

# Credit Substitution in Sustainable Finance: An Achilles Heel?

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## ABSTRACT

Sustainable finance has become mainstream, with governments and stakeholders relying on financial players/channels to prod real economy firms into addressing environmental and social issues. An overlooked, yet significant problem with this idea is credit substitution—where firms replace their ‘existing’ creditors or investors. This significantly weakens the effect of ‘exit’ and results in the migration of problems or risks associated with lending and investment to new entrants. This article examines credit substitution in theory and practice, focusing on its implications for sustainable finance. It argues that the current regulatory framework and broader ecosystem for financial institutions worldwide create conditions highly conducive to credit substitution. Key factors include substantial cross-jurisdictional differences in approaches towards sustainable finance among major financial centres and cross-sectoral differences within jurisdictions—particularly in the EU—where sustainable finance regulations vary between bank-based and market-based financing. These conditions undermine the effectiveness of sustainable finance policies. If the aim is to address environmental and social impacts in the real economy, such policies are diluted; alternatively, if focused on managing financial risks associated with lending to and investing in firms causing these impacts, the result is only migration, rather than mitigation, of risks. The article concludes with policy implications.

**KEYWORDS:** sustainable finance, ESG risks, credit substitution, regulatory arbitrage, financial regulation

## I. INTRODUCTION

Channelling financial flows in line with net-zero transition<sup>1</sup> has become a perennial goal since the Paris Agreement of 2015.<sup>2</sup> Since then, sustainable finance has become a mainstream area rather than a niche subject restricted to a small group of socially responsible investors, as ESG

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<sup>1</sup> Throughout the article, I use net-zero transition to denote the status to be achieved via balance of carbon emissions and removal in a timeline consistent with the Paris Agreement goals of global temperature increase of well below 2°C and preferably 1.5°C compared to pre-industrial levels.

<sup>2</sup> See article 2.1(c) of the Paris Agreement, ‘... [m]aking finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development’. The agreement is available at <https://unfccc.int/process-and-meetings/the-paris-agreement>. All websites accessed on 7 October 2025 unless noted otherwise.

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(environmental, social and governance) has similarly captured the attention of company boards, institutional investors, and the broader financial system.

Sustainable finance generally indicates that financial sources are allocated to assets or projects that are aligned with sustainability goals: first and foremost, net-zero transition. This encompasses both debt and equity finance and requires shifting financial flows from assets incompatible with net-zero transition (colloquially known as 'dirty' or 'brown' assets) to those that are neutral or contribute to this transition (colloquially known as 'green' assets).

Some jurisdictions such as the European Union or the United Kingdom have been very keen to facilitate sustainable finance to achieve their sustainability goals as private sector involvement is thought to be the key.<sup>3</sup> Transparency via disclosure obligations both for companies and financial intermediaries has been the primary tool as the interest in sustainable finance has grown, while the governments are considering and moving towards more interventionist measures to steer financial flows.

As sustainable finance has grown and matured, however, a few problems have emerged. Greenwashing (ie making environmental or sustainability claims about a product, service or business that are untrue or misleading) was at one point rampant and hence credible sustainability reporting has become of utmost importance.<sup>4</sup> Confusion has also emerged on the green characteristics of certain assets, with governments providing taxonomies on what counts as sustainable and signalling what they consider ideal assets where funds should flow.<sup>5</sup> Furthermore, while commitments by financial institutions to calibrate their practices towards net-zero transition have grown in number, the extent to which they are credible remains unclear.<sup>6</sup>

A so-far overlooked, yet significant problem that makes sustainable finance highly ineffective to achieve sustainability goals is *credit substitution*. Credit substitution is a familiar phenomenon in finance, denoting the substitutability of financing sources when an existing financial source becomes less favourable, retracts, or is no longer available. This is because credit is a commodity-like input for firms to produce their outputs, in contradistinction to firm-specific inputs. A highly salient example of credit substitution is the growth of non-bank financial intermediation (previously known as 'shadow banking') as banking regulation has restricted how banks conduct their business in certain respects.<sup>7</sup>

In the sustainable finance context, this problem translates into firms' substituting their exiting financial sources, which are leaving because of sustainability concerns, and replacing them with other financial sources that do not have the same concerns or at least not to the same extent (at no or trivial cost). This largely cancels the intended effect of sustainable finance because the exit should ideally have an impact on the firm's investment choices or competitiveness. If the firm can easily turn to another financial player, there will be no direct impact on the firm, just a substitution of creditors. Creditor substitution can take place due to differences in the shareholder or stakeholder pressure that creditors receive on their investment/lending decisions and, perhaps more importantly, in their regulation in relation to sustainability across/within jurisdictions.

Credit substitution also means that financial risks are transferred rather than mitigated. An important agenda in sustainable finance is to monitor and manage the environmental and

<sup>3</sup> See nn 88–103 and accompanying text.

<sup>4</sup> For the initiatives in this regard, see section IV.1.

<sup>5</sup> *ibid.*

<sup>6</sup> For banks, see sources cited in n 36; for asset managers, see, eg, OECD, 'Assessing net-zero metrics for financial institutions: supporting the monitoring of financial institutions' commitments' (5 December 2023) [https://www.oecd.org/en/publications/assessing-net-zero-metrics-for-financial-institutions\\_dedcfe56-en.html](https://www.oecd.org/en/publications/assessing-net-zero-metrics-for-financial-institutions_dedcfe56-en.html).

<sup>7</sup> FSB, 'Global Monitoring Report on Non-Bank Financial Intermediation' (2023) <https://www.fsb.org/2023/12/global-monitoring-report-on-non-bank-financial-intermediation-2023/>; Greg Buchak and others, 'The Secular Decline of Bank Balance Sheet Lending' SSRN Working Paper (September 2024) [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4738476](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4738476).

climate-related risks that financial institutions might be subject to in relation to their lending and investment activities. While 'exit' eliminates these risks in exiting financial institutions, the risk itself is not eliminated but rather exists and builds up in other parts of the financial system that are potentially less regulated and transparent, which might have financial stability implications. In other words, while there might be an improvement from a microprudential sense (ie stability of an institution), there will be no improvement from a macroprudential sense (ie stability of a system).

In the following section, I home in on the concept of credit substitution more closely and generally. Then, in section III, I explain how it can also occur in sustainable finance and explore the empirical evidence. In section IV, I examine cross-border differences in approaches to sustainable finance within the regulatory and broader market ecosystem as well as cross-sectoral differences in regulation within a jurisdiction, namely the EU. This analysis shows that the regulatory and broader market ecosystem across and within jurisdictions is highly conducive to credit substitution in relation to sustainable finance. In section V, therefore, I set out regulatory implications; in particular, I discuss how the current regulatory agenda might be flawed, and potential responses to this major problem. For example, regulators with their policies to facilitate sustainable finance can inadvertently pave the way for credit substitution. Therefore, such policies need to be carefully thought out and be mindful of second-order effects (where market participants adjust their behaviour to minimise the policy's intended effect). Market participants (such as investor groups or stakeholders that are interested in channelling financial flows away from unsustainable uses) should also be mindful of these effects and adjust their behaviour accordingly.

## II. CREDIT SUBSTITUTION--IN GENERAL

Credit substitution is a simple, yet powerful idea. A starting point in finance is the Modigliani-Miller theorem, which shows that in perfect markets, firms are agnostic about their financing choices between debt and equity.<sup>8</sup> This is because firm value is independent of the capital structure. While the theorem concerns debt vs equity (thus leverage), the underlying idea is broadly applicable among debt and equity providers,<sup>9</sup> in that a firm's cash flows are wholly independent from the composition of the liabilities used to generate them. However, assuming perfect markets, this theorem leaves out taxes and financing costs among others,<sup>10</sup> which might lead firms to prefer debt over equity and vice versa or certain credit providers over others. Still, the initial insight holds: firms will hold it irrelevant how they finance their investments/assets in function of relative costs between financing options. A corollary of this is that firms can switch between debt and equity and between different forms or providers of debt and equity as a function of switching costs. Switching costs might not be trivial, especially for small and medium-sized firms. For example, high information asymmetry concerning such firms might favour relationship/universal banks which have accumulated private information about the firm, or such firms might not have the wherewithal to raise market finance.

Ample evidence shows credit substitution by firms between different sources of financing, especially in times when one source is retracting or becoming more costly. For example, a study shows that firms reacted to the tightening of bank credit during the Global Financial Crisis

<sup>8</sup> Franco Modigliani and Merton H Miller, 'The Cost of Capital, Corporation Finance and the Theory of Investment' (1958) 48 *American Economic Review* 261.

<sup>9</sup> Throughout this article, I use equity within the concept of credit, although equity is not technically a credit as equity investment is not to be paid back (like debt). This is however in line with the accounting usage and the legal reality that residual value of the company belongs to equity holders and will be paid to them when the company is wound up.

<sup>10</sup> A later 'correction' takes into account these factors: Franco Modigliani and Merton H Miller, 'Corporate Income Taxes and the Cost of Capital: A Correction' (1963) 53 *American Economic Review* 433.

(GFC) of 2007–08 by issuing bonds.<sup>11</sup> Generally, contraction in bank-credit supply is matched with new debt issuances by firms.<sup>12</sup> Recent studies by the European Central Bank (ECB) examine the substitutability of corporate loans by market-based finance via bond issuance and vice versa in the recent monetary policy normalization, and indicate factors that might affect the ability of firms to switch between bank loans and market-based finance (such as their creditworthiness, size, crowding out in the market etc).<sup>13</sup>

Credit substitution might also take place regardless of firms' decision to substitute or their ability to do so. This is the case, for example, with securitization. In a securitization, a bank makes the loan to firms (and consumers) and then transfer the loans to a special purpose vehicle (SPV). The SPV finances the purchase of the loans via issuance of bonds in the market, whose default probability (and hence rating) depends on the payment of loans (thus, the default probability of the loans)<sup>14</sup> but, usually, there are some forms of credit enhancement.<sup>15</sup> In this case, firms are financed via markets, as banks' willingness to lend might be a function of whether they can securitize these loans, i.e. whether they are able to move these loans off balance sheet in a way that eases their capital requirements and/or means that they bear none-to-little credit risk. This also cancels any incentive of the bank to vet the risks associated with the loan. Securitization was highly popular before the GFC, contributing largely to the growth of shadow banking or non-bank financial intermediation.<sup>16</sup> This market has become less active, especially in Europe, as regulators have tightened their grip on securitizations and required banks, among others, to have 'skin in the game' via holding requirements.<sup>17</sup>

Savers or investors might also contribute to credit substitution, by switching their savings/investments between financial intermediaries in a way that can affect financing decisions by firms in the real economy. For example, channelling savings to pension funds and institutional investors in the modern economy led to an unprecedented supply of market finance for corporate borrowers.<sup>18</sup> Or, well-intended regulatory restrictions in the US on the interest

<sup>11</sup> See, eg, Tobias Adrian, Paolo Colla and Hyun Song Shin, 'Which Financial Frictions? Parsing Evidence from the Financial Crisis of 2007 to 2009' (2012) 27 NBER Macroeconomics Annual 159.

<sup>12</sup> Bo Becker and Victoria Ivashina, 'Cyclicality of Credit Supply: Firm Level Evidence' (2014) 62 *Journal of Monetary Economics* 76. See also Nicolas Crouzet, 'Aggregate Implications of Corporate Debt Choices' (2018) 85 *The Review of Economic Studies* 1635 (developing a model which shows that in response to a contraction in bank credit supply, aggregate bond issuances in the corporate sector increase, but this substitution is not perfect (one for one) and therefore not enough to avoid complete decline in aggregate borrowing and investment).

<sup>13</sup> Margherita Giuzio and Francesca Lenoci, 'Corporate loans versus market-based finance: substitutes or complements?' (ECB Financial Stability Review, May 2023) [https://www.ecb.europa.eu/press/financial-stability-publications/fsr/focus/2023/html/ecb.fsrbox202305\\_06-d859e24a8a.en.html](https://www.ecb.europa.eu/press/financial-stability-publications/fsr/focus/2023/html/ecb.fsrbox202305_06-d859e24a8a.en.html); Giada Durante and others, 'Substitution between debt security issuance and bank loans: evidence from the SAFE' (ECB Economic Bulletin, Issue 1/2023) [https://www.ecb.europa.eu/press/economic-bulletin/focus/2023/html/ecb.ebbox202301\\_07~78a838eb48.en.html](https://www.ecb.europa.eu/press/economic-bulletin/focus/2023/html/ecb.ebbox202301_07~78a838eb48.en.html).

<sup>14</sup> Thanks to a method called tranching, some tranches of bonds could receive high credit ratings (such as AAA) rather than what the average loan in the pool would suggest, because senior tranches would have priority over all incoming cash flows until their claims were paid. See generally, Joshua Coval, Jakub Jurek and Erik Stafford, 'The Economics of Structured Finance' (2009) 23 *Journal of Economic Perspectives* 3.

<sup>15</sup> For example, to smooth out payment to bondholders, the SPV would normally issue an 'asset-backed commercial paper', which would be then 'backed' by the bank by providing liquidity assistance to the SPV in the case of uncertainty of its cash flows. This, however, did not receive the same regulatory treatment as when the loans stayed on the bank's balance sheet, allowing banks to reduce their capital requirements while bearing the same risk. See generally, Viral V Acharya, Philipp Schnabl and Gustavo Suarez, 'Securitization without Risk Transfer' (2013) 107 *Journal of Financial Economics* 515.

<sup>16</sup> See, eg, Zoltan Pozsar, Tobias Adrian, Adam Ashcraft, and Hayley Boesky, 'Shadow Banking', Federal Reserve Bank of New York Staff Report No 458 (July 2010) [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1640545](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1640545).

<sup>17</sup> See generally, John Armour and others, *Principles of Financial Regulation* (OUP 2019) 465–66; on the market trends, see Deutsche Bank, 'European Securitisation Market – Ready for a Comeback?' (19 August 2024) [https://www.dbresearch.com/PROD/RPS\\_EN-PROD/European\\_securitisation\\_market\\_&#x2013;\\_ready\\_for\\_a\\_comeb/RPS\\_EN\\_DOC\\_VIE\\_W.calias?rwnode=PROD000000000435631&ProdCollection=PROD0000000000353114](https://www.dbresearch.com/PROD/RPS_EN-PROD/European_securitisation_market_&#x2013;_ready_for_a_comeb/RPS_EN_DOC_VIE_W.calias?rwnode=PROD000000000435631&ProdCollection=PROD0000000000353114).

<sup>18</sup> See generally, Armour and others (n 17) 436–38.

rate banks could charge on their deposits led return-seeking savers to switch to money market funds (MMF) and contributed to their remarkable growth.<sup>19</sup> These MMFs then supplied short-term lending for high credit quality corporate borrowers via commercial paper.

As the last example shows, regulation could be an important stimulant of credit substitution. Well-intended measures might lead to some second-order effects, not foreseen by regulators, undermining the intended effect of the measure. Capital regulation, which controls how banks fund their assets and ensures their resilience against shocks as well as affecting the supply of credit in the economy, has been shown to be important. For example, a study examining the effects of capital regulation in the UK found that it resulted in a 'leakage' in the credit supply from domestic, regulated, firms to foreign, unregulated, firms, which highlights the importance of international cooperation.<sup>20</sup> A similar study investigated the connections between bank capital regulation and the prevalence of lightly regulated non-banks (shadow banks) in the US corporate loan market and found substitution with adverse effects on financial stability.<sup>21</sup>

Credit substitution might be a benign event. Indeed, the fact that banking regulation led to the substitution of credit provision by markets was initially seen positively as banks were thought to be fragile and the locus of systemic risk. This was of course proven wrong with the GFC as non-bank financial intermediation led to new forms of systemic risk that also propagated to the banking system.<sup>22</sup> Furthermore, credit substitution might defeat the regulatory purpose if the regulatory aim is to cut the aggregate credit supply generally or to certain borrowers. Both perspectives are equally valid in sustainable finance.

This in turn relates to the goals of financial regulation. The effectiveness of a certain measure should only be assessed against the relevant goals. While there are numerous goals of financial regulation, two important ones relate to institutional and systemic stability. Microprudential regulation safeguards institutional stability while macroprudential regulation concerns systemic financial stability. Financial regulation could also be used to reduce or increase capital supply to the real economy or just simply re-allocate it between sectors, especially in relation to macroprudential or certain policy goals (eg to reduce or increase credit supply to certain sectors/borrowers). However, there are tensions between these objectives which credit substitution lays bare. In other words, regulatory or other market-based measures might increase institutional resilience or affect funding decision by a certain institution; yet they will be rendered ineffective by credit substitution. This means that while these measures might be successful from a micro-prudential perspective, they may fail from a macroprudential perspective (if risk just migrates to other funders) or from the perspective of other policy goals (ie aiming to reduce or divert credit supply).

