such as green renting and green securitisation
- New green finance markets, such as green sukuk projects, green free trade agreements and crowdsourcing

Despite significant steps towards standardisation, including organisations such as the Task Force for Climate-Related Financial disclosures, and international dialogue through events catalysed by the 2015 Paris Agreement, there exist major barriers to a green economic transition:

- Lack of national incentives for climate-related financial disclosures and reporting based on fully standardised, international policies
- Failure to consider varying regional demands in sustainable investment strategies, for example the reduced selection of public companies in emerging economies
- Lack of a unified vision for green finance, where green markets, instruments, investments and capital are selected and continuously assessed against overarching criteria
- Pressure from fossil-fuel based economic principles causing risk aversion in investment

In terms of policy recommendations to tackle challenges and capitalise on opportunities in green finance, this paper suggests that policymakers and other stakeholders should consider the following measures:

Green Finance Standards and Disclosures

Seek global standardisation of climate-related financial disclosures by identifying best practice, and encourage national legislative action towards the 2015 Paris Goals, particularly through a legal obligation of public companies to disclose their climate-related progress and goals by:

- Promoting further engagement of international organisations in setting green finance standards
- Building reflective governance processes to adequately respond to shifting political and economic realities

Green Finance Instruments

Foster dialogue between stakeholders to explore unifying themes across existing green financial instruments and consider emerging approaches – such as green sukuk – culminating in the creation of a universal, policy-based framework for green finance initiatives by:

- Promoting flagship programmes to demonstrate the advantages of resilience bonds
- Standardising green clauses as part of green renting schemes
- Improving the definition of 'green securitisation'
- Supporting issuers and investors in the green securities market with data to measure the greenness of assets and prevent 'greenwashing'

New Green Finance Markets

Employ targeted market analysis to implement green finance in environments of varying economic development, considering key social, political and resource-based drivers of investment by:

- Adopting green sukuk principles and standards in mainstream green finance projects where appropriate
- Providing policy support for a vibrant ecosystem of international green finance collaborations amongst banks, developed and developing countries, and local organisations
- Considering green Free Trade Agreements with developing countries for long-term green finance growth
- Increasing access to crowdfunding and other alternative platforms for finance

I. INTRODUCTION

Green finance is any structured financial activity that funds the development or minimises the environmental impact of green projects, or both[1]. Typical projects involve renewable energy and energy efficiency, sustainable use of natural resources, biodiversity conservation, pollution management, and circular economy initiatives. By boosting the rate of cash flows from public, private and non-profit sectors to sustainable development initiatives through a range of financial instruments, green financing better manages social and environmental risks, while offering a profitable rate of return[2].

Green finance has gained momentum over the last decade, as it underpins the economic transition that will be necessary to meet the targets of the 2015 Paris Agreement and other climate-related legislations. The value of green bonds traded is projected to skyrocket from around EUR

[1] World Economic Forum (WEF), 'What Is Green Finance and Why Is It Important?'. [Website], (November 2020), World Economic Forum. <https://www.weforum.org/agenda/2020/11/what-is-green-finance/> accessed 16 February 2021.

[2] Environment UN, 'Green Financing'. [Website], (23 January 2018), UN Environment Programme. <http://www.unenvironment.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-financing> accessed 16 February 2021.

670bn in 2020 to EUR1tn by 2021 and EUR2tn by 2023[3]. While the top three issuers are the US, China and France, the growing role of the European Central Bank is notable. It holds 20% of all euro-dominated green debt despite only beginning to purchase corporate bonds in 2016[4].

On a broader scale, green finance initiatives are anticipated to pave the way for the development of global goals - the World Economic Forum's 2020 Green Horizon Summit centred on the role of green finance in global economic recovery from the COVID-19 pandemic[5], and it is clear that a transition to a green economy is necessary to meet the complex targets set out by the UN Sustainable Development Goals.

II. BACKGROUND

The capacity for and interest in green finance varies greatly by country, and is addressed by a wide range of national and supra-national institutions, each pursuing different roles in regulation and capacity development. Many of the industrial challenges pertain to inconsistent practices amongst stakeholders, while opportunities emerge from the varying demands of country-specific markets, characterised by differing national commitments, social environments and economic stabilities.

II.I. Global Developments

II.I.i. International Organisations in Green Finance

On a global scale, the United Nations (UN) estimates that an annual investment of more than USD5 tn is needed for developing countries to meet the SDGs[6]. Some of this can be fulfilled by public funds and development aid, leaving a USD2.5tn annual investment gap to be covered by green finance. However, according to the Climate Bonds Green Bond Database, the green finance market has only reached USD1.002tn in cumulative issuance since market inception in 2007[7]. In 2019, green bond issuance amounted to USD257.7bn[8]. A number of global initiatives have been established to address this investment gap and associated regulatory concerns.

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[3] NN Investment Partners, 'Global Green Bond Market Set to Hit EUR 2 Trillion in Three Years, Says NN Investment Partners'. [Website], (14 October 2020), NN Investment Partners. <https://www.nnip.com/en-INT/professional/insights/global-green-bond-market-set-to-hit-eur-2-trillion-in-three-years-says-nn-ip> accessed 16 February 2021.

[4] Ranasinghe MJ Dhara, 'Analysis: Central Banks Flexing Their Green Muscle for Climate Fight'. [Website], (28 October 2020), Reuters. <https://uk.reuters.com/article/uk-global-cbanks-green-analysis-idUKKBN27D1YK> accessed 16 February 2021.

[5] WEF (n 1)

[6] Tania Choufani and others, 'PRIVATE EQUITY'S ROLE IN DELIVERING THE SDGs: Current Approaches and Good Practice'.

[7] Liam Jones, '$1Trillion Mark Reached in Global Cumulative Green Issuance: Climate Bonds Data Intelligence Reports: Latest Figures' (*Climate Bonds Initiative*, 15 December 2020) <https://www.climatebonds.net/2020/12/1trillion-mark-reached-global-cumulative-green-issuance-climate-bonds-data-intelligence> accessed 16 February 2021.

[8] '2019 Green Bond Market Summary' (*Climate Bonds Initiative*, 5 February 2020) <https://www.climatebonds.net/resources/reports/2019-green-bond-market-summary> accessed 16 February 2021.

Other than the ICMA and LMA, the Task Force on Climate-Related Financial Disclosures (TCFD) is a major, emerging regulatory body, established by the Financial Stability Board (FSB) to develop a coherent set of voluntary disclosure guidelines for companies to inform investors, insurance underwriters and lenders about climate-related financial risks [9]. Over 1500 organisations, representing USD118tn of assets globally[10] and including nearly 60% of the world's 100 largest public companies[11], have expressed their support for the TCFD recommendations.

Inter-governmental organisations and partnerships include the United Nations Environment Programme Finance Initiative (UNEP FI), a collaboration between UNEP and the international financial sector to utilise private sector funding for sustainable development[12]. Working with more than 350 members – banks, insurers, and investors – and over 100 supporting institutions, it has laid out three key frameworks:

1. Principles for Responsible Banking (PRB) - launched with more than 130 banks collectively holding USD47tn in assets, or one third of the global banking sector, on 22 September 2019, now supported by 200 banks.
2. Principles for Sustainable Insurance (PSI) - established in 2012 by UNEP FI and today applied by one-quarter of the world's insurers (25% of world premium).
3. Principles for Responsible Investment (PRI) - established in 2006 by UNEP FI and the UN Global Compact, now applied by half the world's institutional investors (USD83tn).[13]

The G20 also founded the Green Finance Study Group (GSFG) in 2016 to identify ways to encourage green investment through annual synthesis reports recommending best practices on knowledge sharing, capacity building and commitments to green finance. Its mandate was to "identify institutional and market barriers to green finance, and based on country experiences, develop options on how to enhance the ability of the financial system to mobilize private capital for green investment"[14]. In 2018, the GSFG was replaced by the Sustainable Finance Study Group (SFSG), which continues to focus on green finance but also investigates other sustainability co-benefits including income equality and job creation[15].

Aside from providing research and guidelines on sustainable finance, inter-governmental organisations also play an active role in supplying capital. For instance, the World Bank (WB) issues World Bank Green Bonds of which proceeds are dedicated specifically to support WB-funded projects addressing

[9] 'About' (*Task Force on Climate-Related Financial Disclosures*) <https://www.fsb-tcfd.org/about/> accessed 16 February 2021.
[10] 'ICCR's 2020 Proxy Resolutions and Voting Guide' <https://www.iccr.org/sites/default/files/iccr_2020proxyresolutionsandvotingguide_m.pdf>, p. 57.
[11] 'FSB Encourages the IFRS Foundation and Authorities to Use TCFD's Recommendations as the Basis for Climate-Related Financial Risk Disclosures' (21 December 2020) <https://www.fsb.org/2020/12/fsb-encourages-the-ifrs-foundation-and-authorities-to-use-tcfds-recommendations-as-the-basis-for-climate-related-financial-risk-disclosures/> accessed 16 February 2021.
[12] 'About Us – United Nations Environment – Finance Initiative' <https://www.unepfi.org/about/> accessed 16 February 2021.
[13] ibid.
[14] 'Sustainable Finance Study Group (SFSG) – Climate Action in Financial Institutions' <https://www.mainstreamingclimate.org/sfsg/> accessed 16 February 2021.
[15] ibid.

climate change adaptation and mitigation[16], such as the WB Climate Investment Funds (CIF) founded in 2018 to channel resources through Multilateral Development Banks (MDBs) and supporting 340 low-carbon and resilient development projects in 72 countries[17]. Similarly, the UN Green Climate Fund, set up in 2010, supports climate finance in developing countries. In its first year of operations in 2016, the GCF developed a project portfolio of 35 projects worth over USD1.5bn[18].

In terms of non-governmental organisations, the Climate Bonds Initiative (CBI) is the sole international, investor-focused non-profit organisation working to mobilise the USD100tn bond market for climate change solutions[19]. A major contribution is the launch of the Climate Bond Standard and Certification Scheme in December 2010, utilising scientifically rigorous labelling to certify bonds and loans that align with the Paris Agreement goal of limiting global temperature increase to 2 degrees Celsius. The Scheme is used worldwide by bond issuers, governments, investors and financial markets for prioritising climate-friendly, fixed-income investments[20].

Additionally, launched at the Paris One Planet Summit in December 2017, the Network for Greening the Financial System (NGFS) is a group of Central Banks and supervisors willing, on a voluntary basis, to share best practices in relation to environment and climate risk-management in the financial sector. It consists of 83 members and 13 observers, with the exception of the US Federal Reserve. Key areas of activity include micro-prudential supervision, macro-finance, scaling up green finance, bridging data gaps, and research [21].

II.I.ii. Variegated Green Finance Trajectories

Global variations in green finance development can be analysed based on the direction of government policy and investor attitudes. According to the Climate Bond Initiative's 2019 Global State of the Market Report, green bond issuance increased in all regions to a global issuance of US $259bn, compared to USD171.1bn in 2018[22]. Europe drove most of the increase, accounting for 57% of the global expansion[23]. Non-financial corporations were the largest issuer, and the top uses of proceeds were Energy, Buildings and Transport which accounted for 82% of issuance (up from 77% in 2018)[24].

[16] 'IBRD Funding Program' (*World Bank*) <https://treasury.worldbank.org/en/about/unit/treasury/ibrd/ibrd-green-bonds> accessed 16 February 2021.

[17] 'THE FUTURE IS NOW, CIF Annual Report 2019'.

[18] 'Timeline' (*Green Climate Fund*, 21 January 2020) <https://www.greenclimate.fund/about/timeline> accessed 16 February 2021.

[19] 'Climate Bonds Initiative | Mobilizing Debt Capital Markets for Climate Change Solutions' <https://www.climatebonds.net/> accessed 16 February 2021.