<sup>19</sup> *ibid* 482–83.

<sup>20</sup> See Shekhar Aiyar, Charles W Calomiris and Tomasz Wieladek, 'Does Macro-Prudential Regulation Leak? Evidence from a UK Policy Experiment' (2014) 46 *Journal of Money, Credit and Banking* 181; Shekhar Aiyar, Charles W Calomiris and Tomasz Wieladek, 'Identifying Channels of Credit Substitution When Bank Capital Requirements Are Varied' (2014) 29 *Economic Policy* 45. Authors do not find leakage to securities finance. This might be because foreign bank branches were able to sufficiently substitute for the contraction in the bank lending or switching costs to market finance (bond or equity issuance) might be too high for firms.

<sup>21</sup> See Rustom M Irani and others, 'The Rise of Shadow Banking: Evidence from Capital Regulation' (2021) 34 *The Review of Financial Studies* 2181. See also Greg Buchak and others, 'Fintech, Regulatory Arbitrage, and The Rise of Shadow Banks' (2018) 130 *Journal of Financial Economics* 453; Buchak and others (n 7) 6–7 (finding that raising capital requirements lead to contraction of lending by banks but have a modest impact on the aggregate lending due to substitution by market finance).

<sup>22</sup> See generally, Armour and others (n 17) 439–43.

### III. CREDIT SUBSTITUTION IN SUSTAINABLE FINANCE

#### 1. Theory

Credit substitution might also take place in sustainable finance when certain financing sources are retracting or becoming more expensive.<sup>23</sup> As stated above, an important goal of sustainable finance is to affect the investment decisions of firms in line with the net-zero transition. For this to happen, firms should lose financing for their socially undesirable ‘brown’ or ‘dirty’ projects, or their cost of capital should rise to a certain point that the returns of the project do not justify their undertaking (standalone or in comparison to alternative ‘green’ or ‘sustainable’ projects).

Financial institutions might ‘exit’ from financing such firms by not providing funds at all or only at prohibitive rates for three reasons. First, their preferences might play a role. The disutility investors derive from financing such projects might lead to sharp increases in the cost of capital or withdrawals altogether.<sup>24</sup> Second, shareholder, stakeholder, or regulatory pressure on financial institutions might similarly result in drops in financing for such projects due to total withdrawals or cost of capital effects.<sup>25</sup> Third, some financial institutions might see assets incompatible with an ambitious net-zero transition pathway as particularly risky and therefore demand a higher risk premium, which increases the cost of capital, or this might lead them to completely withdraw.<sup>26</sup> In a similar fashion, they might adjust downward their cash flow expectations of ‘dirty’ or ‘brown’ assets.<sup>27</sup>

There is now ample empirical and anecdotal evidence that financial markets across different finance sources—equity, bonds, and bank loans—engage in some sort of ‘exit’. Equity markets experience fund flows to ‘sustainable’ investments at the expense of financial returns.<sup>28</sup> Or investors demand carbon or higher risk premium when investing in high-emitting firms.<sup>29</sup> Similar results obtain in the bond markets where, due to their preferences or risk perceptions, investors demand a premium to buy bonds issued by firms with more greenhouse gas emissions.<sup>30</sup> There is, of course, still a question of the extent to which this ‘adjustment’ by investors affects the investment decisions of firms or reflects the true cost of carbon for society.

Apart from market finance, banks are an important part of financing for firms across the world. Major banks, recently, especially in Europe, have made announcements regarding exiting (new) lending and other activities in sectors like coal, oil, and gas. Barclays and HSBC, for example, the two largest UK banks, announced that they will no longer lend to oil and gas developments.<sup>31</sup> This largely follows investor and stakeholder (especially client) pressure that these firms faced to align their lending with net-zero transition.<sup>32</sup> Major European banks like ING, a Dutch bank,

<sup>23</sup> This would also include loans/bonds where financing conditions can return to their average level if certain sustainability targets are met but otherwise remain tougher than usual (ie sustainability-linked loans or bonds).

<sup>24</sup> For a seminal paper, see Eugene F Fama and Kenneth R French, ‘Disagreement, Tastes and Asset Prices’ (2007) 83 *Journal of Financial Economics* 667.

<sup>25</sup> See, eg, sources cited in n 32. On the (varying) regulatory pressure/ecosystem, see below sections IV.1 and IV.2.

<sup>26</sup> For a succinct discussion, see Sebastian Steuer and Tobias H Tröger, ‘The Role of Disclosure in Green Finance’ (2022) 8 *Journal of Financial Regulation* 1, 19–27.

<sup>27</sup> *ibid.*

<sup>28</sup> See, eg, Samuel M Hartzmark and Abigail B Sussman, ‘Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows’ (2019) 74 *Journal of Finance* 2789; Arno Riedl and Paul Smeets, ‘Why Do Investors Hold Socially Responsible Mutual Funds?’ (2017) 72 *Journal of Finance* 2505.

<sup>29</sup> See, eg, Patrick Bolton and Marcin Kacperczyk, ‘Do Investors Care About Carbon Risk?’ (2021) 142 *Journal of Financial Economics* 517; Patrick Bolton and Marcin Kacperczyk, ‘Global Pricing of Carbon-Transition Risk’ (2023) 78 *Journal of Finance* 3677.

<sup>30</sup> See, eg, Dora Xia and Omar Zulaica, ‘The Term Structure of Carbon Premia’ (BIS Working Papers No 1045, October 2022) <https://www.bis.org/publ/work1045.htm>; Lee Seltzer, Laura T Starks and Qifei Zhu, ‘Climate Regulatory Risks and Corporate Bonds’ Federal Reserve Bank of New York Staff Reports, no 1014 (rev January 2024) [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4090879](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4090879).

<sup>31</sup> ‘Barclays focuses capital and resources on supporting energy companies to decarbonise’ (9 February 2024) <https://home.barclays/news/press-releases/2024/01/barclays-focuses-capital-and-resources-on-supporting-energy-comp/>; HSBC, ‘Our energy policy to support net zero transition’ (25 January 2024) [https://www.hsbc.com/news-and-views/news/hsbc-news-archive/our-energy-policy-to-support-netzero-transition](https://www.hsbc.com/news-and-views/news/hsbc-news-archive/our-energy-policy-to-support-net-zero-transition).

and BNP Paribas, a French bank, made similar exits.<sup>33</sup> Generally, a group of leading banks have developed net-zero transition plans and targets to align their lending, investment, and capital markets activities with net-zero greenhouse gas emissions by 2050, as part of now-dissolved UN-convened Net-Zero Banking Alliance.<sup>34</sup> Some evidence also shows that banks price in carbon emissions into interest rate (ie cost of capital effect).<sup>35</sup>

To be sure, there is a substantial degree of greenwashing and a credibility problem.<sup>36</sup> A perhaps more important question is whether any 'real' adjustment by financial institutions leads to impacts on firms' investment decisions because they lack financial resources, or the increased cost of capital does not justify the investment decision. This is where credit substitution becomes crucial.

Credit substitution is possible along, and thanks to, three channels whereby financial institutions are expected to adjust in the first place. First, not every investor or financial institution will have a preference for 'green' over 'brown' assets, which cancels any cost of capital divergence between those assets. Second, financial institutions will face different shareholder, stakeholder, or regulatory pressure. This is because of the different shareholder or stakeholder bases that they have and those might face a different degree of information asymmetry and coordination costs or simply have different views in shaping the financing decisions of the relevant institution. Financial firms might also face different regulatory pressure or scrutiny because of geographical, size, or sectoral differences. Last, financial institutions might have different risk preferences or different vision for the states of the world in the future, which causes ultimately different valuations for the same asset/project because of lower discount rate to compensate for the risk or higher expected cash flows. There might be also temporary mispricing of the risk across different financial sources, especially when information asymmetry and liquidity differ.

All these mean that while some financing sources are retracting or becoming more expensive, others might remain available cheaply. This ultimately enables firms to turn to these financing sources to replace those that are retracting or becoming more expensive, cancelling out any effect on the real economy of these 'exits'. To be sure, if a critical mass of financing becomes unavailable or prohibitively expensive, some projects might remain unfunded at the margin. Yet, it does currently seem to be the case that alternative financing sources can be found.

Generally, firms can substitute within the same type of finance or across different types. For example, they can substitute across equity, bond, and loans or they can substitute between different providers of the same type of finance. As stated above, the ability of a firm to engage in credit substitution is a function of switching costs. Small and riskier firms might find it more

<sup>32</sup> See, eg, Kristen McGachey, 'Barclays rolls out fossil fuel restrictions as shareholder pressure mounts' (*Financial News*, 9 February 2024) <https://www.fnlondon.com/articles/barclays-rolls-out-fossil-fuel-restrictions-as-shareholder-pressure-mounts-20240209>; Kenza Bryan and Emma Dunkley, 'HSBC to stop new oil and gas project funding after backlash' *Financial Times* (14 December 2022) <https://www.ft.com/content/5ba4b75f-bbd8-4b3d-b962-60126754e2fa>.

<sup>33</sup> 'BNP Paribas details and strengthens its energy transition ambitions' (11 May 2023) <https://group.bnpparibas/en/press-release/bnp-paribas-details-and-strengthens-its-energy-transition-ambitions>; 'ING gives update on climate action approach, accelerates efforts in client engagement' (19 September 2024) <https://www.ing.com/Newsroom/News/Press-releases/ING-gives-update-on-climate-action-approach-accelerates-efforts-in-client-engagement.htm>.

<sup>34</sup> See generally <https://www.unepfi.org/net-zero-banking/>.

<sup>35</sup> See, eg, Torsten Ehlers, Frank Packer and Kathrin de Greiff, 'The Pricing of Carbon Risk in Syndicated Loans: Which Risks Are Priced and Why?' (2022) 136 *Journal of Banking & Finance* 106180; Manthos D Delis and others, 'Being Stranded with Fossil Fuel Reserves? Climate Policy Risk and the Pricing of Bank Loans' (2024) 33 *Financial Markets, Institutions & Instruments* 239.

<sup>36</sup> See, eg, David Haushalter, Joseph J Henry and Peter Iliev, 'Can Banks Save Mountains?' (2023) 12 *The Review of Corporate Finance Studies* 761 (showing that banks' self-imposed policies to limit lending to coal-mining companies did not lead to meaningful changes in average bank lending or coal mining); Mariassunta Giannetti and others, 'Glossy Green' Banks: The Disconnect between Environmental Disclosures and Lending Activities' Working Paper (August 2024), available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4424081](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4424081); Parinitha Sastry, Emil Verner and David Marques-Ibanez, 'Business as Usual: Bank Climate Commitments, Lending, and Engagement' ECB Working Paper No 2024/2921, available at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4772562](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4772562).

difficult to substitute while others could do at none-to-little cost. Empirical evidence examined below shows whether, to what extent, and under which conditions credit substitution occurs.

Ultimately, credit substitution defeats the purpose of sustainable finance, ie to reduce capital supply and to affect the investment decisions of companies. Also, if the aim is risk management associated with net-zero transition—as often claimed by regulators and financial institutions—risk management by regulated entities, like banks, might just lead to concentration of the risk in other institutions with potential systemic risk implications (as happened before the GFC). This again calls into question the effectiveness of certain regulatory measures/policies given the regulatory goals.

## 2. Evidence

Recently, expansion of credit channels in the economy and opportunities for credit substitution (as well as the role of regulatory and non-regulatory factors) have captured the attention of global watchdogs, regulators, and the media (especially with the rise of new institutions like private credit funds).<sup>37</sup> Alongside this general development, emerging evidence both in the literature and media demonstrates credit substitution across various channels in sustainable finance, which both amplifies and is amplified by general trends. They generally show that ‘exits’ by certain financial institutions linked to sustainability factors could be undone by new entrants that are not affected by or do not give the same weight to these factors.<sup>38</sup> This substitution happens between and across banks and non-bank financial intermediaries (including but not limited to private credit).

A recent study examines how two main cap-and-trade bills in the US (the California and the federal Waxman-Markey cap-and-trade bills), which put a price on carbon and therefore make exposures to greenhouse gas (GHG) emitting firms riskier, have affected bank lending.<sup>39</sup> The study found that, following the passage of California’s cap-and-trade bill, firms with a large share of GHG emissions in California experienced shorter loan maturities, lower access to permanent forms of lending, and higher interest rates, while total committed credit did not change.<sup>40</sup> These allow banks to quickly reduce exposure to firms under the scheme should they face some difficulties as well as compensating them for the risks. The authors found qualitatively the same results for the federal Waxman-Markey cap-and-trade bill which ultimately failed passage at the US Senate.<sup>41</sup> Crucially, the authors also found that lenders with large exposure to high GHG-emitting firms reduced their share in syndicated loans but some shadow banks such as collateralized loan obligations (CLOs) took a significantly larger loan share in the syndicates due to, as the authors speculate, their different risk appetite.<sup>42</sup> The effects were virtually all concentrated within private firms which also experienced reductions in profitability and capital expenditures—this was, however, largely due to lower carbon efficiency and higher operating

<sup>37</sup> See, eg, FSB, ‘Promoting Global Financial Stability: 2024 FSB Annual Report’ (18 November 2024) <https://www.fsb.org/2024/11/promoting-global-financial-stability-2024-fsb-annual-report/> (noting, eg, the rapid growth of private credit and risks it is exposed to); International Monetary Fund, ‘Global Financial Stability Report: The Last Mile: Financial Vulnerabilities and Risks’ (16 April 2024) <https://www.elibrary.imf.org/display/book/9798400257704/CH002.xml> ch 2 (noting the rise and risks of private credit); The Economist, ‘Special Report: A New Financial Order’ *The Economist* (31 May 2025) <https://www.economist.com/special-report/2025-05-31>.

<sup>38</sup> A challenge for any evidence on credit substitution related to sustainability factors is to isolate the specific effect from the general trends in credit channels unrelated to these factors. For example, banks’ exit from certain lending business might be a response to general financial regulation or commercial reasons, rather than sustainability factors. But studies could mistakenly attribute the former to the latter. Still, general trends in credit channels might be important for the effectiveness of regulatory measures if sustainable finance regulation focuses only or more on a certain part of the financial system (eg, banking).

<sup>39</sup> Ivan T Ivanov, Mathias S Krutli and Sumudu W Watugala, ‘Banking on Carbon: Corporate Lending and Cap-and-Trade Policy’ (2024) 37 *The Review of Financial Studies* 1640.

<sup>40</sup> *ibid* 1642–43.

<sup>41</sup> *ibid*.

<sup>42</sup> *ibid* 1643 and 1670–73.

costs for firms associated with the bill—while the credit terms of public firms remained unaffected, which might indicate that banks did not expect them to be adversely affected by the bill.<sup>43</sup> Therefore, this study shows that banks might respond to risks associated with lending to ‘brown’ firms in two ways: adjusting their lending relationship or transferring their exposure, which only creates substitution.

A similar study investigated whether banks offload brown loans to CLO managers, utilizing the election of President Trump in 2016 as an exogenous shock that reduced the transition risk given the rollback of environmental policies and withdrawal from the Paris Agreement after the election.<sup>44</sup> It generally shows that, globally, banks have increasingly transferred loans to brown industries into securitization markets.<sup>45</sup> It also finds that banks are more likely to sell loans when borrowers’ carbon emissions (in absolute or intensity) are higher.<sup>46</sup> However, banks were less likely to securitize brown loans by selling them to CLO managers after Trump’s election, ie when transition risk was lower.<sup>47</sup> Furthermore, banks offered a discount, let alone charged a carbon premium, on securitized brown loans.<sup>48</sup> These effects were more pronounced for US banks and those that did not display preferences for green lending.<sup>49</sup> Overall, this indicates that banks might manage transition risk by selling their loans, which dilutes the disciplining effect of their exit.