[20] 'History' (*Climate Bonds Initiative*, 22 May 2014) <https://www.climatebonds.net/standard/about/history> accessed 16 February 2021.

[21] 'Origin and Purpose' (*NGFS*) <https://www.ngfs.net/en> accessed 16 February 2021.

[22] Miguel Almeida, 'GREEN BONDS GLOBAL STATE OF THE MARKET 2019' <https://www.climatebonds.net/system/tdf/reports/cbi_sotm_2019_vol1_04d.pdf?file=1&type=node&id=47577&force=0>, p. 2.

[23] ibid, p. 5.

[24] ibid, p. 7.

The COVID-19 outbreak has also contributed to an increased interest in green finance, with governmental bodies such as the EU leveraging green finance for recovery funds – 25% of its EUR 750bn Recovery Fund is to be covered by green bonds[25].

Market size, government policy and leadership

Firstly, variations in the size of national green finance markets can be attributed to the availability of capital, alongside government interest – the latter often entailing clear regulations and partnerships with other countries to increase investor confidence.

The largest green finance market is situated in the United States. Total US-domiciled assets under management using sustainable investing strategies grew from USD8.7tn at the start of 2016 to USD12tn at the start of 2018, an increase of 38%[26]. In terms of policy and regulation, however, over 40% of companies listed on the Standard & Poor's 500 Index did not participate in voluntary climate risk disclosure as of 2013, despite the Securities and Exchange Commission (SEC) issuing Interpretative Guidance on climate disclosure in 2010[27].

On the other hand, Europe has shown strong growth in the green finance industry, both in terms of market size and regulatory leadership. In the first half of 2020, the European economy issued US$90bn worth of green bonds, representing 46% percent of the world's total[28]. Additionally, following the 2019 European Green Deal, the European Commission began establishing measures to increase sustainable finance, including the creation of the voluntary EU Green Bond Standard and EU taxonomy classifying sustainable economic activities (to be adopted in 2021)[29]. Alongside obligatory disclosure regulations including the ESG Disclosures Regulation, such voluntary standards are likely to promote investor interest and confidence, thereby expanding the green bond market[30].

The emphasis on regulation as a tool to increase green finance has been replicated in other countries. For instance, in 2017, the ASEAN Capital Markets Forum launched the ASEAN Green Bond Standards based on the ICMA's GBP[31], while the Securities and Exchange Board of India (SEBI) has issued

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[25] John Ainger and Lyubov Pronina, 'EU to Sell 225 Billion Euros of Green Bonds to Fund Recovery' *Bloomberg.com* (16 September 2020) <https://www.bloomberg.com/news/articles/2020-09-16/eu-plans-to-sell-225-billion-euros-of-green-bonds-for-stimulus> accessed 16 February 2021.

[26] '2018 GLOBAL SUSTAINABLE INVESTMENT REVIEW', p.14.

[27] Jim Coburn and Jackie Cook, 'Cool Response: The SEC & Corporate Climate Change Reporting'.

[28] Balazs Koranyi and Francesco Canepa, 'In Green Shift, ECB to Accept and Buy Sustainable Bonds' *Reuters* (22 September 2020) <https://www.reuters.com/article/us-ecb-policy-climatechange-idINKCN26D1C0> accessed 16 February 2021.

[29] 'EU Green Bond Standard' (*European Commission - European Commission*) <https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-green-bond-standard_en> accessed 16 February 2021.

[30] Riikka Sievänen, 'EU Sustainable Finance explained - Green Bonds - KPMG Finland' (*KPMG*, 25 May 2020) <https://home.kpmg/fi/fi/home/Pinnalla/2019/11/eu-sustainable-finance-explained-green-bonds.html> accessed 16 February 2021.

[31] Giulia Rado and Monica Filkova, 'ASEAN Green Financial Instruments Guide' <https://www.climatebonds.net/files/reports/asean_green_fin_istruments_cbi_012019_0.pdf>, p. 2.

guidelines to define disclosure requirements[32]. The UK's Green Finance Strategy, published in July 2019, also highlights the crafting of disclosure regulation as a main goal[33].

Networks of information have expanded between governments. In particular, the EU launched the International Platform on Sustainable Finance (IPSF) together with authorities from Argentina, Canada, Chile, China, India, Kenya and Morocco[34]. A recent EU communication in December 2020 also called for a transatlantic agenda to enhance cooperation with the United States. One of the 'first steps' outlined is a "jointly designed global regulatory framework for sustainable finance, learning from the experience of the EU taxonomy"[35]. Similarly, the UK launched the UK Partnering for Accelerated Climate Transitions (UK PACT) programme in 2018, investing £60m in countries such as China, Brazil and Mexico[36].

Investor attitudes, issuers and sectors

Despite regulations, which may incentivise green investments, the growth of green finance markets ultimately depends on investor behaviour, influenced by socio-political priorities towards environmental issues in both private and governmental sectors. The specific sectors showing the greatest green investment correlate not only with areas where climate-centric legislation is becoming adopted, but also with infrastructure landscapes that are beginning to experience climate-related challenges.

Although government policies and participation in international partnerships appear promising, investor attitudes do not always align. For instance, in Japan, the global energy transition and resulting international policy responses are seen as "largely exogenous"[37] – in light of the EU's proposed regulatory framework, business and industry groups advocated for a slower rollout of said regulations, favouring a more inclusive and flexible approach towards activities that could qualify as sustainable[38]. Similarly, while it is the fifth largest cumulative green bond issuer in the Asia-Pacific region, totalling USD2.05bn by 2018[39], South Korea's green bond market is still small in a global context. The largest domestic barriers are considered to be a lack of public interest in green growth[40]. International barriers include foreign currency risk and a lack of information available in the English language[41]. Nonetheless,

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[32] Suranjali Tandon, 'What next for Sustainable Finance in India? - Grantham Research Institute on Climate Change and the Environment' (*LSE Grantham Institute*, 22 June 2020) <https://www.lse.ac.uk/granthaminstitute/news/what-next-for-sustainable-finance-in-india/> accessed 16 February 2021.

[33] 'ACCELERATING GREEN FINANCE: A Report to Government by the Green Finance Taskforce' <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/703816/green-finance-taskforce-accelerating-green-finance-report.pdf>, p. 35.

[34] 'International Platform on Sustainable Finance' (*European Commission - European Commission*) <https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/international-platform-sustainable-finance_en> accessed 16 February 2021.

[35] 'JOINT COMMUNICATION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL AND THE COUNCIL: A New EU-US Agenda for Global Change', p. 5.

[36] 'Home' (*UK PACT*) <http://www.ukpact.co.uk> accessed 16 February 2021.

[37] Schumacher, Chenet and Volz (n 43), p. 215.

[38] ibid.

[39] Bridget Boulle, 'KOREA CLIMATE BOND MARKET OVERVIEW AND OPPORTUNITIES' <https://www.climatebonds.net/files/files/CBI-Korea_Market-Final-01A.pdf>, pp. 4-5.

[40] Deokkyo Oh and Sang-Hyup Kim, 'Green Finance in the Republic of Korea: Barriers and Solutions' (Asian Development Bank Institute 2018) 897, pp. 213-214.

[41] Boulle (n 71), p.5.

South Korea is thought to have a strong potential for growth due to its strong bond market, robust investor base and supportive climate change policies[42].

Central banks have also become key players in green finance. The European Central Bank (ECB) owns 20% of eligible Euro-denominated green debt[43], purchasing green bonds through its asset purchase programme (APP), making the ECB the first main central bank to use a flagship bond-buying programme for the pursuit of green objectives[44]. In 2019, Singapore's central bank, the Monetary Authority of Singapore (MAS), also launched a USD2bn Green Investments Programme (GIP), aimed at placing funds with asset managers "committed to drive regional green efforts out of Singapore"[45]. The role of central banks, contingent on local economic regimes, varies across the world. In Europe, government-backed entities, local government and sovereigns accounted for around 40% of cumulative issuance in 2019[46]. Non-financial corporations and financial institutions formed a third and a quarter respectively. On the other hand, in China, commercial banks issued roughly 60% of Chinese green bonds in 2018 while government policy banks issued roughly 3%[47], whereas the largest source of climate financing in India is public funding[48].

The industries targeted by green financing, while varying slightly between countries, largely comprise energy, infrastructure and transport. In China, 28% of green bond proceeds went to solar, wind and other clean energy projects in 2018. A further 33% went to low-carbon transport, including for urban mass transit[49]. Similarly, cumulative Japanese proceeds (as of 2019) saw 29% allocated to Energy, and 25% to Transport, though Buildings dominate at 38%[50].

'Greenness' of investments and programmes

A major concern within green finance is the extent to which the use of proceeds aligns with the notion of sustainability. Given that international green finance principles are voluntary, an important factor is the rigour of government policy, where lenient definitions enable investment in products having only a tenuous relation to sustainability. In 2019, a mere 56% of Chinese green bonds aligned with both

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[42] ibid.

[43] Marc Jones Ranasinghe Dhara, 'Analysis: Central Banks Flexing Their Green Muscle for Climate Fight' *Reuters* (28 October 2020) <https://www.reuters.com/article/uk-global-cbanks-green-analysis-idUKKBN27D1YK> accessed 16 February 2021.

[44] Roberto A De Santis and others, 'Purchases of Green Bonds under the Eurosystem's Asset Purchase Programme' <https://www.ecb.europa.eu/pub/economic-bulletin/focus/2018/html/ecb.ebbox201807_01.en.html> accessed 16 February 2021.

[45] 'New US$2 Billion Investments Programme to Support Growth of Green Finance in Singapore' (11 November 2019) <https://www.mas.gov.sg/news/media-releases/2019/new-us$2-billion-investments-programme-to-support-growth-of-green-finance-in-singapore> accessed 16 February 2021.

[46] Monica Filkova, 'THE GREEN BOND MARKET IN EUROPE 2018' <https://www.climatebonds.net/system/tdf/reports/the_green_bond_market_in_europe.pdf?file=1&type=node&id=33922>, p. 2.

[47] 'GREEN FINANCE' (*Guide to Chinese Climate Policy*) <https://chineseclimatepolicy.energypolicy.columbia.edu/en/green-finance> accessed 23 February 2021.

[48] Arjun Malhotra, Rahul Muralidharan and Soumyajit Bhar, 'A Primer to Climate Finance in India' (16 April 2020) <https://ifmrlead.org/a-primer-to-climate-finance-in-india/> accessed 16 February 2021.

[49] 'GREEN FINANCE' (n 79).

[50] Amanda Giorgi, 'Japan: Green Finance State of the Market – 2019' <https://www.climatebonds.net/files/reports/cbi_japan_gfsotm2019.pdf>. p. 1.

Chinese and CBI definitions[51]. Those not aligned with CBI standards often funded ineligible projects such as 'clean' uses of coal, or allocated a disproportionately high fraction of proceeds to working capital – while CBI standards allow for just 5% of proceeds to be allocated, Chinese guidelines allow for 50%. Addressing domestic concerns, China's central bank, the People's Bank of China (PBoC), released a new edition of the "Green Bond Endorsed Project Catalogue" in 2020. This update excluded "clean utilisation of fossil fuels" from eligible green bond projects[52].

Within the EU, the European Central Bank's APP has also come under criticism. The Corporate Securities Purchase Programme (CSPP), under which the bank buys company debt, has allowed companies engaged in unsustainable industries, such as fossil fuel extraction, to benefit excessively from the EUR236bn bond purchase programme[53].

II.II. Conclusions

The growth in the variety of green financial instruments, number of regulatory bodies and partnerships indicates an increasing incentivisation in green finance. Certain regions appear to be steering the industry, particularly the EU, where more prominent partnerships and regulation have been matched with marked growth in green bond issuance. Moreover, the substantial involvement of central banks and public funding in green finance highlights the importance of government interest. Simultaneously, a number of constraining factors remain present, including the availability of capital in certain markets, and variations in socio-political priorities.