Apart from traditional non-bank financial intermediaries, in recent years, private credit funds have become a major player, rivalling leveraged loan and high-yield bond markets in size.<sup>50</sup> Similar to its twin—the private equity fund—a private credit fund is a closed-end pooled investment vehicle that originates or invests in loans to private businesses, generally small and medium sized entities that banks would not fund.<sup>51</sup> Investors in these funds (‘limited partners’) include mostly pension funds, insurance companies, family offices, sovereign wealth funds, and high net worth individuals.<sup>52</sup> Private credit can be therefore an important source of substitution for bank loans and indeed, there are signs in this regard. A Bloomberg news article reports that private credit funds are replacing European (and some US) banks that are retreating from coal, oil and gas financing due to regulatory and reputational concerns.<sup>53</sup> Given little transparency on private credit fund lending, it is hard to measure to what extent, and under which conditions this substitution occurs. Yet, it seems that private credit funds stand ready to come in when banks drop out.<sup>54</sup> Two Australian companies received very large loans from private credit lenders to acquire coal mines, after being rejected by banks which committed to limit or refrain from lending to coal miners.<sup>55</sup>

<sup>43</sup> *ibid* 1673–77.

<sup>44</sup> Isabella Mueller, Huyen Nguyen and Trang Nguyen, ‘Carbon Transition Risk and Corporate Loan Securitisation’ (2025) 63 *Journal of Financial Intermediation* 101146.

<sup>45</sup> *ibid* 1–2 (this trend is particularly pronounced in non-US markets).

<sup>46</sup> *ibid* 3.

<sup>47</sup> *ibid*.

<sup>48</sup> *ibid*.

<sup>49</sup> *ibid* 2–3.

<sup>50</sup> See generally, Fang Cai and Sharil Haque, ‘Private Credit: Characteristics and Risks’ (FEDS Notes, 23 February 2024) <https://www.federalreserve.gov/econres/notes/feds-notes/private-credit-characteristics-and-risks-20240223.html>; Joern Block and others, ‘A Survey of Private Debt Funds’ (2024) 13 *The Review of Corporate Finance Studies* 335.

<sup>51</sup> *ibid*.

<sup>52</sup> *ibid*.

<sup>53</sup> Natasha White, ‘Banks Shying Away from Fossil Fuels Bolster Private Credit Deals’ (Bloomberg, 25 March 2024) <https://www.bloomberg.com/news/articles/2024-03-25/private-credit-funds-see-huge-rise-in-fossil-fuel-deals-as-banks-walk-away>.

<sup>54</sup> *ibid*.

<sup>55</sup> Sharon Klyne and Megawati Wijaya, ‘Australia Coal Miners Woo Private Capital as Banks Get Leery’ (Bloomberg, 20 March 2024) <https://www.bloomberg.com/news/articles/2024-03-20/australian-coal-miners-woo-private-capital-as-banks-get-leery>. These loans, however, are more expensive, reflecting the general fact that spreads in private credit are larger than leveraged loans. However, among all different deal types (uses of proceeds) in private credit, debt refinancing has the lowest spread. See Cai and Haque (n 50).

Reminiscent of the GFC era, banks might also engage in synthetic risk transfers, which are indeed in rapid growth, especially with the tightening of capital requirements after the GFC and implementation of Basel III.<sup>56</sup> In a synthetic risk transfer, banks form a portfolio of loans and divide them into different tranches.<sup>57</sup> Banks then obtain a credit risk protection for a fee from a provider (like a hedge fund or private credit fund) for the losses on the tranches covered, which can be cash (or similar) collateralized or not (funded or unfunded).<sup>58</sup> This achieves a functionally equivalent result to securitization without selling or securitizing the reference pool of loans, and enables banks to obtain capital relief under capital adequacy requirements.<sup>59</sup> Synthetic risk transfers are now also touted as a way to free banks from risks associated with their lending to fossil fuel firms/projects.<sup>60</sup> This enables banks to fend off any regulatory pressure regarding transition risk and their lending to brown assets as banks can keep lending to such assets without bearing the risk. Furthermore, it might enable banks to cut the carbon footprint of their balance sheets.<sup>61</sup> Currently, the widely accepted Global GHG Accounting and Reporting Standard for the financial industry by the Partnership for Carbon Accounting Financials (PCAF) does not provide any guidance on emissions related to loans for securitization,<sup>62</sup> leaving room for creative financial engineering and emission reporting. Overall, this might leave banks more oblivious to financing of fossil fuel assets. Here, credit substitution still occurs, not via the firm but via the lender.

Credit substitution might also happen in the opposite direction from markets to banks. A recent study indicates that while bond markets price the transition risk (or stranded asset risk), syndicated loan market does not.<sup>63</sup> This pricing difference leads firms to rely more on loans and less on bonds, leading to “the within-firm-bond-to-loan substitution.”<sup>64</sup> The authors attribute this to the fact that banks’ incentives to finance fossil fuel firms might be distorted because they are ‘too-big-to-fail’ as, in the study, bigger banks provide cheaper and more financing to fossil fuel firms.<sup>65</sup>

Lastly, credit substitution might happen between banks of varying sizes and from the same or different regions—which are the important factors in influencing the shareholder, stakeholder, and regulatory pressure they receive for their lending activities. A recent study looked at the impact of the Operation Choke Point by the US Department of Justice which compelled a

<sup>56</sup> Esteban Duarte and Cecile Gutscher, ‘BlackRock Manager Predicts 40% Jump in Bank Risk Transfer Deals’ (Bloomberg, 6 March 2024) <https://www.bloomberg.com/news/articles/2024-03-06/blackrock-manager-predicts-40-jump-in-bank-risk-transfer-deals>; Matt Wirz, ‘Big Banks Cook Up New Way to Unload Risk’ *The Wall Street Journal* (7 November 2023) <https://www.wsj.com/finance/banking/bank-synthetic-risk-transfers-basel-endgame-62410f6c>.

<sup>57</sup> In the simplest two-tranche, there will be a first loss tranche and senior tranche. In tri-partite tranche, there will be residual, mezzanine, and senior tranches. For a detailed exposition of such securitizations, see Fernando Gonzalez and Cristina Morar Triandafili, ‘The European significant risk transfer securitisation market’ European Systemic Risk Board Occasional Paper Series No 23 (2023) <https://www.esrb.europa.eu/pub/pdf/occasional/esrb.op23-07d5c3eef2.en.pdf>.

<sup>58</sup> *ibid* 14–18.

<sup>59</sup> See the Guidance from the Federal Reserve, available at <https://www.federalreserve.gov/supervisionreg/legalinterpretations/reg-q-frequently-asked-questions.htm>. In the EU, banks can only reduce their capital requirements if the securitization transaction in question transfers a significant amount of risk to third parties. This is determined by the competent authority, which assesses whether the transaction complies with the significant risk transfer (SRT) criteria stipulated in the Capital Requirements Regulation as well as with the authority’s expectations. See generally, ECB Supervision Newsletter, ‘EU Securitisations: 2023 in figures’ (15 May 2024) [https://www.banksupervision.europa.eu/press/publications/newsletter/2024/html/ssm.nl240515\\_2.en.html](https://www.banksupervision.europa.eu/press/publications/newsletter/2024/html/ssm.nl240515_2.en.html).

<sup>60</sup> See Natasha White, ‘Hedge Fund Veteran Pitches First-Ever Emissions Risk Transfers’ (Bloomberg, 17 March 2024) <https://www.bloomberg.com/news/articles/2024-03-17/hedge-fund-veteran-pitches-first-ever-emissions-risk-transfers>.

<sup>61</sup> *ibid*.

<sup>62</sup> See The Global GHG Accounting and Reporting Standard/Part A: Financed Emissions (December 2022) <https://carbonaccountingfinancials.com/standard> 46.

<sup>63</sup> Winta Beyene and others, ‘Too-big-to-strand? Bond versus Bank Financing in the Transition to A Low-Carbon Economy’ Swiss Finance Institute Research Paper Series No 24-43 (6 July 2025) [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4943722](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4943722).

<sup>64</sup> *ibid*.

<sup>65</sup> *ibid*.

subset of banks to limit lending to firms in certain industries with a high risk of fraud and money laundering.<sup>66</sup> Indeed, as intended, the operation reduced targeted banks' committed credit to these firms; yet, these firms responded by initiating new relationships with non-targeted banks and no impact of the operation on firms' leverage, profitability, and investment was observed, yielding the operation broadly ineffective.<sup>67</sup> Another study looked at the impact of a policy introduced in Brazil in September 2017 requiring banks to incorporate social and environmental risks in their capital adequacy assessments.<sup>68</sup> The authors found that this policy led to a credit reallocation by targeted banks away from firms with high social and environmental risks.<sup>69</sup> Yet, they also found that the contraction in credit to exposed firms by targeted banks was largely offset by the increase in supply from banks not subject to the policy.<sup>70</sup> The negative effects of credit contraction appear to concentrate in smaller firms, which are less able to substitute across lenders.<sup>71</sup>

Generally, there are increasing signs that while European banks gradually withdraw from fossil fuel lending, North American and Japanese banks are taking the lead, accompanied by a dramatic increase in lending by regional, mid-sized banks.<sup>72</sup> In the US, regional banks from states that have introduced anti-ESG laws like Oklahoma or Ohio are stepping up their fossil fuel lending, noting 'much more opportunities' in the fossil fuel industry.<sup>73</sup> In a clear example, Fifth Third, headquartered in Ohio, replaced the UK bank, Barclays plc, on a \$325 million loan to ProFrac Holdings, a fracking company.<sup>74</sup> Similarly, Australian coal miners tapped Japanese and Chinese lenders for loans after Australian banks exited new coal financing.<sup>75</sup> Generally, a recent study looking at the syndicated loan network among major international lenders find strong substitution between banks from different regions, the strength and direction of which vary between different regions.<sup>76</sup> In particular, it finds that US, Japanese, and Canadian banks are key to sustaining the syndicated fossil fuel lending market.<sup>77</sup>

In a traditional setting where bank and company relationship depend on the value of private information engendered through repeated interactions,<sup>78</sup> substitution between banks might be difficult. However, given that fossil fuel companies are large, established players and might use their proven reserves, whose value is relatively easy to establish, as collateral, substitution can be much easier. Furthermore, generally, one of the reasons why private information matters is that it leads to adverse selection.<sup>79</sup> When contracting lending, banks selectively choose which lending relationship to end, leaving their worst borrowers looking for new lending. Yet, when certain banks exit fossil fuel lending, it is not mostly about their private information about a borrower;

<sup>66</sup> Kunal Sachdeva and others, 'Defunding Controversial Industries: Can Targeted Credit Rationing Choke Firms?' (2025) 172 *Journal of Financial Economics* 104133.

<sup>67</sup> *ibid* 2 (except for highly-levered smaller firms).

<sup>68</sup> Faruk Miguel, Alvaro Pedraza and Claudia Ruiz-Ortega, 'Climate-Change Regulations: Bank Lending and Real Effects' (2024) 70 *Journal of Financial Stability* 101212.

<sup>69</sup> *ibid* 2.

<sup>70</sup> *ibid*.

<sup>71</sup> *ibid*.

<sup>72</sup> See, eg, Anita Hawser and Aliya Shibli, 'Smaller banks increasingly involved in fossil fuel financing, study finds' (*The Banker*, 13 May 2024) <https://www.thebanker.com/Smaller-banks-increasingly-involved-in-fossil-fuel-financing-study-1715585658>; Natasha White, 'US regional banks dramatically step up loans to oil and gas' (*Bloomberg*, 14 April 2024) <https://www.bloomberg.com/news/articles/2024-04-14/us-regional-banks-dramatically-step-up-loans-to-oil-and-gas>.

<sup>73</sup> White (n 72).

<sup>74</sup> *ibid*.

<sup>75</sup> Jamie Smyth, 'Australia's banks stop funding coal as trading partners decarbonise' (*Financial Times* (29 October 2020) <https://www.ft.com/content/ec29da04-6282-4e80-b5a8-a7fdbf429f0b>).

<sup>76</sup> Jamie Rickman and others, 'The challenge of phasing-out fossil fuel finance in the banking sector' (2024) *Nature Communications* 15:7881, 7.

<sup>77</sup> *ibid* 8.

<sup>78</sup> See, eg, Olivier Darmouni, 'Informational Frictions and the Credit Crunch' (2020) 75 *The Journal of Finance* 2055.

<sup>79</sup> *ibid*.

they are exiting not a single firm but a sector, removing any adverse selection that would see affected borrowers struggle to find a new lender. In addition, fossil fuel lending is dominated by syndicated loans.<sup>80</sup> Syndication also lowers the importance of private information. As long as some existing members of a syndicate remain, new members can more easily enter as they rely on the information/reputation of the remaining members, with whom they generally have previous relationships.<sup>81</sup>

Yet, a recent study, examining the effects of banks' exit policy on coal financing and leveraging on the insight that bank-borrower historic relationships matter, found limited substitution by coal firms after their relationship banks exit coal financing which then experience a contraction of their total assets and emissions.<sup>82</sup> Another study looked at how banks that commit to decarbonization via the Science Based Targets Initiative adjust their lending behaviour.<sup>83</sup> In line with the previous one, this study also found that committed banks reduce their lending to firms with higher Scope 1 emissions that are not, however, able to substitute for reduced lending, in comparison to similar firms that are not exposed to committed banks.<sup>84</sup> Unlike the former, however, it does not find emissions reductions despite shrinking leverage, investment, and asset size.<sup>85</sup> These studies that look at the voluntary commitments of banks to curb fossil fuel lending (rather than regulatory interventions) are, however, also at odds with studies finding that such commitments are usually not credible or effective.<sup>86</sup>

## IV. REGULATORY SNAPSHOT AND THE BROADER ECOSYSTEM

### 1. Cross-jurisdictional differences in approaches to sustainable finance

After the commitment in the Paris Agreement to channel financial flows in line with net-zero transition goals, main financial centres have taken different approaches to sustainable finance broadly and to sustainable banking, in particular. This section deals with these cross-jurisdictional differences with a focus on the EU, the UK, the United States, and Asia including Japan and China.<sup>87</sup>

The EU has been the international pacesetter in promoting and facilitating sustainable finance, considering it key to delivering on the policy objectives under the European Green Deal.<sup>88</sup> Commencing with its Action Plan on Sustainable Finance,<sup>89</sup> it created a complex regulatory web to channel financial flows in line with its sustainability goals and green transition. The regulatory framework includes very detailed corporate sustainability reporting, certain disclosure and conduct obligations for financial intermediaries, and a taxonomy on environmentally sustainable activities.<sup>90</sup> These largely market-finance oriented measures aim to

<sup>80</sup> See, eg, Theodor F Cojoianu and others, 'The City Never Sleeps: But When Will Investment Banks Wake Up to The Climate Crisis?' (2023) 57 *Regional Studies* 268.

<sup>81</sup> See also Rickman and others (n 76) 6 (noting that this increases the probability of successful substitution, allowing deals to survive for longer).

<sup>82</sup> Daniel Green and Boris Vallee, 'Measurement and Effects of Bank Exit Policies' (2025) 172 *Journal of Financial Economics* 104129.

<sup>83</sup> Marcin Kacperczyk and José-Luis Peydró, 'Carbon Emissions and the Bank-Lending Channel' ECGI Finance Working Paper No 991/2024 (July 2024) [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3915486](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3915486).

<sup>84</sup> *ibid* 4.

<sup>85</sup> *ibid* 7–8.

<sup>86</sup> See sources cited in n 36.

<sup>87</sup> The section remains necessarily incomplete as it covers the main regulatory developments in the selected jurisdictions. Rather than providing an all-encompassing coverage and comparison of legal regimes which is outside the scope of the article, it is intended to convey the stark or main differences among jurisdictions which were chosen because they are home to the largest banks and capital markets.

<sup>88</sup> On the European Green Deal, see [https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal\\_en](https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en).