While regulations in green finance remain voluntary in many dominant financial markets, there is insufficient incentive for the revolutionary economic transition that is necessary to achieve a sustainable global economy, aligned with the SDGs and the climate-related legislation outlined by the Paris Agreement. Although governments have entered into legally binding international agreements to mitigate the impacts of climate change, further national action and sector-specific mandates may be required to fulfil pledges and reduce climate risk.

III. GREEN FINANCE: THE LEXICAL PARADOX

A key challenge to effective climate-related regulation is the lack of agreement upon a single definition or set of criteria that explicate green finance. To date, numerous multilateral institutions have been established to either promote greater adoption of green finance initiatives, or to aid with compliance obligations, notably the *CDP*[54] (formerly the Carbon Disclosure Project), *Global Reporting Initiative*[55],

[51] Jingwei Jia, Mervyn Tang and Andrew Steel, 'Green Finance Expands to Support China's Transition to Low Carbon Emissions' <https://www.fitchratings.com/research/corporate-finance/green-finance-expands-to-support-china-transition-to-low-carbon-emissions-03-11-2020> accessed 23 February 2021, p. 3.
[52] ibid, p. 2.
[53] 'The ECB Needs to Do More to "Green" Its Monetary Policy' (26 October 2020) <https://www.ft.com/content/d26da66f-ba6b-4877-b89f-dc0df46bfb4f> accessed 16 February 2021.
[54] CDP, 'About us'. [Website], (January 2021), CDP. <https://www.cdp.net/en/info/about-us> accessed 16 February 2021.
[55] Global Reporting Initiative, 'Mission & history'. [Website], (January 2021), Global Reporting Initiative. <https://www.globalreporting.org/about-gri/mission-history/> accessed 16 February 2021.

and *International Platform on Sustainable Finance*[56]. Nonetheless, green finance regulation and enforcement in practice has occurred mostly at a domestic level, with individual states taking responsibility for the formulation of definitions, taxonomy, and enforcement. The resulting differences in taxonomies have proved problematic, due to both disputes over the validity of different regulatory programmes[57], and the burden imposed on multinationals who operate inside multiple compliance frameworks. An examination of three regions - Europe, North America and Asia - is performed to analyse key developments in the creation of definitions and taxonomies for Green Finance. Furthermore, an attempt is made to draw out key factors that might explain variation, where present.

III.I. Green Finance Taxonomy

III.I.i. A Pan European outlook on Taxonomy

In Europe, substantial progress has been made towards the creation of a unified taxonomy[58] and definition system by the European Union as part of the 'European Green Deal'[59] project. While Green Finance is not specifically defined by either the High-Level Expert Group on Sustainable Finance, or the Technical Expert Group on Sustainable Finance, the European Commission does offer a definition for Sustainable Finance: "the process of taking due account of environmental, social and governance considerations when making investment decisions in the financial sector". 'Due account', in this context, effectively amounts to the actions necessary to meet the targets of the European Green Deal; no net emissions of greenhouse gases by 2050. The EU taxonomic system was codified in the 2020 Taxonomy Regulation[60], and sets out four conditions that must be met for an economic activity to qualify as "environmentally sustainable for the purposes of any measure setting requirements for financial market participants, or issuers in respect of financial products or corporate bonds". The criteria are as follows:

i) *Contributes to one or more predefined environmental objectives.*
ii) *Does not significantly harm any predefined environmental objectives.*
iii) *Carried out with compliance of minimum environmental safeguards.*
iv) *Complies with a set of technical screening criteria.*

The EU further established a Platform on Sustainable Finance (PSF), composed of public and private sector actors from key European regulatory agencies and financial and non-financial market participants. This platform is tasked with further advising the European Commission on future

[56] European Commission, 'International platform on sustainable finance'. [Website], October 2020, European Commission https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/international-platform-sustainable-finance_en, accessed 16 February 2021.
[57] Ryan Brightwell, 'How green are green bonds?', *Climate 2020*, (2020), p.78-80.
[58] European Commission, 'EU taxonomy for sustainable activities'. [Website], (July 2020), European Commission <https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en>, accessed 16 February 2021.
[59] European Commission, 'A European Green Deal'. [Website], January 2021, European Commission. https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en, accessed 16 February 2021.
[60] 'Sustainable Finance Taxonomy - Regulation (EU) 2020/852' (European Commission - European Commission) <https://ec.europa.eu/info/law/sustainable-finance-taxonomy-regulation-eu-2020-852_en> accessed 16 February 2021.

developments in the EU taxonomy, as well as broader sustainable finance policies. The technical screening criteria required to qualify as environmentally sustainable are defined by the PSF.

From a regulatory perspective, the EU legislation of note is the Regulation on Sustainability-Related Disclosures in the Financial Services Sector (SDFR), which imposes transparency and disclosure requirements for financial market participants, focused on sustainability risks in investment management and advisory[61]. In addition to sustainability risk, asset managers are required to disclose Principal Adverse Impacts (effectively, the ESG footprint of investments), and their broader ESG approach, with the aim of preventing 'greenwashing', increasing transparency and maximising the information available to investors.

By comparison, the United Kingdom has been somewhat slower in moving towards a comprehensive Green Finance taxonomy and associated regulations. To date, no single taxonomy or regulatory scheme has been put in place, though policies tackling other issues include provisions have more recently been interpreted as regulating Green Finance[62]

Brexit has provided an opportunity to develop a home-grown taxonomic system through coordination between the UK Treasury and its regulators. The UK government announced in November 2020 its intention to introduce disclosure regulations aligned to the TCFD[63]. This announcement set out a five-year roadmap, with the aim of requiring most asset managers to comply with some form of disclosure requirements by 2023. These requirements cover four thematic areas: governance, strategy, risk management, and metrics and targets, with eleven recommended specific disclosures. In addition, the Treasury has announced plans to implement a green taxonomy, to be developed by a UK Green Technical Advisory Group, building on metrics present in the EU taxonomy. The final structure of this green taxonomy remains uncertain; a governmental announcement rejecting direct adoption of the EU taxonomy has caused considerable consternation, eliciting objections from the House of Commons European Scrutiny Committee[64] and the UK Sustainable Investment and Finance Association[65].

III.I.ii. Taxonomy across the United States

The United States has seen highly differentiated progress towards Green Finance regulation, disclosure and taxonomic categorisation on both state and federal levels.

[61] Simmons & Simmons, 'The Sustainable Finance Disclosure Regulation'. [Website], (December 2019), Simmons & Simmons. <https://www.simmons-simmons.com/en/features/sustainable-financing-and-esg-investment/ck0zghunhm5xi0b78nyatyd55/the-disclosures-regulation> accessed 16 February 2021.

[62] 'The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013' <https://www.legislation.gov.uk/ukdsi/2013/9780111540169/contents> accessed 16 February 2021.

[63] 'UK Joint Regulator and Government TCFD Taskforce: Interim Report and Roadmap' (GOV.UK) <https://www.gov.uk/government/publications/uk-joint-regulator-and-government-tcfd-taskforce-interim-report-and-roadmap> accessed 16 February 2021.

[64] Cash W, 'UK Implementation of the EU's Sustainable Investment Taxonomy' (June 2020).

[65] Riding S, 'Fund Groups Urge UK to Back EU Green Finance Rules'. [Website], (19 July 2020), Financial Times. <https://www.ft.com/content/9c9fd01b-4924-4900-938e-c70b118173c5> accessed 16 February 2021.

Resulting, in part, from ongoing issues of partisanship[66] and gridlock in Congress, as well as the politicisation of climate change[67],the US government has thus far failed to pass comprehensive federal legislation tackling Green Finance regulation. Consequently, no Green Finance taxonomy or regulatory system has been created. Progress, where visible, has occurred through the executive branch of the government, where presidents have more flexibility than Congress would otherwise allow. Under the Bush and Obama administrations, several federal agencies moved towards ESG regulations. Most notable are the SEC[68], which in 2010 set out disclosure guidelines on climate related risk, and the CFTC, which in a 2020 report[69] made a case for all US financial regulators to 'incorporate climate-related risks into their mandates', increase engagement with international organisations to tackle climate risk, and review existing legislation to clarify 'the appropriateness of making investment using climate-related factors'. While the Trump administration was openly sceptical of climate change and, by extension, the need for ESG regulation[70], there are clear signs that, under Biden, a reversal may be imminent, already suggested by the decision to re-join the Paris Climate Agreement on his first day in office.

On a state level, the beginnings of clear Green Finance taxonomies, definitions, and regulatory systems are visible, exemplified by California, where disclosure regulations and green bond taxonomies are either being established, or have enjoyed significant support in recent years. The current State Treasurer, Fiona Ma, has introduced a green bond taxonomy, with several definitions offered[71] for Green Finance, as well as a 'green label certification'. Here, a green bond is defined as 'public sector, private sector, or multilateral institution debt issuances used to finance climate-friendly or other environmental projects'[72]. On the public level, the California Responsible Investment Roadmap (CRPI)[73], with headquarters in California, was developed with insights from state policymakers and financial regulators, along with private sector stakeholders, offers a model for future Green Finance regulation with a broad base of support: currently, the CRPI has 104 signatories. It must be noted, however, that these recommendations are yet to make their way into law - even in states with wide approval for green policies, legislative success around Green Finance regulation has been limited.

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66 Pew Research Center, 'Political Polarization in the American Public'. [Website], (June 2014), Pew Research Center. <https://www.pewresearch.org/politics/2014/06/12/political-polarization-in-the-american-public/> accessed 16 February 2021.

67 Pew Research Center, 'The Politics of Climate Change in the United States'. [Website], (October 2016), Pew Research Center. <https://www.pewresearch.org/science/2016/10/04/the-politics-of-climate/> accessed 16 February 2021.

68 Murphy E, 'Commission Guidance Regarding Disclosure Related to Climate Change'. Securities and Exchange Commission. <https://www.sec.gov/rules/interp/2010/33-9106.pdf>.

69 Climate-Related Market Risk Subcommittee, '*Managing Climate Risk in the U.S. Financial System*'. (2020915930).

70 Eilperin J and others, 'Trump Rolled Back More than 125 Environmental Safeguards. Here's How.'. [Website] (October 2020), Washington Post. <https://www.washingtonpost.com/graphics/2020/climate-environment/trump-climate-environment-protections/> accessed 16 February 2021.

71 Hannay R, 'Green Bonds in the Golden State: A Practical Path for Issuers' (Goldman School of Public Policy, University of California Berkeley, August 2019) <https://www.treasurer.ca.gov/cdiac/webinars/2019/greenbonds/green-bonds-session.pdf>.

72 Chiang J, 'Growing the U.S. Green Bond Market' (2017) <https://www.treasurer.ca.gov/greenbonds/publications/reports/green_bond_market_01.pdf>.

73 UN Principles for Responsible Investment, 'The California Responsible Investment Roadmap'. [Website], (September 2020), UN Principles for Responsible Investment. <https://www.unpri.org/fiduciary-duty/the-california-responsible-investment-roadmap/6466.article> accessed 16 February 2021.

III.I.iii. Taxonomy across Asia

China supplies the preeminent case for successful Green Finance regulation, taxonomy and definition setting within Asia. 2016 saw the Peoples' Bank of China publishing 'Guidelines for Establishing the Green Financial System'[74], a joint effort between six regulatory bodies, marking the first time any nation's central bank had issued such guidelines[75]. This regulation offered perhaps the clearest national definition of Green Finance examined thus far: 'financial services provided for economic activities that are supportive of environmental improvement, climate change mitigation and more efficient resource utilization'. These Guidelines make seven key recommendations, including the creation of green financial products, local government initiatives and international cooperation.