<sup>89</sup> Communication from the Commission to the European Parliament, the European Council, the Council, the European Central Bank, the European Economic and Social Committee and the Committee of the Regions Action Plan: Financing Sustainable Growth COM/2018/097 final.

lower information costs/asymmetry in the investment chain (from companies to institutional investors and from the latter to ultimate investors), prevent greenwashing, and enable market participants to allocate funds according to their (green) tastes and preferences. The EU banking regulation has been also subject to important changes. Green transition-related expectations and how banks manage ESG-related risks have been feeding into disclosure obligations of banks, their governance and processes, supervisory review and evaluation, stress tests, and capital adequacy requirements.<sup>91</sup> This framework is highly primed to affect banks' lending in line with the EU's sustainability goals. Recently, transition plans have also been embedded into the financial system.<sup>92</sup> There have, however, been some concerns that the sustainable finance framework has become highly burdensome, which has led to some simplification proposals for the corporate reporting and due diligence frameworks.<sup>93</sup>

The UK remains both an important capital market and banking jurisdiction,<sup>94</sup> and after leaving the EU, it set out its own ambitious green finance agenda to 'make the UK the best place in the world for green and sustainable investment' in line with its net-zero commitment.<sup>95</sup> Similar to the EU framework, this agenda has aimed at growing sustainable investments although the pace of developments has been relatively slow. The UK now has in place a framework for sustainability disclosure requirements and investment labels for financial markets,<sup>96</sup> and an ever-developing sustainability reporting regime for real economy corporates.<sup>97</sup> However, the plans for a UK green taxonomy have not been implemented by the UK government after much delayed consultation.<sup>98</sup> The UK was also one of the early movers in banking, with the Bank of England (BoE) as Prudential Regulatory Authority setting out its supervisory expectations for banks on climate-related risks in 2019.<sup>99</sup> Since then, it has also conducted a stress test on

<sup>90</sup> See text to nn 137–48.

<sup>91</sup> See text to nn 149–69.

<sup>92</sup> See text to nn 170–72.

<sup>93</sup> See Press Release 'Commission simplifies rules on sustainability and EU investments, delivering over €6 billion in administrative relief' (26 February 2025) [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_25\\_614](https://ec.europa.eu/commission/presscorner/detail/en/ip_25_614) (henceforth 'omnibus simplification package').

<sup>94</sup> TheCityUK, 'Key Facts about the UK as an International Financial Centre 2023' (January 2024) <https://www.thecityuk.com/our-work/key-facts-about-the-uk-as-an-international-financial-centre-2023>.

<sup>95</sup> See HM Government, 'Greening Finance: A Roadmap to Sustainable Investing' (October 2021) <https://www.gov.uk/government/publications/greening-finance-a-roadmap-to-sustainable-investing>. For a recent update, see HM Government, 'Mobilising Green Investment: 2023 Green Finance Strategy' (March 2023) <https://www.gov.uk/government/publications/green-finance-strategy>.

<sup>96</sup> See FCA, 'PS23/16: Sustainability Disclosure Requirements (SDR) and investment labels' (November 2023) <https://www.fca.org.uk/news/press-releases/sustainability-disclosure-and-labelling-regime-confirmed-fca>. Asset managers, life insurers and FCA-regulated pension providers are also required to make disclosures consistent with the TCFD's recommendations on an annual basis at entity and product level. FCA, 'PS21/24: Enhancing climate-related disclosures by asset managers, life insurers and FCA-regulated pension providers' (December 2021) <https://www.fca.org.uk/publications/policy-statements/ps-21-24-climate-related-disclosures-asset-managers-life-insurers-regulated-pensions>.

<sup>97</sup> Listed or certain large companies are subject to mandatory reporting against standards developed by the Task Force on Climate-Related Financial Disclosures (TCFD) via FCA-promulgated Listing Rules or recent amendments to the Companies Act. The UK government is now consulting on the exposure drafts of the UK versions of IFRS Sustainability Disclosure Standards (S1 and S2) – respectively called UK SRS S1 and UK SRS S2. Following this consultation process, the UK government will publish finalized versions of UK SRS S1 and UK SRS S2 for voluntary use later in 2025. Subsequently, the government and the Financial Conduct Authority (FCA) will consider whether to introduce requirements for certain UK entities to report against these standards. Given that ISSB standards build upon the TCFD framework, material substantive changes to the reporting practices or content are not expected. See Department for Business and Trade, 'Guidance: UK Sustainability Reporting Standards' (August 2023) <https://www.gov.uk/guidance/uk-sustainability-disclosure-standards>.

<sup>98</sup> Prior to Brexit, the UK did onshore part of the EU Taxonomy Regulation (TR), but it did not onshore the EU Taxonomy Delegated Acts (on 'significant contribution' and 'do no significant harm') as they were published post-Brexit. The UK reiterated its commitment to a UK Green Taxonomy in its 2023 strategy, with the relevant consultation conducted in 2024. See n 95 and HM Treasury, 'UK Green Taxonomy: Consultation' (November 2024) <https://www.gov.uk/government/consultations/uk-green-taxonomy>. However, following the consultation the UK government has decided not to proceed with the UK Green Taxonomy, see HM Treasury, 'UK Green Taxonomy Consultation Response' (July 2025) <https://www.gov.uk/government/consultations/uk-green-taxonomy>.

<sup>99</sup> Bank of England Prudential Regulation Authority, 'Supervisory Statement 3/19: Enhancing banks' and insurers' approaches to managing the financial risks from climate change' (April 2019) <https://www.bankofengland.co.uk/prudential-regulation/publication/2019/enhancing-banks-and-insurers-approaches-to-managing-the-financial-risks-from-climate-cha>

climate risk, involving the largest UK banks and insurers, known as Climate Biennial Exploratory Scenario exercise.<sup>100</sup> It has been also engaging with the question of whether banks and insurers are sufficiently capitalized for future climate-related losses and how to address any capability and regime gaps.<sup>101</sup> Lastly, the UK Transition Plan Taskforce (TPT), launched by HM Treasury to develop the ‘gold standard’ for private sector climate transition plans but now defunct,<sup>102</sup> prepared sector-general and -specific guidance (for banking and asset owners and managers, among others) for transition plan disclosures, which are now integrated into the broader sustainability disclosure framework of International Financial Reporting Standards (IFRS).<sup>103</sup>

Despite being home to the largest capital market and banks in the world,<sup>104</sup> the US has been lagging both the EU and the UK in its sustainable finance agenda (indeed, if there is one). After a long wait, in March 2024 the Securities and Exchange Commission (SEC) adopted climate-related disclosure rules to enhance and standardize climate-related disclosures for investors.<sup>105</sup> However, the rule has been subject to court challenge, during which the SEC first voluntarily stayed its implementation<sup>106</sup> and then decided to pause defending the rule in the relevant litigation until further review, in a signal of the potential recession of the rule.<sup>107</sup> Similar rules promulgated by the State of California might have far-reaching effects as they capture any company ‘doing business in California’ (subject to size requirements);<sup>108</sup> however, these rules are also being challenged before the court.<sup>109</sup> The SEC also adopted amendments to its existing Names Rules to require funds that reference a thematic investment focus, such as the incorporation of one or more ESG factors, to have at least 80 per cent of the value of their assets in those investments.<sup>110</sup> This however represents only a slight extension (or even clarification) of the existing rules and falls short of the EU’s and UK’s disclosure and labelling regimes. Furthermore, the US banking regulators are very clear that they do not have any intention to steer banking towards fighting climate change, with a clear emphasis that any climate-related rule will be squarely focused on prudent and appropriate risk management.<sup>111</sup> In this regard, they recently published principles for climate-related financial risk management

ng-e-ss (covering firms’ climate risks-related governance arrangements, risk management processes, scenario analyses, and disclosure).

<sup>100</sup> Bank of England, ‘Results of the 2021 Climate Biennial Exploratory Scenario (CBES)’ (24 May 2022) <https://www.bankofengland.co.uk/stress-testing/2022/results-of-the-2021-climate-biennial-exploratory-scenario>.

<sup>101</sup> See Bank of England report on climate-related risks and the regulatory capital frameworks (13 March 2023) <https://www.bankofengland.co.uk/prudential-regulation/publication/2023/report-on-climate-related-risks-and-the-regulatory-capital-frameworks>.

<sup>102</sup> See generally <https://itpn.global/tpt-legacy/>.

<sup>103</sup> IFRS, ‘Transition Plan Taskforce resources’ <https://www.ifrs.org/sustainability/knowledge-hub/transition-plan-taskforce-resources/>.

<sup>104</sup> See Elroy Dimson, Paul Marsh and Mike Staunton, ‘Global Investment Returns Yearbook 2024 (Summary Edition)’ <https://www.ubs.com/global/en/investment-bank/insights-and-data/2024/global-investment-returns-yearbook.html> 10–11; S&P Global, ‘The world’s largest banks by assets, 2024’ (30 April 2024) <https://www.spglobal.com/marketintelligence/en/news-insights/research/the-worlds-largest-banks-by-assets-2024>.

<sup>105</sup> Securities and Exchange Commission, 17 CFR 210, 229, 230, 232, 239, and 249 [Release Nos. 33-11275; 34-99678; File No. S7-10-22] RIN 3235-AM87.

<sup>106</sup> Securities and Exchange Commission, Release Nos. 11280, 99908, 4 April 2024, File No. S7-10-22, available at <https://www.sec.gov/files/rules/other/2024/33-11280.pdf>.

<sup>107</sup> Securities and Exchange Commission Acting Chairman Statement on Climate-Related Disclosure Rules, 11 February 2025 <https://www.sec.gov/newsroom/speeches-statements/uyeda-statement-climate-change-021025>.

<sup>108</sup> See Senate Bill No 253 (‘Climate Corporate Data Accountability Act’) and Senate Bill No 261 (‘Greenhouse Gases: climate-related financial risk’), respectively available at [https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill\\_id=202320240SB253](https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202320240SB253) and [https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=202320240SB261](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240SB261).

<sup>109</sup> See, eg, *Chamber of Commerce of the United States of America et al v California Air Resources Board et al*, in the US District Court for the Central District of California, case No 2:24-cv-00801, available at <https://www.uschamber.com/assets/documents/FILED-Chamber-v.-CARB-Complaint.pdf>.

<sup>110</sup> See Securities and Exchange Commission, 17 CFR Parts 230, 232, 239, 270 and 274 [Release No. 33-11238; 34-98438; IC-35000; File No. S7-16-22] RIN: 3235-AM72.

<sup>111</sup> See, eg, Statement by Chair Jerome H Powell on Principles for Climate-Related Financial Risk Management for Large Financial Institutions (24 October 2023) <https://www.federalreserve.gov/newsreleases/pressreleases/powell-statement-20231024b.htm>.

for the largest financial institutions, which offer only a ‘high-level framework’ and are not binding.<sup>112</sup> The Federal Reserve (Fed) followed up on this with a pilot climate scenario analysis exercise to collect qualitative and quantitative information about the climate risk-management practices of large banking organizations, which was only exploratory in nature and does not have consequences for bank capital or supervisory implications.<sup>113</sup>

Looking at Asia, Japan and China are both signatories to the Paris Agreement with net-zero transition goals (although not Paris-aligned) and present the largest capital markets in the region and are home to some international banking players,<sup>114</sup> which are also currently among the top fossil fuel financiers in the world.<sup>115</sup> In line with this picture, they offer mixed policies. Both are promoting some sustainable finance measures. Japan has implemented measures on climate-related reporting (with the potential adoption of the IFRS Sustainability Reporting Standards into law), and revised its supervisory guidelines regarding ESG investment trusts in response to concerns over greenwashing, as well as engaging in supervisory dialogue and scenario analysis on climate-related risk management in the banking sector.<sup>116</sup> With its top-down market steering approach, China has similarly adopted rules on corporate environmental disclosures, guidelines/guidance on green credit and finance that push and incentivize financial institutions to support low-carbon economy (which greatly helped the rapid development of renewable energy capacity in China), and facilitated one of the largest green bond markets.<sup>117</sup> Nevertheless, neither has yet committed to a coal phase-out.<sup>118</sup> And, while they are promoting some sustainable finance measures, policy is still heavily oriented towards utilizing fossil fuels and financing their expansion, with Japan relying on and promoting natural gas,<sup>119</sup> and China still largely utilizing and expanding coal,<sup>120</sup> which is reflected in the financing activities of private (and public) sector.<sup>121</sup>

<sup>112</sup> Comptroller of the Currency, the Federal Reserve System, and the Federal Deposit Insurance Corporation, Principles for Climate-Related Financial Risk Management for Large Financial Institutions, available at <https://www.federalregister.gov/documents/2023/10/30/2023-23844/principles-for-climate-related-financial-risk-management-for-large-financial-institutions>.

<sup>113</sup> ‘Federal Reserve Board releases summary of the exploratory pilot Climate Scenario Analysis (CSA) exercise that it conducted with six of the nation’s largest banks’ (9 May 2024) <https://www.federalreserve.gov/newsevents/pressreleases/other20240509a.htm>.

<sup>114</sup> See sources cited in n 104.

<sup>115</sup> For example, Japanese banks (Mizuho and MUFG) are among the top fossil fuel financiers and dominate methane export/import (LNG) finance tables. See ‘Banking on Climate Chaos: Fossil Fuel Finance Report 2024’ (13 May 2024), available at <https://www.bankingonclimatechaos.org/>. This report is produced by a group of advocacy organizations whose methodology is disputed by some of the banks in the report. See, eg, ‘Barclays responds to Rainforest Action Network, ‘Banking on Climate Chaos’ Report’ (13 May 2024) <https://home.barclays/news/press-releases/2024/05/barclays-responds-to-rainforest-action-network-s-banking-on-clim/>.

<sup>116</sup> For an overview of sustainable finance-related actions by the Financial Services Agency in Japan, see <https://www.fsa.go.jp/en/policy/sustainable-finance/sustainable-finance.html>.

<sup>117</sup> For an overview, see International Monetary Fund, Asia and Pacific Department, ‘Fostering the Development of Climate Finance’ in *People’s Republic of China: Selected Issues*, Vol 2023, Issue 81 (10 February 2023) <https://www.elibrary.imf.org/view/journals/002/2023/081/article-A005-en.xml#A005fn6>.

<sup>118</sup> Isabeau van Halm, ‘The Coal-Reliant Countries that Are Most Ambitious in their Commitment to Net Zero’ (*Energy Monitor*, 4 May 2023) <https://www.energymonitor.ai/net-zero-policy/the-coal-reliant-countries-that-are-most-ambitious-in-their-commitment-to-net-zero/>.

<sup>119</sup> See Stephen Stacznyski, Spe Chen and Jin Wu, ‘How Japan Ignored Climate Critics and Built a Global Natural Gas Empire’ (*Bloomberg*, 29 August 2024) <https://www.bloomberg.com/graphics/2024-japan-natural-gas-lng-global-trade/>; Kana Inagaki, David Sheppard and Andy Bounds, ‘G7 ministers agree to accelerate phase-out of fossil fuels’ (*Financial Times* (16 April 2023) <https://www.ft.com/content/92cf7345-6da0-4903-9993-7ef291af921c>. See also Ministry of Economy, Trade and Industry, ‘Cabinet Decision on the Basic Policy for the Realization of Green Transformation’ (10 February 2023) [https://www.meti.go.jp/english/press/2023/0210\\_003.html](https://www.meti.go.jp/english/press/2023/0210_003.html).

<sup>120</sup> See Oxford Institute of Energy Studies, ‘Guide to Chinese Climate Policy: Coal’, available at <https://chineseclimatepolicy.oxfordenergy.org/book-content/domestic-policies/coal/>; Edward White, ‘Coal focus damps hopes of China’s climate ambition’ (*Financial Times* (26 June 2024) <https://www.ft.com/content/b0e3c55d-9947-4826-bc1a-32c875368ab5>; ‘China Orders Banks to Ramp Up Funding to Boost Coal Output’ (*Bloomberg News*, 5 October 2021) <https://www.bloomberg.com/news/articles/2021-10-05/china-bans-loans-to-speculate-in-commodities-some-luxury-goods-kudmrl57>.

<sup>121</sup> On the Japanese banks, see n 115; see also Stacznyski, Chen and Wu (n 119) (“There is a trend in western banks to stop funding LNG projects because it’s still fossil fuel,” Helle Kristoffersen, president of Asia at TotalEnergies SE, an LNG

Overall, the regulatory situation remains dynamic, and it is not easy to classify jurisdictions; but, there are clear regulatory differences and appetite for sustainable finance shaped by the relevant political economy. The issue is highly politicized in the US with pro- and anti-ESG campaigns, paralysing ESG-related efforts in financial market participants and banks, let alone Congress.<sup>122</sup> This also inevitably affects regulatory agencies and how they interpret (and act in accordance with) their mandate. The Fed was even divided on its co-issue of high-level, non-binding principles for climate-related financial risk management, with Republican members casting vetoes on the ground that the unique treatment for climate-related financial risks is not warranted.<sup>123</sup> Generally, even a light-touch approach like disclosure is very controversial in the US as it is seen as an effort to shape the behaviour of the businesses. Likewise, whether fiduciaries of investment funds can consider ESG factors in their decisions is highly contentious.<sup>124</sup>

In both the EU and the UK, while the issue is also highly political, there is a widespread support for green transition in the political spectrum which can and does mainstream climate considerations into the work of financial regulators. Apart from greening their monetary policy operations in line with their mandate,<sup>125</sup> both ECB and BoE as financial regulators took steps that can effectively green banks' assets in line with their climate-risk management and financial stability objectives.<sup>126</sup> While ECB has been also pushing the international standard-setter Basel Committee to set climate-risk related requirements, this was recurrently blocked by Fed, whose chair Jerome Powell made repeatedly clear that Fed is not a 'climate policymaker' and the Basel Committee was overstepping its purpose.<sup>127</sup> This divergence between Europe and the US led

producer, said at a conference in Tokyo in June. "Japanese banks are much more pragmatic," she added.). On the Chinese banks (which are largely state-owned), see 'Banking on Climate Chaos' (n 115) 19 (noting that '81% of financing for thermal coal mining came from Chinese banks in 2023'); Natasha White and Tasneem Hanfi Brogger, 'China's Banks Are the Last Big Players in Coal Company Financing' (*Bloomberg*, 13 April 2022) <https://www.bloomberg.com/news/article/s/2022-04-13/china-s-banks-are-the-last-big-lenders-to-fossil-fuel-coal-companies>.

<sup>122</sup> See below nn 129–34 and accompanying text.

<sup>123</sup> See, eg, Statement by Governor Michelle W. Bowman on Principles for Climate-Related Financial Risk Management for Large Financial Institutions (24 October 2023) <https://www.federalreserve.gov/newsevents/pressreleases/bowman-state-memt-20231024b.htm>.

<sup>124</sup> For pension plans subject to the Employee Retirement Income Security Act of 1974 (ERISA), in late 2020, the Trump Administration Department of Labor (DOL) issued rules providing that an ERISA fiduciary must focus solely on 'pecuniary factors' in its investment decision-making process in a signal that it disfavours the consideration of ESG factors by ERISA fiduciaries. See 'Financial Factors in Selecting Plan Investments', 85 Fed Reg 72846 (13 November 2020). In late 2022, the Biden Administration DOL released new rules, allowing plan fiduciaries to consider climate change and other ESG factors when they select retirement investments and exercise shareholder rights, such as proxy voting as part of their risk and return analysis. DOL noted that this was in response to '... the chilling effect and other potential negative consequences caused by the current regulation with respect to the consideration of climate change and other ESG factors in connection with these activities'. See 'Prudence and Loyalty in Selecting Plan Investments and Exercising Shareholder Rights' 87 Fed Reg 73822 (1 December 2022). Congress voted to overturn this rule through a power given by the Congressional Review Act, which allows Congress to repeal a final rule promulgated by a federal agency. President Biden used his veto power to retain the rule. See Katie Rogers, 'Biden Issues First Veto to Protect Socially Conscious Investing' *The New York Times* (20 March 2023) <https://www.nytimes.com/2023/03/20/us/politics/biden-first-veto-esg.html>. At the time of writing (September 2025), it seems that the DOL under the current Trump Administration is again likely to overturn the rule.

<sup>125</sup> Apart from their primary mandate of price stability, both the ECB and the BoE have secondary mandates to promote and support governmental objectives which include green transition in the EU and the UK respectively, and they have adjusted their monetary operations accordingly. See 'Press Release: ECB takes further steps to incorporate climate change into its monetary policy operations' (4 July 2022) <https://www.ecb.europa.eu/press/pr/date/2022/html/ecb.pr20704-4f48a72426.en.html>; 'ECB steps up climate work with focus on green transition, climate and nature-related risks' (30 January 2024), <https://www.ecb.europa.eu/press/pr/date/2024/html/ecb.pr240130-afa3d90e07.en.html>; BoE, 'Greening our Corporate Bond Purchase Scheme (CBPS)' <https://www.bankofengland.co.uk/markets/greening-the-corporate-bond-purchase-scheme>.

<sup>126</sup> For an overview, see ECB, 'Climate Change, Nature Loss and Banking Supervision' <https://www.bankingsupervision.euroopa.eu/about/thesm/climate/html/index.en.html>; Bank of England, 'Climate Change' <https://www.bankofengland.co.uk/climate-change>.

<sup>127</sup> Alastair Marsh, 'Fed Blocks Tough Global Climate-Risk Rules for Wall Street Banks' (*Bloomberg*, 3 April 2024) <https://www.bloomberg.com/news/articles/2024-04-03/fed-blocks-tough-global-climate-risk-rules-for-wall-street-banks> (reporting various interventions by the US financial regulators at the Basel Committee to water down or scrap its climate-related work, which led to the impression that 'US officials were trying to be careful not to push for a policy that could accelerate a transition away from fossil fuels'). The Basel Committee has recently released a framework for disclosure of climate-related financial risks. Basel Committee on Banking Supervision, 'A Framework for the Voluntary Disclosure of Climate-related

EU banking groups to complain about being at a competitive disadvantage and suffering a valuation gap.<sup>128</sup>

Lastly, Japan and China show the political will to support and incentivize sustainable finance while also steering financial flows in line with their energy policy at home and abroad, which might not necessarily align with the Paris Agreement goals.

It is important to note that regulation is not the only relevant factor: the broader ecosystem in which financial institutions operate also matters. As mentioned above, stakeholder and shareholder pressure and preferences also affect financial institutions' decision-making, and cross-jurisdictional differences in this regard might exist. There is not yet a systematic study of whether and to what extent there are differences in shareholder pressure on financial institutions' net-zero transition-oriented decision making across jurisdictions. But given differences in shareholder composition and preferences, such a difference is to be expected. For example, US financial institutions, which are active worldwide, receive significant anti-ESG shareholder pressure, too, which is yet to spillover to Europe and UK.<sup>129</sup> Transaction costs in this respect are also important, the local corporate and securities law requirements (on putting up shareholder resolutions and the required majority etc) being important determinants.<sup>130</sup> Similarly, there might be important differences in stakeholder pressure (from clients, NGOs etc) that financial institutions face across jurisdictions. For example, while client or consumer pressure is visible in Europe (in driving the exits of banks from fossil fuel lending), it is less powerful in the US where instead pressure exists in both directions.<sup>131</sup> In an influential anti-ESG campaign, Republican states pulled their investments and businesses out of financial institutions which they argue pursue a 'woke agenda', and their attorney generals threatened the latter with anti-trust proceedings for their participation in collective initiatives on climate action and ESG.<sup>132</sup> Broader anti-ESG sentiment of their stakeholders has been clearly acknowledged by US financial institutions as a risk to their reputation and business.<sup>133</sup> As a result, major US banks and asset managers have exited net-zero alliances and similar initiatives as well as dropping their fossil fuel related pledges.<sup>134</sup> The differences between Europe and the US in this regard are also reflected

Financial Risks' (13 June 2025), <https://www.bis.org/bcbs/publ/d597.htm>. Under the U.S. pressure, the framework was significantly diluted and offered as a non-binding suggestion for jurisdictions to consider. Alastair Marsh and Laura Noonan, 'Basel Committee Resists US Pressure to Downplay Climate Risk' (*Bloomberg*, 16 May 2025), <https://www.bloomberg.com/news/articles/2025-05-16/basel-committee-resists-us-pressure-to-downplay-climate-risk> (also reporting that US authorities halted talks on introducing industrywide capital rules as a regulatory lever for addressing banks' climate risk).

<sup>128</sup> Frances Schwartzkopff and Nicholas Comfort, 'Bankers in Europe Push Back as ECB Conducts New ESG Risk Review' (*Bloomberg*, 7 April 2024) <https://www.bloomberg.com/news/articles/2024-04-07/bankers-in-europe-push-back-as-eu-conducts-new-esg-risk-review>.

<sup>129</sup> There has been a surge in anti-ESG shareholder proposals at US companies, including financial institutions which however did not draw widespread support. See, eg, Heidi Welsh, 'Anti-ESG Proposals Surged in 2024 but Earned Less Support' (*Harvard Law School Forum on Corporate Governance*, 31 July 2024) <https://corpgov.law.harvard.edu/2024/07/31/anti-esg-proposal-surged-in-2024-but-earned-less-support/>.

<sup>130</sup> For an overview of relevant requirements applicable in different jurisdictions including the US, the UK and European countries, see UN Principles for Responsible Investing, 'Filing Shareholder Proposals' <https://www.unpri.org/investment-tools/stewardship/filing-shareholder-proposals> (26 November 2024).

<sup>131</sup> See, eg, Brooke Masters and Patrick Temple-West, 'The Real Impact of the ESG Backlash' *Financial Times* (4 December 2023) <https://www.ft.com/content/a76c7feb-7fa5-43d6-8e20-b4e4967991e7>.

<sup>132</sup> *ibid*; Peter Schroeder, 'Insight: How Republican-led states are targeting Wall Street with "anti-woke" laws' (*Reuters*, 6 July 2023) <https://www.reuters.com/world/us/how-republican-led-states-are-targeting-wall-street-with-anti-woke-laws-2022-07-06/>; see also the letter signed by 21 Republican Attorney Generals to over 50 US Asset Managers [https://ago.mo.gov/wp-content/uploads/2023-03-30-asset-manager-letter-press-final.pdf?sfvrsn=b453e208\\_2](https://ago.mo.gov/wp-content/uploads/2023-03-30-asset-manager-letter-press-final.pdf?sfvrsn=b453e208_2). Texas and 10 other Republican-led states have sued BlackRock, State Street, and Vanguard for conspiring to curtail coal supplies, see Myles McCormick, Brooke Masters and Stefania Palma, 'Republican US states sue BlackRock for "destructive" green agenda' *Financial Times* (27 November 2024) <https://www.ft.com/content/dc34dffe-c92f-4743-8991-f0ec173d083b>.

<sup>133</sup> Patrick Temple-West and Brooke Masters, 'Wall Street titans confront ESG backlash as new financial risk' *Financial Times* (1 March 2023) <https://www.ft.com/content/f5fe15f8-3703-4df9-b203-b5d1dd01e3bc>.

<sup>134</sup> See Patrick Temple-West and Brooke Masters, 'JPMorgan and State Street quit climate group as BlackRock scales back' *Financial Times* (15 February 2024) <https://www.ft.com/content/3ce06a6f-f0e3-4f70-a078-82a6c265ddc2>; Alastair Marsh, 'Goldman Follows Pimco, JPMorgan in Quitting Major Climate Club' (*Bloomberg*, 13 August 2024) <https://www.bloomberg.com/news/articles/2024-08-13/goldman-investment-arm-joins-firms-quitting-major-climate-club>. See also

in the sustainable fund flows and fund assets: for example, according to Morningstar, Europe takes up 84 per cent of global sustainable fund assets while the US only houses 11 per cent as the US funds suffer outflows.<sup>135</sup>

These cross-jurisdictional differences from the regulatory and broader ecosystem perspective mean that banks and financial market players from different jurisdictions might arrive at different or opposite decisions in terms of funding activities that are at odds with sustainability goals, and as the above section theoretically and empirically demonstrates, substitute for each other's exit.<sup>136</sup>

## 2. Cross-sectoral differences in sustainable finance within a jurisdiction

Apart from cross-jurisdictional differences, there might be cross-sectoral differences within a jurisdiction in terms of how the different parts of the financial system or different sources of finance are regulated. Below, I look at the EU as a case study as one of the most progressed jurisdictions in sustainable finance.

The EU has recently replaced its corporate sustainability reporting framework, which was largely deficient in various respects,<sup>137</sup> with an encompassing and arduous disclosure framework. Replacing the Non-Financial Reporting Directive, the Corporate Sustainability Reporting Directive (CSRD) and accompanying European Sustainability Reporting Standards (ESRS) strengthened and broadened the sustainability disclosure requirements for companies which, among others, are expected to disclose their GHG emissions and plans and targets in terms of net-zero transition.<sup>138</sup> This information is crucial for the mechanisms of sustainable finance to work via voice or exit (including cost-of-capital adjustments) and this framework is expected to reduce information costs for market participants and prevent greenwashing.<sup>139</sup> The EU also addressed the information problems in financial intermediation. The Sustainable Finance Disclosure Regulation (SFDR) requires financial market participants and advisers to provide transparency on their policies on the integration of sustainability risks and consideration of adverse sustainability impacts at the entity and product level.<sup>140</sup> It also requires funds that tout their 'sustainability' features to disclose certain pre- and post-contractual information.<sup>141</sup> Information requirements differ among funds depending on their sustainability characteristics.<sup>142</sup> European Securities and Markets Authority (ESMA) Guidelines further establish investment rules for

Hiroko Tabuchi, 'Bank of America Pledged to Stop Financing Coal. Now It's Backtracking' *The New York Times* (5 February 2024) <https://www.nytimes.com/2024/02/03/climate/bank-of-america-esg.html>.

<sup>135</sup> Morningstar, 'Global Sustainable Fund Flows: Q4 2024 in Review' (27 January 2025) <https://www.morningstar.com/lp/global-esg-flows> 1–5 (note that Morningstar's classification of sustainable funds is not based on any regulatory framework but rather on fund claims garnered from their prospectus or regulatory filings).

<sup>136</sup> See, eg, on banks, text and accompanying nn 72–77 (evidence on cross-jurisdictional bank substitution) and 78–81 (discussing why in this context banks' exit does not create adverse selection problems).

<sup>137</sup> See, eg, European Parliamentary Research Service, 'Non-financial Reporting Directive: Implementation Appraisal' (January 2021) [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/654213/EPRS\\_BRI\(2021\)654213\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/654213/EPRS_BRI(2021)654213_EN.pdf).

<sup>138</sup> Directive (EU) 2022/2464 of the European Parliament and of the Council of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting [2022] OJ L322/15. While the CSRD currently applies to large companies and listed SMEs, a recent Commission proposal within the omnibus simplification package aims to reduce the scope of the Directive significantly (around 80 per cent) with its application only to large undertakings with more than 1000 employees while the rest is subject to a voluntary reporting standard. See Proposal for a Directive of the European Parliament and of the Council amending Directives 2006/43/EC, 2013/34/EU, (EU) 2022/2464 and (EU) 2024/1760 as regards certain corporate sustainability reporting and due diligence requirements COM/2025/81 final (Amending Directive Proposal). This proposal also includes a commitment to revise the ESRS with the aim of substantially reducing the number of data points. For the ESRS, see Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards [2023] OJ L2023/2772.

<sup>139</sup> See, eg, Steuer and Tröger (n 26) 31–32.

<sup>140</sup> Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector [2019] OJ L317/1, articles 3, 4, 6, and 7.

<sup>141</sup> ibid articles 8–11.

<sup>142</sup> ibid.

funds using ESG or sustainability-related terms in their names.<sup>143</sup> Overall, this framework should allow for ultimate beneficiaries to allocate their funds in line with their 'sustainability' preferences.

Another landmark legislation, the Taxonomy Regulation (TR), establishes the basis for the EU taxonomy by setting out the four overarching conditions that an economic activity has to meet in order to qualify as environmentally sustainable.<sup>144</sup> These are (i) to contribute substantially to one or more of the environmental objectives (climate change mitigation; climate change adaptation; the sustainable use and protection of water and marine resources; the transition to circular economy; pollution prevention and control; and the protection and restoration of biodiversity and ecosystems); (ii) to not significantly harm any of the environmental objectives; (iii) to comply with the minimum safeguards; and (iv) to comply with the technical screening criteria established by the European Commission.<sup>145</sup> The EU taxonomy serves various functions. It feeds into disclosures by sustainable funds under the SFDR that are required to disclose the extent to which investments of those funds are taxonomy-aligned.<sup>146</sup> It also supplements disclosures by companies subject to the CSRD which have been required to provide information on how and to what extent the undertaking's activities are associated with economic activities that qualify as environmentally sustainable under the TR.<sup>147</sup> Again, the taxonomy is intended to prevent greenwashing by providing an EU-wide 'label' that allows companies and financial intermediaries to signal their 'green' credentials as well as ensuring that ultimate investors allocate their funds to their intended uses. Similarly, the voluntary EU Green Bond Standard provides the issuers of green bonds with a label to assuage greenwashing concerns and benefit from any 'greenium' investors might offer.<sup>148</sup>

The EU has also greatly stepped up efforts in sustainable banking. The EU policymaking has two intertwined goals in this respect: (i) to channel bank lending in line with the EU goals such as green transition; and (ii) to ensure that banks and the broader financial ecosystem are resilient against the risks posed by the changing planetary ecosystem and the green transition.<sup>149</sup> These goals intersect because high-emitting assets can be deemed riskier as the decarbonization of the economy unfolds (or is expected to unfold) and, therefore, any measure to push banks to

<sup>143</sup> ESMA, 'Final Report: Guidelines on funds' names using ESG or sustainability-related terms' (14 May 2024) <https://www.esma.europa.eu/press-news/esma-news/esma-guidelines-establish-harmonised-criteria-use-esg-and-sustainability-terms> (establishing that to be able to use these terms, a minimum threshold of 80 per cent of investments should be used to meet environmental, social characteristics or sustainable investment objectives and also applying exclusion criteria for different terms used in fund names).