Of note are Green Bonds, established through a taxonomy published between 2015 and 2017[76]. Despite the huge size of the Chinese green bond market, estimated at USD165bn as of November 2020[77], these bonds have proved controversial. Both the People's Bank of China, and National Development and Reform Commission taxonomies included 'clean coal use' as acceptable uses for Green Bonds, a definition with little support outside China. While a 2020 redraft of a new Green Bonds Catalogue removed these controversial coal investments, oil and gas related projects remain classified as 'green' under the updated taxonomy[78].

Finally, India provides an alternative example of Green Finance implementation in Asia. While ESG factors are less prominent in government policies when compared to China, there is nevertheless evidence of concerted state efforts to define, regulate and promote Green Finance throughout India. Until 2008, the Reserve Bank of India issued briefings of the growing importance of ESG and corresponding disclosures in the banking sector. In 2012, the Securities and Exchange Board of India (SEBI) introduced requirements for large companies to issue Business Responsibility Reporting, including environmental strategy, a requirement that now encompasses 1000 firms. Stricter disclosure requirements were introduced in 2017, alongside guidance on securities and definitions for green financial products under eight categories, including 'clean transportation', 'renewable and sustainable

[74] People's Bank of China, 'The People's Bank of China and Six Other Agencies Jointly Issue Guidelines for Establishing the Green Financial System'. [Website], (September 2016), People's Bank of China. <http://www.pbc.gov.cn/english/130721/3131759/index.html> accessed 16 February 2021.

[75] SIPA Center on Global Energy Policy, 'Guide to Chinese Climate Policy'. [Website], (January 2021), Columbia University in the City of New York. <https://chineseclimatepolicy.energypolicy.columbia.edu/en/green-finance> accessed 16 February 2021.

[76] Ibid.

[77] Fitch Ratings, 'China Corporates Snapshot - December 2020: China's Green Bond Market to Stay Robust amid Policy Support'. [Website], (December 2020), Fitch Ratings. <https://www.fitchratings.com/research/corporate-finance/china-corporates-snapshot-december-2020-china-green-bond-market-to-stay-robust-amid-policy-support-23-12-2020> accessed 16 February 2021.

[78] China Dialogue, 'International Investors Eye China's Green Bonds'. [Website], (February 2018), China Dialogue. <https://chinadialogue.net/en/business/10387-international-investors-eye-china-s-green-bonds/> accessed 16 February 2021.

energy', and 'climate change adaption'[79]. By 2018, India had the world's second largest Green Bonds market, the products of which primarily fund renewable energy projects[80].

III.I.iv. Overcoming Taxonomical Challenges

Key state actors appear to be making concerted efforts towards the definition and regulation of Green Finance, through both taxonomical categorisation of green financial products, and new disclosure requirements. However, the processes by which definitions and regulations are established often remains problematic. Differing Green Finance definitions, best exemplified in the controversy over Chinese Green Bonds issued for 'clean coal' development, has posed a challenge to both private companies, who may find themselves caught in multiple different regulatory regimes, and also to state regulators faced with competing models, complicating domestic attempts to introduce taxonomic systems.

Difficulties in setting definitions are evidently prevalent, and stem from varying financial environments, priorities, and levels economic development, alongside the financial power wielded by influential lobbies, including the fossil fuel lobby. Further challenges relevant to definition setting include political factors, both the unwillingness of some states to cooperate multilaterally (as the UK has proven in relation to EU Green Finance regulation), and a growing politicisation of climate change, especially in the United States, which has thwarted effective central regulation. The resulting lack of unanimously accepted Green Finance definitions renders comparison between independent companies, institutions or governments effectively impossible, preventing accurate identification of best practices in Green Finance and thus hindering progress towards a green economic transition.

Despite these challenges, optimism is equally well founded. Motions by many governments to redefine Green Finance taxonomies in response to criticism, and increasing domestic adoption of international standards, suggests that the challenges facing Green Finance today are far from insurmountable.

III.II. Appraisal of Current Solutions

Despite the significant challenges outlined above, the current prospects of achieving a unified approach in reporting and disclosure are more optimistic. Throughout 2020, the financial world was dominated by questions of sustainability, and the large-scale government interventions necessary to combat the economic consequences of the COVID-19 crisis have provided opportunities to structure recovery packages with a greater focus on sustainability. The subsequent evaluation seeks to determine the extent to which recent national and international regulations have opened new avenues for Green Finance initiatives, and whether pressure from investors has led towards improved sustainability disclosures.

[79] Securities and Exchange Board of India, 'Disclosure Requirements for Issuance and Listing of Green Debt Securities'. [Website], (May 2017), Securities and Exchange Board of India. <https://www.sebi.gov.in/legal/circulars/may-2017/disclosure-requirements-for-issuance-and-listing-of-green-debt-securities_34988.html> accessed 16 February 2021.

[80] Climate Bonds Initiative, 'Green Bonds: The State of the Market 2018'. [Website], (March 2019), Climate Bonds Initiative. <https://www.climatebonds.net/resources/reports/green-bonds-state-market-2018> accessed 16 February 2021.

III.II.i. Evaluating Measures Across the EU

The new European Commission, headed by President Ursula von der Leyen with her proposed European Green Deal, designated sustainability as one of the main priorities of the EU agenda, with EU leaders agreeing at the European Council on 11 December 2020 to increase the Union's emission-reduction target to 55% by 2030, compared to emissions in 1990.[81] In line with the general approach to the proposed European climate law is the aim of EU-wide climate neutrality by 2050.

Another important part of the European green transformation is a new sustainable finance strategy, initially planned for 2020, but now scheduled for publication in the first half of 2021. The strategy intends to mobilise private investment, thereby raising the estimated additional EUR350bn required annually to implement the Commission's goals. Updated approaches to sustainable finance are expected to complement the frameworks described above, being based on the sustainable finance action plan and initiative launched in 2018. The three priorities of the strategy are[82]:

i) *Strengthening foundations for sustainable investment.*
ii) *Increasing opportunities for citizens, financial institutions, and corporates to enhance sustainability.*
iii) *Reducing and managing climate and environmental risks.*

Included in the strategy will be a non-financial directive to improve sustainability disclosures for companies and aims to develop a voluntary EU Green Bond Standard. [83] The EU is drafting a legislative proposal, expected for June 2021, which would establish a carbon tax for imports from certain countries with weak pollution rules, to protect the competitiveness of local producers by enforcing stricter EU regulations.

While the outcomes of the new strategy remain to be seen, the increased regulatory pressure has, in the past, yielded quantifiable improvements in the environmental disclosures of EU companies. The Climate Disclosure Standards Board (CDSB) investigated environmental disclosures published by the 50 largest listed EU companies in 2020, with a combined market capitalisation of USD3.5tn under the EU Non-Financial Reporting Directive (NFRD). Their investigations consider the effectiveness of environment and climate disclosures towards greater relevance, consistency and comparability of company reporting.[84] While most large EU companies have now been found to provide disclosures of the main categories across the NFRD, the TCFD-aligned climate reporting and disclosure on wider environmental topics remains insufficient, with firms taking a selective approach to environmental disclosure. The integration of TCFD, clarity and specificity represent the main problems, with 68% of the companies mentioning TCFD but only 4% defining short, medium and long-term plans and less

[81] Council of the EU, 'Council agrees on full general approach on European climate law proposal' <https://www.consilium.europa.eu/en/press/press-releases/2020/12/17/council-agrees-on-full-general-approach-on-european-climate-law-proposal/> accessed 16 February 2021.
[82] PwC, 'European Commission publishes consultation on renewed sustainable finance strategy' <https://www.pwc.com/gx/en/about/assets/european-commission-publishes-consultation-on-renewed-sustainable-finance-strategy.pdf> accessed 16 February 2021.
[83] EU Technical Expert Group on Sustainable Finance, 'EU Green Bond Standard' <https://ec.europa.eu/info/sites/info/files/business_economy_euro/banking_and_finance/documents/200309-sustainable-finance-teg-green-bond-standard-usability-guide_en.pdf> accessed 16 February 2021.
[84] CDSB, 'The state of the EU environmental disclosure in 2020' <https://www.cdsb.net/sites/default/files/cdsb_eu_environmental_disclosure_in_2020_spreads.pdf> accessed 16 February 2021.

than 20% providing details on their resilience to different climate scenarios. Evidently, significant disclosure gaps against the TCFD recommendations remain, preventing investors from efficiently addressing sustainability concerns in the allocation of capital.

III.II.ii. Evaluating Measures Across the UK

With its recent departure from the EU, the UK may have an opportunity to find a more individualised strategy, although international cooperation and alignment has undoubtedly become more difficult. In a recent report, the environmental charity ClientEarth found the largest UK companies' environmental disclosures to be "woefully inadequate".[85] Published in February 2021, the study investigated the FTSE 250 companies and found clear reference to climate-related factors in only 4% of their financial accounts and audits. Even if existent, the disclosures are usually non-specific. Furthermore, only 40% of companies explicitly named environmental damages in their fundamental risk analysis. 31% of the examined companies set the target of becoming net-zero by 2050, aligning with the Paris Agreement, yet details of assumptions, methodologies and strategies remain generalised and limited. So far, the British Financial Reporting Council has not sanctioned any auditors for the adequate disclosure of climate issues.[86] The recent announcement by the UK government of new climate-related reporting requirements, from 2021 onwards, does however have the potential to bring greater clarity and detail to disclosure.

III.II.iii. Evaluating Measures Across the US

President Biden has set the climate crisis amongst his administration's highest priorities. One of his first administrative orders was to re-join the Paris Agreement, which saw almost 200 countries from both the developed and developing world pledging to limit fossil-fuel pollution. While it is a step in the right direction, the efficacy of non-binding, voluntary pledges remains limited. In the five years since its signing, policies have not changed significantly and, if this trend continues, the goal of limiting global temperature rise to 2 °C above pre-industrial times by the end of the century[87] will be impossible to meet.

Highlighting the importance of serendipity in catalysing regulatory reform, the travel restrictions and lower economic activity associated with the COVID-19 outbreak made certain pledges possible where companies were on track to miss their goals. Thus, as the second largest polluter, the US requires an aggressive domestic climate policy, with more actions following the landmark withdrawal of the construction permit for the Keystone XL oil pipeline, planned to connect the Canadian oil sands to the Gulf Coast.[88]

With environmental concerns having been side lined for the last four years, the rapid development of sustainable finance seen in other parts of the world has been absent from the US. The actions of the

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[85] Joanne Etherton, Daniel Wiseman and April Williamson, 'Accountability Emergency: A review of UK-listed companies' climate change-related reporting (2019-20)' <https://www.clientearth.org/media/wbglw3r3/clientearth-accountability-emergency.pdf> accessed 16 February 2021.

[86] Todd Gillespie, 'Most of the U.K.'s Major Companies Are Falling Short on Climate Risk Disclosure' <https://www.bloomberg.com/news/articles/2021-02-04/most-of-the-u-k-s-major-companies-are-falling-short-on-climate-risk-disclosure> accessed 16 February 2021.

[87] Jennifer A Dlouhy, 'What Biden's Presidency Means for the Paris Climate Agreement' <https://www.bloomberg.com/news/articles/2021-01-20/what-biden-s-presidency-means-for-paris-climate-pact-quicktake> accessed 16 February 2021.

[88] Coral Davenport and Lisa Friedman (n 52)

Trump administration to impede multilateral organizations from appropriately addressing climate risks prevented regulatory authorities from accurately quantifying risks, while most US institutional investors and their trade bodies did not mount public campaigns in support of green finance.[89] The challenge now for President Biden will be to make up for lost time and internationally coordinate sustainable finance systems, using the powerful global influence the US possesses.