<sup>144</sup> Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 [2020] OJ L198/13 (Taxonomy Regulation (TR)).

<sup>145</sup> *ibid* article 3.

<sup>146</sup> *ibid* articles 5–6 (requiring article 8 and 9 funds under the SFDR to make disclosures about their taxonomy-alignment).

<sup>147</sup> *ibid* article 8 (in particular, they will disclose the proportion of their turnover derived from product or services associated with taxonomy-aligned economic activities and the proportion of their capital and operating expenditure related to assets and processes associated with taxonomy-aligned economic activities). However, in line with the proposed changes to the CSRD scope, the Commission proposal amendments within the omnibus simplification package envisage optional taxonomy reporting for large undertakings with more than 1000 employees but less than a net turnover of 450 million. See Amending Directive Proposal (n 138). The Commission is also proposing to simplify the reporting templates and exempt financially non-material activities (ie those that do not exceed 10 per cent of turnover, capital expenditure, or total assets) from assessment of Taxonomy-eligibility and alignment. The draft Delegated Regulation is available at [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14546-Taxonomy-Delegated-Actions-amendments-to-make-reporting-simpler-and-more-cost-effective-for-companies\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/14546-Taxonomy-Delegated-Actions-amendments-to-make-reporting-simpler-and-more-cost-effective-for-companies_en).

<sup>148</sup> Regulation (EU) 2023/2631 of the European Parliament and of the Council of 22 November 2023 on European Green Bonds and optional disclosures for bonds marketed as environmentally sustainable and for sustainability-linked bonds [2023] OJ L2023/2631 <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32023R2631>.

<sup>149</sup> For example, in promoting the recent Banking Package noted in the text, the European Commission mentions the goals of implementing Basel III and strengthening resilience against economic shocks and protecting financial stability as well as contributing to the green transition. See [https://finance.ec.europa.eu/publications/banking-package\\_en](https://finance.ec.europa.eu/publications/banking-package_en).

better address this ‘transition’ risk can lead to exit from lending to high-emitting borrowers/activities.<sup>150</sup> The wide-ranging EU efforts broadly map onto the Basel framework.

Under Pillar III disclosure requirements, the Capital Requirements Regulation (CRR) has required large, listed banks to disclose information on ESG risks, including physical and transition risks and the Paris alignment of their credit portfolio,<sup>151</sup> which was recently extended to all banks with proportional requirements applicable to small banks.<sup>152</sup> Although not under the banking regulation, as companies, banks are also subject to disclosure obligations under the CSRD and TR if they fulfil the scope requirements.<sup>153</sup> Under the TR, they are in particular required to disclose what is known as the ‘green asset ratio’ (GAR), which denotes the proportion of the credit institution’s assets invested in taxonomy-compliant economic activities as a share of total eligible assets.<sup>154</sup> It provides stakeholders and regulators with a single metric to determine how green a bank’s balance sheet is and to facilitate peer-to-peer comparisons.

The recent Banking Package also strengthened the requirements under Pillars II and I. CRR3 now explicitly requires banks to report to their supervisors on their exposure to ESG risks, including existing and new exposure to fossil fuel sector entities and exposure to physical and transition risks.<sup>155</sup> Additions to the Capital Requirements Directive (CRD) require the supervisory review and evaluation by competent authorities to include the assessment of institutions’ governance and risk management processes for dealing with ESG risks, as well as of the institutions’ exposures to ESG risks.<sup>156</sup> This will also include the assessment of prudential transition plans (explained below).<sup>157</sup> Before these explicit requirements, the supervisory agencies had already reviewed banks’ ESG-related exposure and risks as well as engaging in supervisory dialogue in this respect.<sup>158</sup> Relatedly, the ECB and national supervisory authorities have conducted stress tests related to climate risks faced by banks, the results of which also have fed into the supervisory dialogue.<sup>159</sup>

<sup>150</sup> See, eg, a recent report by the ECB in this regard, ECB, ‘Risks from misalignment of banks’ financing with the EU climate objectives’ (January 2024) <https://www.banksupervision.europa.eu/ccb/pub/pdf/ssm.bankingsectoralignmentreport202401-49c6513e71.en.pdf> (noting that a staggering 90 per cent of banks analysed have portfolios that are misaligned with the targets set out in the Paris Agreement and therefore face increased transition risks and elevated reputational and litigation risk).

<sup>151</sup> Regulation (EU) 2019/876 of the European Parliament and of the Council of 20 May 2019 amending Regulation (EU) No 575/2013 as regards the leverage ratio, the net stable funding ratio, requirements for own funds and eligible liabilities, counterparty credit risk, market risk, exposures to central counterparties, exposures to collective investment undertakings, large exposures, reporting and disclosure requirements, and Regulation (EU) No 648/2012 [2019] OJ L150/1, article 449a (in the consolidated version) (Capital Requirements Regulation (CRR) 2). Commission Implementing Regulation (EU) 2022/2453 of 30 November 2022 amending the implementing technical standards laid down in Implementing Regulation (EU) 2021/637 as regards the disclosure of environmental, social and governance risks C/2022/8396 [2022] OJ L324/1.

<sup>152</sup> Regulation (EU) 2024/1623 of the European Parliament and of the Council of 31 May 2024 amending Regulation (EU) No 575/2013 as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the output floor [2024] OJ L2024/1623, article 449a and 433b/2 (in the consolidated version) (Capital Requirements Regulation (CRR) 3).

<sup>153</sup> See nn 138 and 144.

<sup>154</sup> TR (n 144) article 8. See also Commission Delegated Regulation (EU) 2021/2178 of 6 July 2021 supplementing Regulation (EU) 2020/852 of the European Parliament and of the Council by specifying the content and presentation of information to be disclosed by undertakings subject to Articles 19a or 29a of Directive 2013/34/EU concerning environmentally sustainable economic activities, and specifying the methodology to comply with that disclosure obligation [2021] OJ L443/9.

<sup>155</sup> CRR3 (n 152) article 430/1(h) (in the consolidated version).

<sup>156</sup> Directive (EU) 2024/1619 of the European Parliament and of the Council of 31 May 2024 amending Directive 2013/36/EU as regards supervisory powers, sanctions, third-country branches, and environmental, social and governance risks [2024] OJ L2024/1619, articles 98(9) and 87a/1 (in the consolidated version) (Capital Requirements Directive (CRD) 6).

<sup>157</sup> *ibid.*

<sup>158</sup> See ECB, ‘Guide on climate-related and environmental risks: supervisory expectations relating to risk management and disclosure’ (November 2020) <https://www.banksupervision.europa.eu/ccb/pub/pdf/ssm.202011finalguideonclimate-relatedandenvironmentalrisks-58213f6564.en.pdf>; ECB, ‘Walking the talk: banks gearing up to manage risks from climate change and environmental degradation’ (November 2022) <https://www.banksupervision.europa.eu/ccb/pub/pdf/ssm.thematicreviewcerreport112022-2eb322a79c.en.pdf>.

In relation to Pillar I, climate-related risks, such as transition risk, already feed into capital adequacy requirements for banks via traditional channels.<sup>160</sup> CRR2 had mandated European Banking Authority (EBA) to assess whether a dedicated prudential treatment of exposures related to assets or activities associated substantially with environmental and/or social objectives would be justified.<sup>161</sup> Such an assessment included two aspects: (i) how the prudential framework captures or should capture environmental and social risks, and (ii) a brown penalizing and/or green supporting factor without a risk relationship. The latter implied that banks would get capital relief or burden depending on whether they lent to brown or green activities/assets without any regard for their riskiness. EBA did not support the latter as it would present challenges in terms of design, calibration, and complex interaction with the existing Pillar 1 framework.<sup>162</sup> It recommended, however, targeted enhancements to accelerate the integration of environmental and social risks across the Pillar 1.<sup>163</sup> Under CRR3, the EBA is tasked with preparing a similar, yet more comprehensive report on whether the prudential treatment of exposures to environmental or social factors is to be adjusted.<sup>164</sup> Under CRD6, institutions are now also required to explicitly take into account the ESG risks on different time horizons as part of their obligation to have in place sound, effective, and comprehensive strategies and processes to assess and maintain adequate capital to cover the risks to which they are exposed.<sup>165</sup> CRR3 further requires the internal stress tests banks conduct in the assessment of capital adequacy to include ESG risk drivers, in particular physical risk and transition risk drivers stemming from climate change.<sup>166</sup> In addition, a plethora of new additions to the CRD (set out in CRD6) require banks to have robust governance arrangements and concrete plans signed off by the management body to deal with ESG risks, including their remuneration policies and practices.<sup>167</sup>

Furthermore, as a novelty, CRD6 implements 'prudential transition plans', requiring the management board to develop and monitor specific plans that include quantifiable targets and processes to address ESG-related risks, including transition risk related to the objective to achieve climate neutrality in the EU and elsewhere.<sup>168</sup> Competent authorities are to assess and monitor the development of these plans and to take into account institutions' sustainability-related product offerings, transition finance policies, related loan origination policies, and ESG-related targets and limits.<sup>169</sup>

Last but not least, the controversial Corporate Sustainability Due Diligence Directive (CSDDD) requires 'regulated financial undertakings' which include banks, investment firms and asset managers (but not asset owners!) to conduct due diligence on their own operations (including their subsidiaries and upstream business partners) to identify, mitigate, and remedy potential adverse impacts on human rights and environment.<sup>170</sup> This does not include

<sup>159</sup> See ECB, '2022 climate risk stress test' (July 2022) [https://www.banksupervision.europa.eu/ecb/pub/pdf/ssm/climate\\_stress\\_test\\_report.20220708-2e3cc0999f.en.pdf](https://www.banksupervision.europa.eu/ecb/pub/pdf/ssm/climate_stress_test_report.20220708-2e3cc0999f.en.pdf).

<sup>160</sup> For example, a small number of banks had increased capital charges as a result of identified shortcomings in their management of climate and environmental risks after the thematic review in 2022 and supervisory review and evaluation process. See 'Walking the talk' (n 158) 14.

<sup>161</sup> CRR2 (n 151) article 501c (in the consolidated version).

<sup>162</sup> EBA Report on the Role of Environmental and Social Risks in the Prudential Framework, EBA/REP/2023/34 (October 2023) available at <https://www.eba.europa.eu/publications-and-media/press-releases/eba-recommends-enhancements-pillar-1-framework-capture>.

<sup>163</sup> *ibid.*

<sup>164</sup> CRR3 (n 152) article 501c (in the consolidated version).

<sup>165</sup> CRD6 (n 156) article 73 (in the consolidated version).

<sup>166</sup> CRR3 (n 152) article 177/2a (in the consolidated version). See also CRD6 (n 156) article 87a/3 ('Competent authorities shall ensure that institutions test their resilience to long-term negative impacts of ESG factors ...').

<sup>167</sup> CRD6 (n 156) articles 73, 74 and 87a (in the consolidated version).

<sup>168</sup> CRD6 (n 156) article 76(2) (in the consolidated version).

<sup>169</sup> CRD6 (n 156) article 87a/4 (in the consolidated version).

downstream partners like borrowers for banks or investee companies for asset managers.<sup>171</sup> Furthermore, these financial institutions need to adopt a climate transition plan that on a best-efforts basis aligns the business model and strategy with the Paris Agreement and the EU's climate objectives.<sup>172</sup> A summary of these EU initiatives is shown in Table 1.

As this exposition broadly shows, the EU has focused on both market finance and bank-based finance; however, significant differences remain in its regulatory approach to both. The EU has strongly regulated and supervised banks to integrate sustainability objectives and ESG-risks into the banking system with the twin role of safeguarding financial stability and implementing the EU's climate objectives. To be sure, most provisions might have been framed in the language of risk perspective (as these measures are implemented within the prudential framework of CRR/CRD) but given the strong opinion of supervisors and regulators that financial activities incompatible with net-zero transition goals are subject to heightened transition risk, this will inevitably steer the banking activity towards more green lending. Indeed, the way ECB measures the transition risk is through what is called as 'alignment assessment' which compares the projected production volumes of a portfolio company with the required rate of change to meet given climate objectives.<sup>173</sup> In addition, after a review of the banks' climate-related risk management, one of the good practices the ECB identified and published involved assessing the alignment of their portfolios with the Paris Agreement, setting concrete intermediate and long-term targets (including reaching net-zero emissions by 2050), and taking action when clients are not on track to meet these objectives (such as ending the relationship).<sup>174</sup>

The EU has also pushed to channel market finance towards sustainable investments. However, measures generally remain limited to transparency/disclosure to the market and investors.<sup>175</sup> This strategy critically relies on the sustainability preferences of ultimate investors who are expected to act on the credible disclosure provided by companies and investment intermediaries to allocate their savings. To be sure, sustainability-oriented investments in the EU are the largest in the world and growing.<sup>176</sup> Yet, an overwhelming amount of these funds are disclosing under SFDR article 8 as they are promoting environmental and/or social characteristics, which leaves open the type of promotion and the degree to which this qualifies their investment policy with no minimum requirements.<sup>177</sup> A very small portion is reporting under SFDR article 9 which asks funds to exclusively make sustainable investments which contribute to an environmental and social objective.<sup>178</sup> Yet, similarly, what is a sustainable

<sup>170</sup> Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 PE/9/2024/REV/1 [2024] OJ L2024/1760 articles 2, 3 and 5–12.

<sup>171</sup> *ibid* recital 26.

<sup>172</sup> *ibid* article 22. While the current language also includes a 'put into effect' obligation, the proposed amendments by the Commission within the omnibus simplification package remove this language while asking for implementation actions planned or taken within the adopted transition plan. See Amending Directive Proposal (n 138).

<sup>173</sup> See 'Risks from misalignment' (n 150) 3.

<sup>174</sup> See ECB, 'Good practices for climate-related and environmental risk management: observations from the 2022 thematic review' (November 2022) <https://www.banksupervision.europa.eu/ecb/pub/pdf/ssm.thematicreviewcercompendiumgoodpractices112022-b474fb8ed0.en.pdf> 11–23.

<sup>175</sup> Recent efforts to 'simplify' reporting requirements indicate, however, significant loss of information, at least quantitatively, see n 93.

<sup>176</sup> See Morningstar, 'SFDR Article 8 and Article 9 Funds: Q4 2024 in Review' (25 January 2025) <https://www.morningstar.com/en-uk/lp/sfdr-article8-article9> 8 (estimating combined assets under article 8 and 9 funds at €6.1 trillion).

<sup>177</sup> *ibid* 9 (funds under article 8 making up 56.8 per cent of SFDR Fund Type by assets). The European Commission defines 'promotion' as 'direct or indirect claims, information, reporting, disclosures as well as an impression that investments pursued by the given financial product also consider environmental or social characteristics in terms of investment policies, goals, targets or objectives or a general ambition ...'. See European Commission, 'Question related to Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector (Sustainable Finance Disclosure Regulation 2019/2088)' [https://www.esma.europa.eu/sites/default/files/library/sfdr\\_ec\\_qa\\_1313978.pdf](https://www.esma.europa.eu/sites/default/files/library/sfdr_ec_qa_1313978.pdf) 8.

<sup>178</sup> *ibid* (funds under article 9 making up 3.1 per cent of SFDR Fund Type by assets).