III.IV. Conclusion

There is a high degree of variation between states, in terms of progress made towards creating green finance policy, and in the outcomes of that policy. Success stories include the EU and China, both of whom have produced comprehensive regulatory systems[90,91] with clear guidelines for private sector compliance. Notably, the USA lags behind, with individual federal departments[92] and state governments[93] being responsible for progress when visible - a lack of central leadership has stalled further development[94]. The UK and India, by comparison, represent mixed success, with movement towards definitions, taxonomies and regulations visible, although incomplete.
Despite posing a challenge to greater climate-related disclosure and uptake of green financial products, the differentiated nature of Green Finance definitions and taxonomies provides room for optimism about the future of Green Finance on both a unilateral and multilateral level. Both regulatory efforts and investor pressure have significant impact on corporate disclosure and environmental practices, and have the greatest effect if they facilitate achievable, quantifiable, nearer-term objectives. While investor pressure alone has a significant impact on environmental disclosures, the large-scale coordination required can only occur with government legislative regulations and intra-governmental harmonisation, allowing for effective reporting standards in a global economy characterised by liberalised international capital flow.

Progress is also being made on an international scale: at the turn of the century, Green Finance was rarely considered, but, twenty years later, it is becoming commonplace enough that disagreements are

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[89] Steve Waygood, 'How the US can lead on climate finance: A five-point plan for President Biden's first year' <https://www.avivainvestors.com/en-de/views/aiq-investment-thinking/2020/12/biden-us-climate-finance/> accessed 16 February 2021.

[90] European Commission, 'EU taxonomy for sustainable activities'. [Website], (July 2020), European Commission <https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en>, accessed 16 February 2021.

[91] Climate Bonds, 'Green Bond Endorsed Projects Catalogue (2020 Edition) (Draft for Consultation)'. [Website], (June 2020), Climate Bonds <https://www.climatebonds.net/files/files/China-Green-Bond-Catalogue-2020-Consultation.pdf>, accessed 16 February 2021.

[92] Climate-Related Market Risk Subcommittee, 'Managing Climate Risk in the U.S. Financial System'. (2020915930).

[93] California State Treasurer, 'Growing the U.S. Green Bond Market'. [Website], (January 2021),California State Treasurer. <https://www.treasurer.ca.gov/greenbonds/index.asp>, accessed 16 February 2021.

[94] UN environment programme, 'The state of sustainable finance in the United States'. [Website], February 2016, UN environment programme. https://www.unep.org/resources/report/state-sustainable-finance-united-states, accessed 16 February 2021.

taking place over the most effective regulatory framework, indicating efforts must be stepped up for Green Finance to contribute to the Paris pledges, including carbon neutrality by 2050. From an analysis of the globally diverging approaches and priorities assigned to green financial initiatives, it appears missing links could be provided by fostering dialogue between external stakeholders, governments and businesses to develop a coordinated pathway leading to a green economy, encouraging innovation by minimising risks.

IV. GREEN FINANCE OPPORTUNITIES

This chapter builds on previous discussion of the challenges faced by Green Finance the associated appraisal of both existing and novel policy approaches. As the green finance industry burgeons, newly emerging developments are pitted against the evolution of existing financial pathways, from market instruments to partnerships involving new stakeholders, often deterring investors from supporting technologies aligned with a circular economy. There is vicious competition between sustainable innovation and the infallible legacy of the fossil-fuel based economy of an industrial era, and the risk of failed green investments remains high. The following section seeks to elucidate the amorphous nature of the Green Finance industry by identifying signals of emerging trajectories and evaluating their opportunities, in 1) emerging green finance instruments – climate insurance, green renting, green securitization; and 2) emerging markets at the local and global scales – green sukuk, green free trade agreements and crowdsourcing.

IV.I. Emerging Green Finance Instruments

IV.I.i. Resilience Bonds

In a similar vein to EbA-linked insurance, resilience bonds were developed in 2015 by re:focus Partners' RE.BOUND programme, a hybrid of bonds and traditional insurance whose proceeds are specifically invested in projects to reduce the impact of climate change [95]. An institution can issue these bonds to raise money for a 'resilience project'[96], such as building new seawalls, and investors of the bonds would be rewarded with coupon payments that reduce in value on completion of the project, rewarding the issuer for increasing their climate resilience and acting as potential capital to fund further projects.

The world's first resilience bond was issued by the European Bank for Reconstruction and Development (EBRD) in 2019[97], and raised USD700m, being oversubscribed by $200m, with investors from over 15 countries involved. It was added to the EBRD's EUR7bn 'portfolio of adaptation-related projects' which includes green energy generation, agriculture, infrastructure and conservation.

Since the proceeds of a bond are pre-assigned to a specific resilience project, this new financial instrument provides an avenue for proactive firms and institutions to finance these projects while simultaneously insuring against climate losses – investors in the bond share some of the risk with the

[95] re:focus partners and others, 'RE.Bound-Program-Report-December-2015.Pdf' <http://www.refocuspartners.com/wp-content/uploads/2017/02/RE.bound-Program-Report-December-2015.pdf> accessed 16 February 2021.

[96] Maya Dhanjal, 'Climate Resilience Bonds and Climate Change Adaptation Initiatives' <https://www.preventionweb.net/go/72119> accessed 16 February 2021.

[97] Vanora Bennett, 'World's First Dedicated Climate Resilience Bond, for US$ 700m, Is Issued by EBRD' <//www.ebrd.com/news/2019/worlds-first-dedicated-climate-resilience-bond-for-us-700m-is-issued-by-ebrd-.html> accessed 16 February 2021.

issuer, incentivising investment in climate resilience by pricing resilience improvements into financial markets. While these bonds are similar in many ways to catastrophe bonds, they are revolutionary by specifically targeting proceeds towards investment in resilience projects and reducing premiums (coupon payments) once the projects are completed[98]. Nonetheless, their success relies heavily on accurate modelling of risk and risk reduction, as discussed earlier.

While these green finance opportunities inspire hope for a future in which climate change almost certainly plays a significant role, there is considerable inertia to introduce them into the mainstream green financial ecosystem. As the Wall Street Journal pointed out in late 2018[99], low interest rates are making pension funds and hedge funds flock to invest in the reinsurance market, suppressing the rise in premiums despite increased climate risk. The danger then is complacency and inaction in the short term. It may be necessary for governments to adopt more proactive approaches to stimulate these changes; the EDRP pioneering resilience bonds was an important signalling move.

IV.I ii. Green Renting

Green renting, or leasing, refers to tenancy agreements with 'green' clauses – environmental standards established through dialogue between tenants and landlords to reduce the environmental impact of the property in question, commonly a commercial or public building[100]. Dr Kathryn Janda from the Environmental Change Institute at the University of Oxford describes green renting as 'a promising tool that tenants and landlords can use to develop joint environmental actions'[101], which can include energy efficiency, waste reduction, waste management and water efficiency[102].

Unfortunately, green renting agreements remain uncommon and, owing to their complexity, are rarely implemented effectively[103]. Grosvenor's James Manning recently identified collaboration and cost-effectiveness as barriers to the development of green renting. He suggested that measures such as the leverage of landlords providing green energy at lower prices might be one possibility. According to law firm Howard Kennedy, the relatively limited government regulation means that 'green' clauses (not be confused with green clauses as letters of credit!) can vary greatly, from dealing with energy usage to environmental efficiency data collection and sharing[104]. The potential of green renting can only be realised by finding opportunities for tenants and landlords to work together to reduce the environmental impact of properties, such as to raise its EPC (Energy Performance Certificate) rating.

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[98] re:focus partners and others (n 156)

[99] Bradley Hope, 'Climate Change Is Forcing the Insurance Industry to Recalculate' (*WSJ*) <https://www.wsj.com/graphics/climate-change-forcing-insurance-industry-recalculate/> accessed 16 February 2021.

[100] Designing Buildings, 'Green Lease' <https://www.designingbuildings.co.uk/wiki/Green_lease> accessed 16 February 2021.

[101] James Manning, 'How Will Green Leases Deliver a More Sustainable Future?' (*UKGBC - UK Green Building Council*, 5 October 2020) <https://www.ukgbc.org/news/headline-how-will-green-leases-deliver-a-more-sustainable-future/> accessed 16 February 2021.

[102] Designing Buildings (n 162).

[103] Manning (n 163).

[104] Samantha Horsfall, 'Green Leases_Fad or Fundamental' <https://www.howardkennedy.com/en/latest/blog/green-leases_fad-or-fundamental> accessed 16 February 2021.

In April 2018, the UK government banned the new letting of properties with an EPC rating below E. Since April 2020, this now applies to all tenancy agreements (with a few minor exceptions)[105]. Nevertheless, in March 2020, only 6% of properties failed to meet this requirement[106]. While the UK has ambitions[107] to further increase home energy ratings in the next decade, 'green' clauses give landlords and tenants the opportunity to expedite this process, resulting in long-term energy and maintenance savings, such as through double-glazing, enabling the environmental efficiency of buildings to be better priced into the property market and incentivising both parties to make long-term investments.

A formalised approach is especially important in the commercial property market, where leases are longer and tenants are more likely to invest in retrofitting in exchange for years of reduced rent. For the landlord, a green renting agreement could improve their property without too significant an initial investment. As with climate insurance, one of the main obstacles to overcome is accurate reporting of energy efficiency accompanied by enforcement. Fortunately, there are already plans to reform the EPC system (the Energy Performance Certificates Action Plan[108]), which will 'strengthen regulatory compliance'[109] and improve modelling.

IV.I iii. Green Securitisation

Green securitisation is the process of converting assets, such as loans, into financial instruments, called asset-backed securities, which can be traded and are associated with environmental objectives[110]. As with non-green securitisation, green securitisation is intended to improve the liquidity of assets, helping the issuer to raise cash. As per current definitions, there are three broad types of green securitisation[111]:

- Asset-backed securities (ABS) backed with 'green collateral' such as energy efficient home mortgages, solar leases, loans for environmental projects etc.
- Those whose proceeds are put towards 'green uses' such as ecosystem preservation projects
- Those where the originator uses freed up capital or leverage from a capital relief or synthetic securitisation to invest in 'green' projects

[105] OpenRent, 'Time Running Out for Landlords Meeting New EPC Rules (April 2020)' (*OpenRent Landlord Hub*, 19 March 2020) <https://blog.openrent.co.uk/epc-rules-2018-time-running-out-for-landlords/> accessed 16 February 2021.

[106] ibid.

[107] Department for Business, Energy & Industrial Strategy, 'Energy White Paper: Powering Our Net Zero Future (Accessible HTML Version)' (*GOV.UK*) <https://www.gov.uk/government/publications/energy-white-paper-powering-our-net-zero-future/energy-white-paper-powering-our-net-zero-future-accessible-html-version> accessed 16 February 2021.

[108] Department for Business, Energy & Industrial Strategy and Ministry of Housing, Communities & Local Government, 'Energy Performance Certificates for Buildings: Action Plan' <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/922660/EPC_Action_Plan.pdf>.

[109] Department for Business, Energy & Industrial Strategy (n 169).

[110] Climate Bonds Initiative, 'March17_CBI_Briefing_Green_Securisation.Pdf' <https://www.climatebonds.net/files/files/March17_CBI_Briefing_Green_Securisation.pdf> accessed 16 February 2021.

[111] Corrado Fiscale and others, 'Green ABS: A New Opportunity' (*www.hoganlovells.com*) <http://www.hoganlovells.com/en/publications/green-abs-a-new-opportunity> accessed 16 February 2021.

Elevating green securities in the financial ecosystem presents opportunities for institutions, such as banks, to pass on some risk of green loans to investors, freeing up capital to finance new green loans[112], in particular smaller-scale, low-carbon and climate-resilient assets, which may struggle to reach the scale required for bond markets[113]. Furthermore, the potential of asset-backed securities is expansive, as they are less likely to be constrained by government fiscal and budgetary constraints, and balance sheet constraints in the case of corporate and SSA bonds[114]. RMBS (residential mortgage-backed securities) could also be important in developing green securities due to the huge size of the mortgage market[115].

In January 2019, the Securitisation Framework came into force in the EU and defined STS (Simple, Transparent and Standardised) securitisations, which could, in conjunction with the GBP (Green Bond Principles)[116], lay the groundwork for a green securities market[117]. However, the market for green, social and sustainability bonds has grown much more than that of green securitisations[118]. According to the AFME (Association for Financial Markets in Europe)[119], there are still many issues to address before green securities become mainstream.

First, the GBP definition of a 'Green Securitised Bond'[120] should be adapted to include only bonds actually backed by green assets, not those where proceeds are allocated to green projects, since many investors have specific mandates with regards to this. The latter is defined as a green bond but should not be termed a green securitisation[121]. Second, specific eligibility criteria will have to evolve and be redefined, with grandfathering for securitisations that are no longer green in order to mitigate any material and sudden detrimental impact on pricing and liquidity in the secondary market[122]. Another important issue raised is that of incentives, with the AFME arguing that tax, regulatory or other benefits can encourage market growth.

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[112] European Banking Federation, 'Green Securitisation' (*EBF*, 27 April 2014) <https://www.ebf.eu/sustainable-finance/green-securisation/> accessed 16 February 2021.

[113] Climate Bonds Initiative (n 172).

[114] OECD, 'Quantitative-Framework-Bond-Contributions-in-a-Low-Carbon-Transition.Pdf' <https://www.oecd.org/cgfi/quantitative-framework-bond-contributions-in-a-low-carbon-transition.pdf> accessed 16 February 2021.

[115] Climate Bonds Initiative (n 172).

[116] Fiscal and others (n 173).

[117] The European Parliament and the Council of the European Union, Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation, and amending Directives 2009/65/EC, 2009/138/EC and 2011/61/EU and Regulations (EC) No 1060/2009 and (EU) No 648/2012 2017 (OJ L).

[118] Fiscal and others (n 173).

[119] Anna Bak and Pablo Portugal, '110919 AFME Green Securitisation Position Paper.Pdf' <https://www.afme.eu/Portals/0/globalassets/downloads/briefing-notes/2017/110919%20AFME%20Green%20Securitisation%20Position%20Paper.pdf?ver=2019-09-11-144252-467> accessed 16 February 2021.

[120] International Capital Market Association, 'Green-Bonds-Principles-June-2018-270520.Pdf' <https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/Green-Bonds-Principles-June-2018-270520.pdf> accessed 16 February 2021.

[121] Anna Bak and Pablo Portugal (n 181).

[122] ibid.

From a regulatory perspective, the next few years will likely see improvements to legislation and guidance. In November 2020, the European Parliament proposed amendments to the EU Securitisation Regulation, one of which was for the EBA (European Banking Authority) to 'report on the development of a specific framework for sustainable securitisation' in a year, including an evaluation of the possibility of preferential capital treatment for green securities[123]. However, the EBA sees this as a long-term objective, preferentially reviewing the incorporation of ESG factors into the bank's prudential framework due in June 2025[124]. In terms of definitions and reporting, however, the recent development of an 'EU Taxonomy' for sustainable economic activities with the collaboration of the European Commission's TEG (Technical Expert Group) on sustainable finance, seems promising as a rigorous system for classification in order to avoid 'greenwashing'[125], especially considering accurate definitions have long been blamed for the slow adoption of green securities. Nevertheless, data gaps will be a major challenge for investors aligning their portfolios with new EU sustainable finance regulations by 2022[126].

As encountered in other areas of green finance, accurate data alongside clear regulation and reporting guidelines are the key to developing green securitisation, and there is significant room for growth in areas such as the residential and commercial property markets. For the economy as a whole, a resilient market for green securities will increase the viability of green projects, especially on smaller scales, by reducing borrowing costs and sharing risk across multiple investors.

IV.II. Emerging Green Finance Markets

IV.II.i. Green sukuk

The green sukuk is a bond conforming to Sharia Law, developed to encourage sustainable practices in countries in the Muslim world[127]. The financial benefits conferred by strictly-defined regulations coincide with perceived religious interests, so they must be authorised by a principal advisor, solicitor, shariah advisor and an independent expert before issuance. [128]

In conforming with Sharia law, green sukuk often consist of tangible assets, as opposed to a convoluted mixture of financial products. In particular, usufructs allow a stakeholder to reap the advantages of another's property, which would be expected to stimulate the growth of green infrastructure in ASEAN countries. Thus far, green sukuk initiatives have had some success as the second largest overall investment in developing green office space between 2017 and -18, amounting to RM690m (around

[123] Fitch Ratings, 'EU Green Securitisation Unlikely to See Beneficial Capital Regime Soon' <https://www.fitchratings.com/research/structured-finance/eu-green-securitisation-unlikely-to-see-beneficial-capital-regime-soon-03-12-2020> accessed 16 February 2021.

[124] ibid.

[125] European Commission, 'EU Taxonomy for Sustainable Activities' (*European Commission - European Commission*) <https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en> accessed 16 February 2021.

[126] Jennifer Laidlaw, 'Investors Face Data Gaps as They Adjust Portfolios to EU Taxonomy' <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/investors-face-data-gaps-as-they-adjust-portfolios-to-eu-taxonomy-61709233> accessed 16 February 2021.

[127] Climate Bonds Initiative, 'Green Sukuk' <https://www.climatebonds.net/projects/facilitation/green-sukuk> accessed 16 February 2021

[128] World Bank, 'Islamic Green Finance Development, Ecosystem and Prospects' <http://documents1.worldbank.org/curated/en/591721554824346344/pdf/Islamic-Green-Finance-Development-Ecosystem-and-Prospects.pdf> accessed 16 February 2021

USD164m) in ASEAN states[129]. Such projects have been partly responsible for green infrastructure forming the largest share of the green sector in the ASEAN, accounting for 34% of the total market[130].

The potential opportunities of green sukuk projects are wide-ranging: first, a large proportion of existing infrastructure in ASEAN countries is 'brown' or directly responsible for pollution, for example due to poor insulation. By converting projects from dirty to green, green sukuk projects confer a greater marginal benefit than traditional green projects, which only improve existing designs. Furthermore, there is currently a serious global imbalance in supply and demand, as, although 83% of green finance is currently invested in energy[131], until 2030, an average of USD5tn in infrastructural investment each year is believed to be necessary to keep temperature increases below 2 degrees Celsius[132]. As green sukuk can encourage growth and transition in the energy sector, its presence is beneficial to both Muslim-majority countries and their neighbours, whose governments might follow similar principles and encourage forms of stewardship outside of Sharia, for example by offering financial incentives for renting green properties.

Countries in the ASEAN world have identified the potential financial ramifications of ambiguous 'green' products as a result of strict definitions surrounding green sukuk, ruling out products that have not received medium to dark, or dark green ratings from the CICERO framework, alongside those that have not been certified as such by an array of religious and secular advisers[133]. This is desirable because it instils confidence in institutional investors, who can assure shareholders of the sustainability of their stakes, and successes in this sector should awake interest in similar future ventures. In the short- to medium-term, the market is far from saturation and allocating resources to projects described as dark green ('corresponding to the long-term vision of a low carbon and climate resilient future') or medium-to-dark green is lucrative, as a significant marginal benefit can be guaranteed[134]. Furthermore, having clear definitions avoids mislabelling and ensures high standards, protecting the reputation of bonds. For example, it is unlikely that the 2014 Jirau Dam project, financed with a USD2.5bn green bond but responsible for the destruction of 362 km² of Brazilian rainforest[135], would be believed by prospective investors to have met the rigorous checks necessary to have been financed by green sukuk. There are two major drawbacks to this approach. Firstly, the multi-layered bureaucracy involved in issuance can cause the process to be costly. This can be mitigated through grants and subsidies, as has been seen in Malaysia, where over $1.25bn has been earmarked for innovative green projects[136]. Secondly,

[129] Climate Bonds Initiative (n 172).

[130] Climate Bonds Initiative, 'ASEAN Green Finance Report 2019' <https://www.climatebonds.net/2020/04/asean-green-finance-report-2019-hsbc-climate-bonds-launch-major-analysis-green-investment> accessed 16 February 2021

[131] Federation of Indian Chambers of Commerce and Industry 'Untapped Potential - Supercharging Green Finance in India - FICCI Report' <http://ficci.in/spdocument/23172/GF_India_report_-ficci.pdf accessed 16 February 2021

[132] World Economic Forum,'The Green Investment Report' <https://reports.weforum.org/green-investing-2013/required-infrastructure-needs/?doing_wp_cron=1610989044.8876159191131591796875> accessed 16 February 2021

[133] ibid.

[134] CICERO Center for International Climate Research, 'Shades of Green Factsheet' <https://static1.squarespace.com/static/5bc5b31a7788975c96763ea7/t/5e844ddcee3f165881310782/1585729004222/Shades+of+green+factsheet+V4.pdf> accessed 16 February 2021

[135] Climate 2020, 'How Green Are Green Bonds?' <https://www.climate2020.org.uk/wp-content/uploads/2016/09/BRIGHTWELL-CLIMATE2020.pdf> accessed 16 February 2021

[136] GreenTech Malaysia, 'Green Technology Financing Scheme' <https://www.gtfs.my/faq#n24133> accessed 16 February 2021

demanding only high-grade green projects for green sukuk financing might discourage new innovations, for example hybrid cars, which, being in CICERO's medium green category[137], cannot be issued as green sukuk. Lenders can, however, nonetheless choose to invest, strengthening the name of green financial products before they become widely available.

To interrogate the role of governments in developing the green sukuk, the Islamic financial hub of Malaysia provides an ideal case study[138]. Malaysia allocated RM6m (around USD1.5m) to promote the expansion of green products, introduced a tax deduction on issuance costs of SRI sukuk (socially responsible investments), and a tax exemption for recipients under the Green SRI Sukuk Grant Scheme until 2020[139]. Several significant projects have been funded through green sukuk, such as the Quantum Solar Park and Tadau Energy, of RM1bn and RM250m respectively[140][141]. However, these projects, as with most others so far in Malaysia, have been funded through sovereign enterprises and government-owned or government-linked banks, while the private sector has not yet been spurred to take action.

A top-down approach through policy alone may not be sufficient to stimulate a market for green sukuk, or at least not without clear market signals to the private sector that green sukuk projects are profitable. Furthermore, Malaysia has thus far been unable to establish a strong position in the regional market. More capital is invested in green markets in Malaysia's ASEAN neighbours, such as Singapore, the Philippines, Thailand and Indonesia[142], in spite of a relatively large Malaysian GDP, the third highest in the region[143], and strong trade links with the EU, [144]a key hub for green products. Comprehensive subsidies pushing for green finance may have been able to mitigate obstructions but have not necessarily encouraged the growth of a new market directly. Instead, moves to encourage a more robust financial market, such as lower corporation taxes and easing tariffs specific to these sectors, may be more advantageous for the development of green sukuk.

IV.II ii. Green Free Trade Agreements

While direct investment can encourage greening in developing countries, adding environmental clauses to Free Trade Agreements (FTAs) may similarly constitute a useful tool for reaching these aims. By including explicit aims in international contracts, politicians, obliged to listen to voters in democracies, can encourage greater environmental regulation in autocracies and other democracies less quick to act. This approach may be particularly effective in large economies with smaller capital resources for direct investment. For example, South Korea (ROK) has included an environmental clause in each of its FTAs

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[137] World Bank (n 190).

[138] Islamic Finance Foundation, How to Build the Industry's Global Centre' <https://www.islamicfinance.com/2016/05/build-global-islamic-finance-centre/> accessed 16 February 2021

[139] World Bank (n 190).