Table 1. Summary of the EU initiatives in sustainable finance

Instrument	Content	Addressee	Proximate Goal	Ultimate Goal
CSRD	Sustainability reporting.	Corporates.	Credible information provision to financial players and stakeholders.	Disclosure as a disciplining tool and to help sustainable finance mechanisms (voice or exit) work.
SFDR	Disclosure of policies on the integration of sustainability risks and consideration of adverse sustainability impacts at the entity and product level. Requirement to provide certain pre- and post-contractual information for funds that tout their sustainability features.	Fund intermediaries.	Credible information provision to ultimate investors.	Disclosure to help efficient allocation of funds and to prevent greenwashing and to help allocate funds in accordance with taste and preferences of ultimate investors.
TR: Establishing sustainability criteria for an economy activity to count as 'taxonomy-aligned'.	Disclosures on how and the extent to which the undertaking's activities qualify as environmentally sustainable under the TR.	Corporates subject to the CSRD.	Credible information provision to financial players and stakeholders.	Disclosure as a discipline tool and to help sustainable finance mechanisms (voice or exit) work.
	Disclosures on the extent to which investments of funds are taxonomy-aligned.	Funds that are subject to articles 8 and 9 under the SFDR.	Credible information provision to ultimate investors.	Prevent greenwashing and ensure that ultimate investors allocate their funds to their intended uses.
	Disclosure of 'green asset ratio'.	Banks.	Provision of a single metric on the greenness of banks' balance sheet.	Facilitate regulatory and stakeholder monitoring of banks' contribution to sustainability goals.

(Continued)

Table 1. Continued

Instrument	Content	Addressee	Proximate Goal	Ultimate Goal
CRR/CRD	<p>Disclosure on environmental and social risks as well as Paris-alignment of credit portfolio.</p> <p>Supervisory reporting on exposure to environmental and social risks.</p> <p>Supervisory review and evaluation to assess governance and processes to deal with these risks and the exposure to these risks.</p> <p>Integration of environmental and social risks into capital adequacy requirements.</p> <p>Prudential transition plans.</p>	<p>Banks.</p>	<p>Incorporate environmental and social risks across the pillars of prudential regime.</p>	<p>Channel bank lending in line with the EU goals such as green transition and ensure that banks are resilient against environment and social risks.</p>
CSDDD	<p>Due diligence obligations.</p> <p>Requirement to adopt climate transition plans.</p>	<p>'Regulated financial undertakings' (including banks, investment firms and asset managers <i>but not asset owners</i>).</p>	<p>Identify, mitigate, and remedy potential adverse impacts on human rights and environment.</p> <p>Align business models with the goals of the Paris Agreement and the EU's climate objectives.</p>	<p>Reducing externalities on third parties.</p> <p>Help achieve climate objectives.</p>

Note: CRD—Capital Requirements Directive; CRR—Capital Requirements Regulation; CSDDD—Corporate Sustainability Due Diligence Directive; CSRD—Corporate Sustainability Reporting Directive; SFDR—Sustainable Finance Disclosure Regulation; TR—Taxonomy Regulation.

investment is left for promoters of the funds to assess.<sup>179</sup> Therefore, the framework the EU put in place with the SFDR has come under increasing scrutiny as most funds promulgated as sustainable under it proved to be prone to greenwashing and subject to discretionary standards.<sup>180</sup> Furthermore, asset owners like pension funds and mutual funds owe fiduciary duties towards beneficial owners which constrain them to only considering financial returns unless a mandate otherwise is provided.<sup>181</sup> These ultimately might mean that asset owners and managers ('markets') continue to fund climate harming activities while banks receive significant regulatory and supervisory pressure not to do so. Although not testing these regulatory differences directly, the evidence examined above in section III shows ample existence of bank-market substitution, especially via securitizations involving CLOs or synthetic risk transfers or substitution by private credit funds.<sup>182</sup> These non-bank credit intermediation channels are growing in the EU,<sup>183</sup> and based on this evidence, it is reasonable to expect that differences in the EU sustainable finance regulation/supervision could indeed result in credit substitution to the non-banking sector (whether these are US based but subject to EU regulations, or EU-based).

This cross-sectoral divergence, reminiscent of the pre-GFC era, threatens to widen. For example, while recently not implemented, green capital requirements whereby banks' capital requirements change depending on the environmental characteristics of the underlying asset are still on the agenda.<sup>184</sup> This might sound radical but given the EU's history, where policy objectives unrelated to financial stability have fed into financial regulation, like the currently existing SME supporting factor,<sup>185</sup> it is not unrealistic.

The forthcoming implementation and interpretation of the CSDDD will be crucial in this regard. As mentioned above, this Directive requires banks and asset managers to adopt climate transition plans, levelling the playing field on the surface as banks were made subject to an effectively equivalent requirement under the CRD6.<sup>186</sup> Yet, there are many ways that this requirement could prove far less onerous for asset managers than for banks. First, transition plans to align business model and strategy with the climate goals of the EU envisage absolute GHG emissions reduction targets for Scope 1, 2, and 3.<sup>187</sup> However, the GHG Protocol, according to which firms account for emissions,<sup>188</sup> requires asset owners to report emissions

<sup>179</sup> Providers of article 9 funds that have as its objective sustainable investment that makes a positive environmental or social contribution carry out their own assessment for each investment and disclose their underlying assessment as the SFDR does not set out requirements on the key parameters of a 'sustainable investment'. See European Commission, 'Answers to questions on the interpretation of Regulation (EU) 2019/2088, submitted by the European Supervisory Authorities on 9 September 2022' [https://www.esma.europa.eu/sites/default/files/2023-04/Answers\\_to\\_questions\\_on\\_the\\_interpretation\\_of\\_Regulation\\_%28EU%29\\_20192088.PDF](https://www.esma.europa.eu/sites/default/files/2023-04/Answers_to_questions_on_the_interpretation_of_Regulation_%28EU%29_20192088.PDF) 1–2.

<sup>180</sup> See Adrienne Klasa, 'European asset managers blame regulatory confusion for downgrade of ESG funds' *Financial Times* (22 November 2022) <https://www.ft.com/content/d74445d5-1275-4a1e-a118-70f2750ce7c9>. The European Commission aims to overhaul the SFDR regime, which is in fact a disclosure regime but has come to be used as a labelling regime, and recently consulted on this. See [https://finance.ec.europa.eu/sustainable-finance/disclosures/sustainability-related-disclosure-financial-services-sector\\_en](https://finance.ec.europa.eu/sustainable-finance/disclosures/sustainability-related-disclosure-financial-services-sector_en).

<sup>181</sup> See, eg, Freshfields Bruckhaus Deringer, 'A Legal Framework for Impact: Sustainability Impact in Investor Decision-Making' (July 2021) <https://www.unepfi.org/industries/investment/a-legal-framework-for-impact-sustainability-impact-in-investor-decision-making/>.

<sup>182</sup> See nn 39–62 and accompanying text (discussing various evidence on credit substitution between banks and markets). Some of this evidence relates to the US but this does not make it irrelevant. Indeed, market-based intermediaries might be based in the EU or in the US but still subject to EU legislative framework (especially if marketing funds to EU investors in the case of SFDR).

<sup>183</sup> See, eg, on CLOs, Deutsche Bank, 'Outlook for CLOs in 2025—reason for optimism?' (11 February 2025) <https://flow.wdb.com/trust-and-agency-services/outlook-for-clos-in-2025-reason-for-optimism>; on private credit, Morgan Stanley, 'Investing in European Private Credit' (17 March 2025) <https://www.morganstanley.com/im/en-us/individual-investor/insights/articles/investing-in-european-private-credit.html>; on SRTs, see the sources cited in nn 56–57 (noting that while traditional securitizations have stagnated in Europe, SRTs have been largely and increasingly used in the EU, much more than in the US).

<sup>184</sup> See nn 161–64 and accompanying text.

<sup>185</sup> CRR2 (n 151) article 501 (in the consolidated version).

<sup>186</sup> See nn 168–69 and accompanying text.

<sup>187</sup> Directive (EU) 2024/1760 (n 170) article 22/1(a).

associated with their investments, whereas asset managers are not required to report emissions associated with the assets they manage for external clients (though they may optionally do so).<sup>189</sup> This allows asset managers to ignore the so-called financed emissions associated with investee companies in their transition plans and only consider emissions related to their own operations (including Scope 3 only in this regard).<sup>190</sup> But asset owners are omitted from the Directive and thus are not subject to this obligation at all.<sup>191</sup> Second, this obligation is only on the basis of 'best efforts.' While it is not clear yet what this exactly entails, it gives room for asset managers to argue that client choice/mandates and fiduciary duties limit the ambition of their transition plans.<sup>192</sup> Third, the applicability of the Directive is subject to large employee number and revenue thresholds and many asset managers can be therefore exempt,<sup>193</sup> and those subject to CSRD and disclose a transition plan accordingly will be deemed to have complied with this obligation.<sup>194</sup> Contrast these with banks which are arguably subject to more onerous requirements for prudential transition plans under the CRD6. The latter is applicable to all banks (albeit proportionally to small and non-complex banks); is not qualified by 'best efforts'; cannot be substituted by plans disclosed under CSRD and importantly will necessarily incorporate financed emissions (accounted under Scope 3) as it relates to the exposure of banks' loan and trading books to transition risks.<sup>195</sup>

Regardless of these subtle but important legal differences, enforcement and supervision of the implementation of transition plans are also crucial in terms of their effectiveness and there seem to be also important differences in this regard. As mentioned above, CRD6 mandates supervisors to check prudential transition plans and assess banks' progress in addressing transition risk as part of the supervisory review and evaluation process.<sup>196</sup> Supervisors are also empowered to require banks to reduce their exposure to these risks and strengthen targets and measures in their plans.<sup>197</sup> There are further powers available to the ECB if prudential requirements are not complied with, including imposing periodic penalty payments and setting Pillar 2 capital

<sup>188</sup> The carbon accounting standards developed by the GHG Protocol are widely used and all common voluntary frameworks (like the recommendations of the Task Force on Climate-related Financial Disclosures) and the EU disclosure regime refer to them. See Commission Delegated Regulation (EU) 2023/2772 (n 138), Disclosure Requirements E1–6—Gross Scopes 1, 2, 3 and Total GHG emissions, AR 39–55.

<sup>189</sup> See GHG Protocol, 'Technical Guidance for Calculating Scope 3 Emissions: Supplement to the Corporate Value Chain (Scope 3) Accounting & Reporting Standard' <https://ghgprotocol.org/scope-3-calculation-guidance-2> 136–52 (category 15: investments). The Global GHG Accounting and Reporting Standard for the Financial Industry by PCAF builds on the GHG Protocol.

<sup>190</sup> For example, based on this, the largest asset manager in the world by assets under management, BlackRock Inc, excludes Scope 3 emissions based on category 15 (investments) in its reporting while voluntarily providing some estimates. See BlackRock, '2023 Greenhouse Gas Emissions Report', available at <https://www.blackrock.com/corporate/literature/continuous-disclosure-and-important-information/blackrock-2023-ghg-emissions-report.pdf> 3–4; BlackRock, '2023 TCFD Report: BlackRock's climate-related disclosures' <https://www.blackrock.com/corporate/literature/continuous-disclosure-and-important-information/tcf-report-2023-blkinc.pdf> 34.

<sup>191</sup> Directive (EU) 2024/1760 (n 170) article 2/8 (omitting alternative investment funds and undertakings for collective investment in transferable securities).

<sup>192</sup> See also the sector-specific guidance produced by the UK TPT for asset managers clearly acknowledging these constraints, TPT, 'Asset Managers Sector Guidance' (April 2024) <https://itpn.global/asset-managers-sector-guidance/> 14. Current climate-related targets of asset managers disclosed under the TCFD framework often refer to investee companies' own targets. See, eg, JP Morgan Asset Management 2024 Global TCFD Report <https://am.jpmorgan.com/us/en/asset-management/adv/investment-strategies/sustainable-investing/> 47–48 ('JPMAM's targets do not change its existing portfolio strategies and do not constrain the investment universe of client accounts or require divestment. JPMAM's ability to meet its voluntary net zero targets is contingent on action from a range of parties, and is dependent on sustained and consistent government policy, accelerated technological breakthroughs and substantial adaption in corporate business models').

<sup>193</sup> Directive (EU) 2024/1760 (n 170) article 2 (applicable to companies that fulfil more than 1000 employees on average and a net worldwide turnover of more than EUR 450,000,000 for EU-incorporated companies and only a net turnover of more than EUR 450,000,000 in the EU for non-EU incorporated companies).

<sup>194</sup> *ibid* article 22/2. Furthermore, as mentioned above, the Commission proposes to remove 'put into effect' obligation for transition plans, further diluting its effectiveness. See n 172.

<sup>195</sup> See nn 168 and 169 and accompanying text.

<sup>196</sup> CRD6 (n 156) article 87a/4 (in the consolidated version).

<sup>197</sup> CRD6 (n 156) article 104(m) (in the consolidated version).

requirements as part of the annual supervisory review and evaluation process.<sup>198</sup> And the ECB has recently made use of the imposition of 'periodic penalty payments' for banks that did not meet its expectations on managing climate risks.<sup>199</sup> Contrast this intrusive environment for banks with the enforcement and supervision of transition plans under the CSDDD, which are fraught with difficulties. CSDDD requires Member States to designate supervisory authorities to supervise compliance with obligations under the CSDDD which are likely to be the same as the financial supervisor for financial undertakings under the scope of the Directive.<sup>200</sup> It further requires supervisory authorities to supervise the adoption and design of the transition plans.<sup>201</sup> It is not clear whether this will encompass the formal approval of transition plans; furthermore, there is no requirement to supervise their implementation, which is a big omission. In the case of non-compliance, supervisory authorities are to be given powers to order certain actions or impose a penalty.<sup>202</sup> But these powers are broadly put. In brief, much will depend on how CSDDD is implemented into national law and how supervisory authorities across Member States will apply their powers, which is highly conducive to fragmentation and widening the gap between the regimes applicable to banks and market players.

## V. REGULATORY AND POLICY IMPLICATIONS

The current regulatory ecosystem and broader context are highly conducive to credit substitution given cross-sectoral and cross-jurisdictional differences. Even within a financial channel (like bank finance) or region (ie within a sector and jurisdiction), credit substitution is possible if the decision to exit is driven by forces that only target or affect a subset of financial institutions. This is supported by strong empirical evidence of substitution, even though this evidence might not clearly map onto regulatory and market ecosystem differences across or within jurisdictions discussed in section IV. However, they show that when there are such differences, they are indeed exploited. There are also some studies that have found no substitution. Mixed results are not immediately reconcilable—apart from the fact that they measure different inputs/outputs in different contexts—as studies do not give away why their results diverge from previous ones. In any case, the external validity of studies is limited as the parameters that determine substitution might be time-, context- and jurisdiction-varying. For example, studies that examine coal as a financed asset might find different results compared to studies on other brown assets (such as oil and gas), as exit from coal as an energy source is more widely expected (in developed countries) across market participants, and regulatory signals are much clearer.<sup>203</sup> Similarly, characteristics of firms and their previous relationships might matter for substitution. It seems relatively clear that smaller firms will find it harder to substitute. But this is no consolation. When small firms lose their financing sources (usually banks), they will deleverage, reduce investment and asset size, and may eventually be acquired by larger firms that can in turn finance this acquisition via markets or non-existing banks. In other words, credit substitution might still happen indirectly. To be sure, larger firms might operate the acquired assets more efficiently, reducing emissions (intensity) but this is far from the intended effect of phasing out the asset.

<sup>198</sup> See, eg, 'European Central Bank/Banking Supervision: Enforcement', <https://www.banksupervision.europa.eu/activities/supervisory-measures/enforcement/html/index.en.html>.

<sup>199</sup> See ECB, 'ECB Annual Report on Supervisory Activities 2023' (March 2024) <https://www.banksupervision.europa.eu/press/other-publications/annual-report/html/all-releases.en.html>, section 1.2.4.1; 'ECB started issuing fine notices to banks not meeting climate expectations' (Reuters, 24 September 2024) <https://www.reuters.com/sustainability/ecb-starts-issuing-fine-notices-banks-not-meeting-climate-expectations-2024-09-24/>.

<sup>200</sup> CSDDD (n 170) article 24.

<sup>201</sup> CSDDD (n 170) article 25.

<sup>202</sup> *ibid.*

<sup>203</sup> See, eg, Attracta Mooney, 'G7 pact to stop using coal by 2035 sets up next battle over gas supplies' *Financial Times* (30 April 2024) <https://www.ft.com/content/c3e41090-aec9-4207-9cdd-37e52d046be6>.