[140] Islamic Markets, 'Quantum Solar Park Green SRI Sukuk RMI 1 Billion' <https://islamicmarkets.com/publications/quantum-solar-park-semenanjung-green-sri-sukuk-rm1-billion-2> accessed 16 February 2021

[141] Global Islamic Finance and Impact Investing Platform, 'Green Sukuk Initiative' <http://www.gifiip.org/green-sukuk-initiative/> accessed 16 February 2021

[142] Climate Bonds Initiative (n 172).

[143] Statista, 'GDP of the ASEAN Countries from 2010 to 2020' <https://www.statista.com/statistics/796245/gdp-of-the-asean-countries/> accessed 16 February 2021

[144] Eurostat, 'ASEAN-EU - International Trade in Goods Statistics' <https://ec.europa.eu/eurostat/statistics-explained/index.php/ASEAN-EU_-_international_trade_in_goods_statistics#ASEAN_countries_trade_in_goods_with_main_partners> accessed 16 February 2021

since 2012[145], e.g., Vietnam in 2016, providing an inexpensive means of encouraging environmental regulation in emerging markets. Trade agreements may also impact more developed economies: the 2012 USA-ROK FTA is seen by some as a trigger encouraging the transition from an exclusively domestic to a more internationalist trade green approach in the ROK[146].

On the other hand, liberalising trade without referring to specific policies can instead enable uninhibited growth, as such agreements are then typically not considered legally binding, as is exemplified by the 2019 ROK-UK agreement, which merely included a joint statement to uphold the countries' 'shared values' regarding ESG protection and demanded only minimal environmental regulation[147]. Such legal pitfalls can be mitigated by pushing environmental policy as a key arena of negotiation, instead of its relegation as an afterthought or bargaining piece. Perhaps a more hidden issue is too much ambition, which, in FTAs, may encourage pollutive industries to move abroad, negating the benefit conferred through regulation. While an analysis on the impacts of NAFTA has provided some tentative evidence for this claim, many polluting businesses depend on material resources, often making relocation expensive relative to compliance[148]. However, an increasing number of countries are covered by at least one green FTA, leaving fewer unregulated countries companies could relocate to. This last point in particular demonstrates an important long-term impact of FTAs, which would allow growing industrial powers such as South Korea to achieve a significant green impact on the world stage without considerable expense.

IV.II iii. Emerging Markets in Asia

Even prior to the COVID-19 pandemic, progress to achieve the United Nations Sustainable Development Goals were starkly uneven across countries. OECD's Global Outlook on Financing for Sustainable Development 2021 found that recovery spending in developing countries was USD1tn less than that in OECD countries[149]. It also warned of a possible collapse of external private investment– a drop of USD 700bn. Global green financial assets are largely held in the richest countries and for a sustainable and resilient recovery, governments and corporations should look towards new markets for development finance supporting green targets. Here, we exemplify India as a case study of the challenges and opportunities provided by an emerging market.

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[145] Taylor & Francis Online, 'Linking Trade and Environment in Emerging Economies' <https://www.tandfonline.com/doi/full/10.1080/09512748.2019.1672771> accessed 16 February 2021

[146] The Diplomat, 'South Korea Aims for Environmental Leadership Through Green Free Trade Agreements' <https://thediplomat.com/2020/04/south-korea-aims-for-environmental-leadership-through-green-free-trade-agreements/> accessed 16 February 2021

[147] Welsh Assembly, 'UK-South Korea Free Trade Agreement' <https://senedd.assembly.wales/documents/s96352/UK-South%20Korea%20free%20trade%20agreement%20-%20Dr%20Ricardo%20Pereira.pdf> accessed 16 February 2021

[148] EU Trade and Investment Policy, Birmingham University 'Environmental Effects of Free Trade Agreements' <https://more.bham.ac.uk/eutip/the-environmental-effects-of-free-trade-agreements> accessed 16 February 2021

[149] Jorge Moreira da Silva, Editorial in OECD iLibrary, "Global Outlook on Financing for Sustainable Development 2021: A New Way to Invest for People and Planet" <https://www.oecd-ilibrary.org/sites/bb6736d6-en/index.html?itemId=/content/component/bb6736d6-en> accessed 16 February 2021

Tight regulation of the financial, infrastructure and energy sectors by the Indian government has led to slow development, meeting under 10% of its aims outlined in the Paris Agreement[150]. The presence of multi-faceted control suggests an economic policy shift could trigger an explosion in green finance, though international investment and rising consumer confidence may well do so without the need for governmental intervention. The onus for expansion falls largely on private enterprises in India, given that only 2% of green investment comes directly from the state[151].

A significant challenge faced by domestic banks looking to invest in green financial products is governmental restraint on their capital outflows, which oblige 40% of credit to be invested in priority sectors, such as agriculture and microfinance[152]. Given that banks are already investing in their communities by virtue of Indian law, this may have reduced the incentive of Corporate Sustainability Responsibility of large-scale investment in other ESG products. Furthermore, funds to small businesses or families prone to frequent shocks have high volatility, and coupled with the initial risk of green finance, the appetite for green investment is somewhat stifled.

The Indian credit policy serves to mitigate another incentive against green investment: long-lasting high inflation from agricultural scarcity makes raising capital for ventures expensive[153,154]. Due to rising oil and fuel prices coupled with an impeding demographic transition from a rising to a stabilising population as birth rates fall, high inflation rates are unlikely to reduce in the near future and pose a serious risk to 'green' projects, including solar projects, particularly following a liquidity crisis for major Non-Banking Financial Corporations (NBFCs) that increased the cost of borrowing from 9.75% to 10.75%[155]. However, as investments in green energy have proved to be among the most robust, a higher proportion of private capital may be injected into this market on its own in the longer-term[156]. Governments already compel banks to invest in certain sectors, which could be exploited to encourage a transfer of funds towards green products. This could also be within the auspices of present rates, which is largely in the inefficient agricultural sector, thereby protecting the banks' liquidity streams, as well as farmers, who also face risks due to climate change. Nonetheless, in the interest of maintaining a freer market, it is worth exploring the possibilities of external funding from abroad, and other potential amendments to government policy that could incentivise green financial investment.

While India stands at the top emerging market for infrastructure, green infrastructure remains a peripheral part of its portfolio[157]. This follows, firstly, from a lack of domestic private capital, as green infrastructure projects are responsible for 36% of bad loans, restricting financiers' willingness to lend[158].

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[150] Global Solutions Journal, Issue 5, 'Green Finance in Emerging Markets' <https://www.global-solutions-initiative.org/wp-content/uploads/2020/04/GSJ5_Dittrich.pdf> accessed 16 February 2021

[151] Federation of Indian Chambers of Commerce and Industry (n 193).

[152] ibid.

[153] StatBureau, 'Inflation Rate in the Republic of India, 2018' <https://www.statbureau.org/en/india/inflation> accessed 16 February 2021

[154] Mint Newspaper, 'Interest Rates a Blunt Tool' <http://www.livemint.com/Politics/5bAA94OSU4HCdiktqemkQL/Unhedged-forex-exposures-higher-than-they-ought-to-be-Raghu.html> accessed 16 February 2021

[155] Federation of Indian Chambers of Commerce and Industry (n 193).

[156] Economic Times, 'Banking and NBFC Crisis' <https://energy.economictimes.indiatimes.com/news/renewable/banking-and-nbfc-crisis-impeding-credit-flow-for-renewable-energy-sector-ceos/74104544>

[157] Federation of Indian Chambers of Commerce and Industry (n 193).

[158] ibid.

Secondly, as power plants and transport systems provide a large number of jobs, the state is reluctant to revolutionise them at the risk of damaging the economy[159].

There is, therefore, a strong case for external investment to supply the Indian green infrastructure industry. Growing international demand for investment products in predictably evolving emerging markets such as India coupled with lower interest rates faced by foreign companies (around 4.7%), suggests that partnerships based on international investment would be viable[160]. Such schemes could be most productive if a multi-tranche system were used, whereby foreign capitalists would fund the bottom tranche to ensure security for Indian banks and NBFCs which are more aware of available opportunities, without costing so much as to discourage prospective investors or make projects much less worthwhile for the Indian developers. Thus far, there appears to have been some development in this direction, as a $300m tranche (for 'masala bonds' valued at USD4 bn.) was issued on the London Stock Exchange in the late 2010s[161], suggesting there is scope for growth of partnerships between India and major financial hubs. It should be noted, however, that most British investment has prioritised only the energy sector, which is vital to reducing India's carbon footprint, though perhaps less likely to stimulate future development than an infrastructure-based approach through transport, offices and residential properties, where investor interest is lower. We recommend greater engagement by British financiers in these areas, due to the huge untapped potential they hold, both for the profit line and the environment.

IV.II iv. Crowdsourcing

As an investment tool, crowdfunding is gaining traction, accounting for over USD100bn in equity in 2019. By 2024, it is expected to reach USD250bn, a compound annual growth rate of 20.11%[162]. With burgeoning Internet penetration, green crowdfunding is an increasingly important form of alternative finance that complements traditional credit financing[163]. It renders traditional financial intermediaries unnecessary, allowing individuals to invest directly in projects of interest. Beyond the centrality of the online platform, which vastly increases access and convenience, crowdfunding nurtures a community of investors and creators and facilitates innovation through contact and dialogue with consumers[164].

Different crowdfunding models exist, backed by a range of economic and social motivations, including peer-to-peer lending, equity-based crowdfunding, reward-based crowdfunding and donation-based crowdfunding. Peer-to-peer lending removes financial intermediaries as loans can be arranged between individuals, resulting in higher risks but also, correspondingly, returns[165]. Investors receive shares in equity-based crowdfunding and a product, service or gift in reward-based crowdfunding[166]. Donation-

[159] Global Solutions Journal (n 215).

[160] Federation of Indian Chambers of Commerce and Industry (n 193).

[161] Department of Business, Energy and Industrial Strategy, 'Green Finance Strategy July 2019' <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/820284/190716_BEIS_Green_Finance_Strategy_Accessible_Final.pdf> accessed 16 February 2021

[162] Simonetti Marta, 'Crowdfunding for Development and Climate Finance – Insight'. [Website], (November 2020), Globalfields <https://www.globalfields.co.uk/insights/crowdfunding-for-development-and-climate-finance> accessed 16 February 2021

[163] ibid.

[164] Martinez-Climent Carla, Costa-Climent Ricardo and Oghazi Pejvek, 'Sustainable Financing through Crowdfunding', *Sustainability*, 11/934 (2019), p.1-16

[165] Burtch Gordon, Ghose Anindya and Wattal Sunil, 'Cultural Differences and Geography as Determinants of Online Pro-Social Lending', *SSRN Electron. J.,* 38, (2013), p.773-794

[166] Cholakova Madgalena and Clarysse Bart, 'Does the Possibility to Make Equity Investments in Crowdfunding Projects Crowd Out Reward-Based Investments?', *Entrep. Theory Pract.*, 39 (2015), p.145–172

based crowdfunding leverages on the intrinsic motivation of investors to raise funds for social causes, without expectation of any economic return[167].

Green crowdfunding enhances efficiency and transparency, which is particularly important for the disclosure of ESG standards and reporting procedures. The consolidation of different projects on a single platform allows investors to navigate potential investments to ascertain which fits their portfolio strategy, risk appetite and other criteria[168]. For instance, on Bettervest, a renewable energy-focused platform, investors can invest as little as EUR 50. One of its most successful projects includes raising EUR 110,300 in 19 hours for climate-friendly landfill gas projects in Colombia, which are projected to avoid 146,214 tons of carbon dioxide emitted each year[169].

While crowdfunding platforms initially kicked off in Europe, there is a growing number of small and medium-sized green energy projects based in emerging markets. Bettervest in Germany has offered impact investment for 93 green energy projects since 2012, and its international reach has expanded from 50% to 80%, of which the bulk is in emerging markets[170]. The World Bank predicts crowdfunding in developing countries to be worth USD 96bn by 2025[171], aligning with the development strategies of emerging markets in Africa and South America, which are capitalising on crowdfunding to divert diaspora remittances into low carbon projects[172]. As most household financial assets are held in cash or deposits, green crowdfunding is able to draw on this shallow but wide investment pool[173].

Crowdfunding in green finance provides greater flexibility in funding as certain projects may not require or are ineligible for standard bank loans or investment funds, allowing financing of small, but technically and commercially viable projects[174]. For instance, smallholder farmers and micro-borrowers in developing countries, who are in greatest need of climate finance to adapt to climate change, lack access to traditional loans and crowdfunding offers quicker access, especially for time-sensitive environmental issues.

Recognising the value of alternative finance, some banks are supporting green crowdfunding platforms or operating their own, as part of corporate social responsibility goals and ESG standards within their businesses. A prominent example is Triodos Bank in the United Kingdom: it supported a 5-megawatt operational solar farm in Somerset funded into community ownership, which now earns its investors 5% interest per year for the next 17 years[175]. Rather than being a competitor in the finance ecosystem,

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[167] Hu M, Li X and Shi M, "Product and Pricing Decisions in Crowdfunding", *Mark. Sci.*, 34 (2015), p.331–345.

[168] Sustainability:Kenya, 'Harambee! How Crowdfunding Can Revolutionise Green Finance', [Website], (July 2017), Medium, < https://medium.com/@lilianyamongo/harambee-how-crowdfunding-can-revolutionise-green-finance-6c75d9da876a> accessed 16 February 2021

[169] zur Nedden C, 'Crowdfunding picks up slack for green tech start-ups in Europe', [Website], (July 2020), Financial Times, <https://www.ft.com/content/0b446c78-cb5e-4fc9-8ed7-02c4b5fab844> accessed 16 February 2021

[170] ibid.

[171] Simonetti Marta (n 227)

[172] Martinez-Climent Carla, Costa-Climent Ricardo and Oghazi Pejvek (n 229)

[173] UNEP-DBS, 'Green Finance Opportunities in ASEAN', [Website], <http://unepinquiry.org/wp-content/uploads/2017/11/Green_Finance_Opportunities_in_ASEAN.pdf> accessed 16 February 2021

[174] Simonetti Marta (n 227)

[175] Triodos Bank, 'Somerset community energy scheme crowdfunding £4m for 36,000-panel solar farm', [Website], <https://www.triodos.co.uk/press-releases/2018/somerset-community-energy-scheme-crowdfunding-gbp4m-for-36000-panel-solar-farm> accessed 16 February 2021

green finance occupies a different, emerging niche and has proven to be a strategic opportunity for financial players, including investments in start-ups and tech accelerators.

A pioneer in the field, crowdfunding platform Oneplanetcrowd bridges entrepreneurs with future-oriented investors to finance projects on sustainable economies. From small campaigns of around EUR 25,000 in 2012, Oneplanetcrowd has grown from strength to strength, with its largest campaign in 2019 raising EUR 7.5 million. Partnering traditional banks, Rabobank links sustainability entrepreneurs who do not require standard loans to Oneplanetcrowd while ASN Bank jointly runs a domestic crowdfunding platform *Voor de wereld van morgen* in the Netherlands[176]. In April 2020, Oneplanetcrowd received EUR 1 million in growth finance from the European Investment Fund to support its progress[177].

Being an alternative stream of finance, crowdfunding necessarily involves different risks to traditional finance, all of which must be considered. First, the lack of guarantees, liquidity limitations and even the failure of online platforms could hinder both the success and reputation of green crowdfunding[178]. As a relatively new financial instrument, platforms must clearly communicate risks to investors, who often hail from an entirely different demographic background, and adhere to emerging legislation and guidelines with regards to issues like fraud and anti-money laundering. To bridge the social gap between projects and investors, the EU is working towards harmonising legal and regulatory frameworks to streamline crowdfunding services in both domestic and international markets. In October 2020, a uniform set of criteria will now apply to all European Crowdfunding Service Providers up to offers of EUR 5 million, and providers must clearly inform investors about financial risks and charges that may be incurred, including insolvency risks and project selection criteria[179]. The need for harmonisation is arguably more crucial for green finance in general due to the additional dimension of sustainability principles and ESG standards.

V. POLICY RECOMMENDATIONS

This concluding chapter seeks to provide greater clarity on future green finance roadmaps and the suite of instruments and partners across scales to improve the delivery of environmental and societal goods. Having evaluated the challenges and opportunities in green finance, the policy recommendations aim to leverage on new expertise to catalyse green finance growth across sectors and borders, better align public and private sector financing decision-making with climate-related disclosures and reporting, including identification of best practice, and forge new partnerships across scales to cultivate an enabling environment for a green economic transition.

V.I. Green Finance Standards and Disclosures

Overarching recommendation: Seek global standardisation of climate-related financial disclosures by identifying best practice, and encourage national legislative action towards the 2015 Paris Goals,

[176] Cordis, 'Green crowdfunding: disruption or opportunity', [Website], <https://cordis.europa.eu/article/id/136115-green-crowdfunding-disruption-or-opportunity> accessed 16 February 2021

[177] European Commission, "Oneplanetcrowd raises €1 million growth finance from European Investment Fund", [Website], <https://ec.europa.eu/commission/presscorner/detail/en/IP_20_641> accessed 16 February 2021

[178] Sustainability:Kenya (n 233)

[179] UNEP-DBS (n 238)

particularly through a legal obligation of public companies to disclose their climate-related progress and goals

Sub-recommendations:

Promote engagement with international organisations in setting Green Finance standards. The Task Force on Climate-related Financial Disclosures is a good example of an organisation reducing the burden of regulatory compliance for multi-national corporations and develop best practices. The creation of institutions like the EU Policy Support Facility will aid with monitoring and updating regulation and legislation when necessary. This should be a collaborative process to ensure domestic and international access to common standards, and should aim to incorporate the United Nations Sustainable Development Goals alongside examples from best practice.

Build reflective governance processes in response to shifting political and economic realities. Institutions should regularly engage key private sector partners in horizon scanning to identify gaps in existing frameworks of standards and disclosures, as well as pre-emptively addressing emerging challenges. For instance, the People's Bank of China amended its Green Bonds taxonomy to remove 'clean coal' after years of pressure. Furthermore, with geopolitical shifts like Brexit, countries must ensure climate change does not slip down the priority list, especially when aligning disclosure practices and standards with international partners.

V.II. Selected Green Finance Instruments with Policy Potential

Overarching recommendation: Foster dialogue between stakeholders to explore unifying themes across existing green financial instruments and consider emerging approaches – such as green sukuk – culminating in the creation of a universal, policy-based framework for green finance initiatives

Sub-recommendations:

Promote flagship programmes to demonstrate the advantages of resilience bonds. Given the significant degree of oversubscription the first resilience bond issued by the EBRD received[180], it is clear that investors do not lack a demand for resilience bonds. The reason for low issuance of such bonds despite the presence of market potential seems to be risk aversion – institutions fearing the unknown when issuing these securities. Government agencies should aid in breaking down barriers to by pioneering initiatives using resilience bonds, demonstrating the private sector can indeed benefit. Regulation and guidance should, of course, accompany this as a framework for a strong resilience bonds market.

Standardise green clauses. Green clauses are currently rare in the renting/leasing market, mainly due to their complexity and a lack of standardisation[181]. Regulators should step in to lay down guidelines and procedures for the formulation and assessment of these contracts, to promote mutually beneficial deals.

[180] Vanora Bennett, 'World's First Dedicated Climate Resilience Bond, for US$ 700m, Is Issued by EBRD' <//www.ebrd.com/news/2019/worlds-first-dedicated-climate-resilience-bond-for-us-700m-is-issued-by-ebrd-.html> accessed 16 February 2021.

[181] James Manning, 'How Will Green Leases Deliver a More Sustainable Future?' (UKGBC - UK Green Building Council, 5 October 2020) <https://www.ukgbc.org/news/headline-how-will-green-leases-deliver-a-more-sustainable-future/> accessed 16 February 2021.

Tax breaks could also be implemented alongside these contracts to push towards climate objectives, and EPC ratings could be used as conditions or objectives within these new standard contracts.

Reassess the definition of 'green securitisation'. The current definitions of green securities include those where the assets are not green, although the proceeds are put towards green projects[182]. To fit the model of a fully green economy, only securities actually backed by green assets should be called 'green securities', a point mandated by many investors[183], and it can be misleading to group different instruments under one label. The requirements for 'green' assets should be reviewed over time in line with climate objectives, ensuring grandfathering for securities that no longer class as 'green' to prevent shocks to the market[184].

Provide support for issuers and investors in the green securities market with data to measure the greenness of assets and prevent 'greenwashing'. In order to adapt to a greener market, investors and issuers of securities need better access to data[185]. Transparency in data availability could be aided at a national and even international level by improved collaboration between financial institutions and governmental or intergovernmental agencies related to climate change, such as the European Space Agency's Climate Office[186]. Providing investors with data would enable effective implementation of statistical analyses to improving green finance.

V.III. New Green Finance Markets

Overarching recommendation: Employ targeted market analysis to identify tailored approaches to implement green finance in environments of varying economic development, considering key social, political and resource-based drivers of investment

Sub-recommendations:
Adopt green sukuk principles and standards in mainstream green finance projects where appropriate. Green sukuk should continue to be necessarily medium-dark green or dark green and be incentivised by governments as socially responsible green products. In particular, authorisation costs specific to such projects should be subsidised. Certifications of green sukuk standards should be easily identifiable, for example by means of a database, to prevent weakening of the brand. Furthermore, governments should try to encourage private or establish private-public partnerships instead of using state funding alone, to enable large-scale expansion.

Offer policy support for a vibrant ecosystem of international green finance collaborations amongst banks, developed and developing countries and local organisations. Multi-tranche green products would allow domestic stakeholders to hold power over companies, while providing security for projects. Such

[182] Corrado Fiscale and others, 'Green ABS: A New Opportunity' (www.hoganlovells.com) <http://www.hoganlovells.com/en/publications/green-abs-a-new-opportunity> accessed 16 February 2021.
[183] ibid.
[184] Anna Bak and Pablo Portugal, '110919 AFME Green Securitisation Position Paper.Pdf' <https://www.afme.eu/Portals/0/globalassets/downloads/briefing-notes/2017/110919%20AFME%20Green%20Securitisation%20Position%20Paper.pdf?ver=2019-09-11-144252-467> accessed 16 February 2021.
[185] Jennifer Laidlaw, 'Investors Face Data Gaps as They Adjust Portfolios to EU Taxonomy' <https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/investors-face-data-gaps-as-they-adjust-portfolios-to-eu-taxonomy-61709233> accessed 16 February 2021.
[186] 'Home' (*ESA Climate Office*) <https://climate.esa.int/en/> accessed 16 February 2021.

public-private partnerships would enable governments to set firm green criteria for projects, while fostering competition between private companies, facilitating the development and spread of well-defined Green Bond Standards and improving understanding of internal and external investment.

Consider Green Free Trade Agreements with developing countries for long-term green finance growth. Green FTAs are relatively inexpensive and marginal benefits increase with increasing popularity across countries. The wording in green FTAs should be as specific as possible, so as to establish a legally binding agreement with specific targets to ensure compliance. A global monitoring body, possibly a new arm of an international non-governmental organisation like the International Monetary Fund or a consortium of global research institute, could play a complementary role through policy support, capacity building and data analysis.

Increase access to crowdfunding and other alternative platforms for finance. Complementing traditional credit financing, the flexibility of crowdfunding could help to kickstart smaller green enterprises that may not meet the rigid financing conditions of banks and institutions[187]. More effort should be channelled towards establishing legal and regulatory frameworks to facilitate cross-border crowdfunding and ensure transparency and accountability about the risks and green criteria of local investments.

[187] Martinez-Climent C, Costa-Climent R and Oghazi P (n 229)

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