Given this picture, how should regulators approach the issue? Given the urgency of net-zero transition, it might be too late to wait for conclusive empirical evidence which is hard to produce without internal validity concerns,<sup>204</sup> and external validity, as noted above, will be limited. In such a case, one can resort to the precautionary principle, which has been an environmental law principle but may also be applied in financial regulation.<sup>205</sup> It recognizes complexity and fragility rather than relying on a strict cost-benefit analysis in regulating an activity, and counsels regulators to err on the side of caution.<sup>206</sup> Also, informed by the past experience of the disastrous results of credit substitution,<sup>207</sup> this would suggest that the lack of full certainty should not be used as a reason for postponing regulatory consideration of credit substitution. Overall, theory and evidence suggest that substitution is a real danger and should inform regulatory policy, and remind policymakers that they should be careful about credit substitution and similar second-order effects when crafting policy or regulation in sustainable finance.

### 1. Implications for financial regulation

Credit substitution emphasizes, first and foremost, the importance of levelling playing field between financial institutions. Policies that target only one financial source or a subset of financial players within a financial source (or affect them differently) might prove largely ineffective. This relates to regulatory differences in banking and market finance or divergences within banking regulation due to size or region etc. For example, regulatory initiatives to decarbonize banks' loan portfolios may not necessarily translate into the broader decarbonization of the economy if they lead to credit substitution by markets. This defeats the purpose of regulatory or supervisory tools whereby markets and regulators/supervisors track banks' progress. In other words, banks' disclosures to the public or regulators/supervisors, such as the GAR under the TR in the EU or their disclosures under Pillar 2 and 3 requirements, might reveal that they are decarbonizing their portfolio (as they address transition risk) but outcomes in the real economy might not improve. This is not also comforting for regulators that are purely risk-minded, because credit substitution might result in risk migration. Whether through securitizations or directly replacing banks that exit, risks associated with financing high carbon-emitting assets might instead build up in non-bank financial institutions (NIFI), which might not be as well monitored as the banking sector.<sup>208</sup> While this might be a positive development as it takes the risk out of the fragile banking sector, such risk migration might have financial stability implications through the interconnectedness of and build-up of systemic risk in NIFIs (and also if the relevant non-bank credit-intermediation channel is in itself important but collapses).<sup>209</sup> It is out of the scope of this article to fully tease out fragilities in the NIFI sector but the Financial

<sup>204</sup> The internal validity of a study indicates the extent to which the study establishes a cause-and-effect relationship. The difficulty lies in identifying what caused a financial institution to exit ('endogeneity') and what the impact of this was on the firm decision-making/behaviour ('causality').

<sup>205</sup> See, eg, Hillary J Allen, 'A New Philosophy for Financial Stability Regulation' (2013) 45 *Loyola University Chicago Law Journal* 173.

<sup>206</sup> *ibid* 191 ('[t]his principle is essentially a more sophisticated version of the old adage, "better safe than sorry."').

<sup>207</sup> See Armour and others (n 17) 434 ('... it was reasoned, the substitution of credit provision by markets rather than banks would reduce systemic risk. We know now that this view was mistaken. The shift in the financial system did not so much reduce systemic risk as change the ways in which it arose').

<sup>208</sup> See, eg, International Monetary Fund, 'Global Financial Stability Report' (April 2023) <https://www.imf.org/en/Publications/GFSR/Issues/2023/04/11/global-financial-stability-report-april-2023> 66 ('Regulatory data gaps for NIFIs are significant, and they inhibit the ability of the regulator to assess and monitor systemic risks. Although the availability of regulatory data has improved over time, gaps in most NIFIs remain meaningful and uneven among jurisdictions in comparison to the banking sector where data quality and availability are generally adequate.').

<sup>209</sup> *ibid* 59–80. Since the GFC, the newly created Financial Stability Board (FSB) under the auspices of G20 has undertaken significant work to assess and address the risks from NIFI with the development of policies to mitigate potential systemic risks associated with NIFI as well as tracking their implementation. FSB, 'Strengthening Oversight and Regulation of Shadow Banking: An Overview of Policy Recommendations' (29 August 2013) <https://www.fsb.org/2013/08/an-overview-of-policy-recommendations-for-shadow-banking/>; FSB, 'Promoting Global Financial Stability: 2024 FSB Annual Report' (n 37) ch 3.4.

Stability Board has recently warned that '[t]he financial stability impact of the redistribution of risks from the banking to the NBFI sector is difficult to assess since it is unclear if the non-bank entities taking on the risks previously held by banks are well-placed to assume them given their funding structure and ability to withstand losses in stress events'.<sup>210</sup> This again indicates the tension between the goals of microprudential policy/regulation and macroprudential policy/regulation.

Credit substitution normally could be efficient: firms are funded by the funder that provides the least costly funding (perhaps due to better risk-bearing (diversification), no liquidity/maturity mismatch, or more efficient operation). But if it is driven by regulation, then it is due to regulatory arbitrage and could be socially harmful as it defeats regulatory goals. This is not to say that credit substitution outside sustainable finance context is not due to regulation; it probably is to a certain extent. It is just to say that credit substitution that is related to regulation could be particularly pernicious. And the one related to sustainable finance regulation is particularly important given the recent emphasis put on this related to the regulatory goals (be it either financial stability or better environmental/social impact).

Therefore, policymakers and financial regulators would be wise to consider and monitor not only the first-order effects of their interventions on financial players they target but also second-order effects, such as whether it leads to decarbonization in the real economy (or credit gets substituted) or whether it leads to the build-up of climate-related financial risks in the non-regulated sector. So far, this has not been apparent. And, the pace of regulatory developments in sustainable finance is such that it can create imbalances conducive to credit substitution such as the gap between market finance and bank finance in the EU, as explained above. Even if there are some seemingly similar requirements for banks and financial market participants, nuances can create big differences. This is currently the case with how banks and asset managers are expected to devise and implement their transition plans and how these are supervised and enforced.<sup>211</sup>

This is not to say that the regulatory treatment for banks and market-based intermediaries should be necessarily the same. For example, there are good reasons for the different treatment of funds (that fall under the SFDR) and banks from a prudential perspective. However, the second-order consequences of such treatment should be considered in terms of the effectiveness of regulatory goals (whether it be financial stability or decarbonization of the economy). From another perspective, this is also not to say that regulators should not push banks to better address climate-related risks they face. Indeed, this leniency itself might also cause credit substitution: if banks do not price in such risks to which they are subject, for example because they do not have the processes and capabilities in place to monitor them or assess their materiality as this was not part of supervisory or regulatory expectations, it might lead to mispricing of risks between markets and banks, leading to substitution from markets to banks.<sup>212</sup>

There are however some concrete implications. Capital adequacy requirements are known to affect bank lending and shift corporate finance towards non-bank sources.<sup>213</sup> Regulators are keen to adjust capital requirements in a way that better reflects the environmental and social risks that banks are subject to (whether via a separate buffer or capital charges following supervisory review or evaluation etc). There have been also calls for 'green capital requirements' that would decouple banks' capital requirements from a risk perspective and either support 'green' loans with a lower risk weight attached or penalize 'brown' loans with a higher risk weight.<sup>214</sup> While

<sup>210</sup> FSB, 'Evaluation of the Effects of the G20 Financial Regulatory Reforms on Securitisation: Consultation Report' (2 July 2024) <https://www.fsb.org/uploads/P020724.pdf> 6.

<sup>211</sup> See nn 196–202 and accompanying text.

<sup>212</sup> See nn 63–65 and accompanying text.

<sup>213</sup> See nn 20–21 and accompanying text.

currently not supported by the EBA, this is still on the EU's agenda.<sup>215</sup> Whatever the merits of such capital requirements,<sup>216</sup> it is highly likely that they will lead to credit substitution because banks will exit 'brown' assets without establishing any increase in their riskiness which risk-return oriented investors will gladly finance.<sup>217</sup>

Furthermore, reviving securitization is high on the regulatory agenda, especially considering its potential contribution to green transition as it creates capacity for funding 'green' projects/assets.<sup>218</sup> In the EU, Capital Markets Recovery Package extended the 'simple, transparent and standardised' (STS) label for securitizations eligible for preferential capital treatment to synthetic securitizations.<sup>219</sup> The European Commission has recently consulted on changes to the Securitisation Regulation and proposed measures to revive the EU securitization framework<sup>220</sup> and as part of this, ECB and EBA are reported to be working on easing requirements for lenders seeking approval for their 'significant risk transfers'.<sup>221</sup> Similarly, in the UK, the BoE as Prudential Regulatory Authority has consulted on clarifying its supervisory approach relating to the 'unfunded' significant risk transfers and has been reported to be set to make it easier for banks to utilize them.<sup>222</sup> Yet, this agenda presents a double-edged sword. As explained above, securitization is one of the primary ways whereby credit substitution can happen.<sup>223</sup> Banks can sell their exposure in brown assets to investors in the securitization markets in a move to satisfy regulatory/supervisory or stakeholder expectations. Therefore, facilitating or easing the conditions attached to securitization might also increase the securitization activity on brown assets on the banks' books. This will increase banks' incentives to originate such loans in the first place and monitor their riskiness less diligently with implications for both green transition and financial stability.<sup>224</sup>

<sup>214</sup> See, eg, the speech by Valdis Dombrovskis, the then Vice-President for the Euro and Social Dialogue, also in charge of Financial Stability, Financial Services and Capital Markets Union at the European Commission, available at [https://ec.europa.eu/commission/presscorner/detail/en/SPEECH\\_17\\_5235](https://ec.europa.eu/commission/presscorner/detail/en/SPEECH_17_5235).

<sup>215</sup> See nn 161–64 and accompanying text.

<sup>216</sup> Such requirements are controversial because they might threaten financial stability in that they ignore the riskiness of assets in setting banks' capital requirements and therefore their ability to absorb losses on their assets. For a study of green capital requirements through a model, see Martin Oehmke and Marcus Opp, 'Green Capital Requirements' Paul Woolley Centre Working Paper No 90 (March 2023) <https://www.fmg.ac.uk/publications/discussion-papers/green-capital-requirements>.

<sup>217</sup> See also *ibid* (while not considering credit substitution in their model and thus their results, noting that the desired effect of green capital requirements is further constrained by leakage due to substitution by other credit markets); Fenghua Song and Anjan Thakor, 'Banks, Markets, and the Color of Finance' (2023) ECGI Finance Working Paper No 933/2023 [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4581551](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4581551) (modelling the impact of large brown firms leaving banks for market finance as a result of a brown penalizing capital factor).

<sup>218</sup> See the statements by the European Council, ECB and ESMA on reviving the securitization market in the EU respectively <https://www.consilium.europa.eu/media/m5j1we0p/euco-conclusions-20240417-18-en.pdf>; <https://www.ecb.europa.eu/press/pr/date/2024/html/ecb.pr240307~76c2ab2747.en.html>; [https://www.esma.europa.eu/sites/default/files/2024-05/ESMA24-450544452-2130\\_Position\\_paper\\_Building\\_more\\_effective\\_and\\_attractive\\_capital\\_markets\\_in\\_the\\_EU.pdf](https://www.esma.europa.eu/sites/default/files/2024-05/ESMA24-450544452-2130_Position_paper_Building_more_effective_and_attractive_capital_markets_in_the_EU.pdf).

<sup>219</sup> Regulation (EU) 2021/557 of the European Parliament and of the Council of 31 March 2021 amending Regulation (EU) 2017/2402 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation to help the recovery from the COVID-19 crisis [2021] OJ L 116/1.

<sup>220</sup> European Commission, 'Targeted Consultation on the Functioning of the EU Securitisation Framework' [https://finance.ec.europa.eu/regulation-and-supervision/consultations-0/targeted-consultation-functioning-eu-securitisation-framework\\_en](https://finance.ec.europa.eu/regulation-and-supervision/consultations-0/targeted-consultation-functioning-eu-securitisation-framework_en); 'Commission proposes measures to revive the EU Securitisation Framework' (17 June 2025), [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_25\\_1502](https://ec.europa.eu/commission/presscorner/detail/en/ip_25_1502).

<sup>221</sup> Steven Arons, Nicholas Comfort and Esteban Duarte, 'ECB is Working to Ease Significant Risk Transfers for Banks' (*Bloomberg*, 3 July 2024) <https://www.bloomberg.com/news/articles/2024-07-03/ecb-is-working-to-ease-significant-risk-transfers-for-banks>.

<sup>222</sup> Bank of England, 'CP13/24: Remainder of CRR: Restatement of assimilated law' (15 October 2024) <https://www.bankofengland.co.uk/prudential-regulation/publication/2024/october/remainder-of-crr-restatement-of-assimilated-law-consultation-paper>; Esteban Duarte and Laura Noonan, 'UK's Revamp to Make It Cheaper for Banks to Use Popular Tool to Offload Risk' (*Bloomberg*, 27 September 2024) <https://www.bloomberg.com/news/articles/2024-09-27/uk-to-make-it-cheaper-for-banks-to-do-srt>.

<sup>223</sup> See nn 56–61 and accompanying text.

<sup>224</sup> After the GFC, some financial regulators brought retention requirements to prevent 'moral hazard' but they remain at very low levels. For example, in the EU, originators (ie original lenders) in securitizations need to retain on an ongoing basis a net material economic interest in the securitization of not less than 5 per cent. See Regulation (EU) 2017/2402 of the

Lastly, voice and exit are two mechanisms through which financial players could have an impact on firms' real economy decisions. The merits of these tools have been discussed from different perspectives and also in relation to the overall impact of achieving environmental and social goals.<sup>225</sup> In this debate, it has been generally noted that engagement might be a better strategy (to be promoted via regulation) as opposed to divestment. This article adds to this debate by showing that 'exit' decisions also by creditors are highly substitutable, not least due to the different applicability of exit-driving factors to different financial players. While engagement could be overall the better strategy, in this context, it might still suffer from three issues. First, lenders and debtholders might not have the wherewithal to engage like shareholders. Second, engagement might not address the regulatory concerns, at least not as well as exit. If the regulatory concern is the default risk related to transition/physical risk, exit is a faster and cleaner mechanism to mitigate the risk rather than engaging with the company which will exhaust further resources and take time. Third, engagement might lead instead to asset substitution at the company level (ie divestment of carbon-intensive assets to another company) which has similar consequences to credit substitution in terms of real environmental impact.<sup>226</sup>

## 2. International coordination

The global nature of financial markets and banking creates its own distinct problems for sustainable finance and credit substitution. Ample evidence suggests that exiting banks and investors can be replaced by cross-border institutions. This has some implications.

It is trite to say that global efforts to fight climate change have greatly suffered from coordination and collective action problems as nations have pursued their own interests and different policies. This is known to have stymied coordinated efforts like a global carbon tax or have caused regulatory arbitrage in the sense that firms subject to stricter environmental policies have moved or transferred their operations.<sup>227</sup> Sustainable finance has arisen as an alternative to governmental inaction as financial players operate internationally, and their actions could have cross-border effects.

However, it is proving to be illusory that sustainable finance is bereft of the problems that plague international coordination between governments. As governments differ in their environmental policies, they also differ in their sustainable finance policies, which affect financial institutions' incentives and decision-making differently. Such divergence does and will lead to credit substitution by players that are subject to lesser regulatory/supervisory expectations or pressure. Therefore, international coordination is also needed to create an international level playing field between financial players. The Basel Committee on Banking Supervision is the obvious medium for banks.<sup>228</sup> Yet, efforts there are currently upset by traditional leaders like

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 L347/35, article 5.

<sup>225</sup> See, eg, Jonathan B Berk and Jules H van Binsbergen, 'The Impact of Impact Investing' (2025) 164 *Journal of Financial Economics* 103972; Nickolay Gantchev, Mariassunta Giannetti and Rachel Li, 'Does Money Talk? Divestitures and Corporate Environmental and Social Policies' (2022) 26(6) *Review of Finance* 1469.

<sup>226</sup> See, eg, Alperen A Gözügüç and Wolf-Georg Ringe, 'Private companies: the missing link on the path to net zero' (2022) 22(2) *Journal of Corporate Law Studies* 887; Alperen A Gözügüç and Wolf-Georg Ringe, 'Net-Zero Transition and Divestments of Carbon-Intensive Assets' (2023) S6 *UC Davis Law Review* 1963.

<sup>227</sup> See, eg, Itzhak Ben-David and others, 'Exporting Pollution: Where Do Multinational Firms Emit CO2?' (2021) 36 *Economic Policy* 377; Söhnke M Bartram, Kewei Hou and Sehoon Kim, 'Real Effects of Climate Policy: Financial Constraints and Spillovers' (2022) 143(2) *Journal of Financial Economics* 668.

<sup>228</sup> For asset managers, there does not exist an influential international forum similar to the Basel Committee. The International Organization of Securities Commissions (IOSCO) is the leading international policy forum for securities regulators and promulgates some high-level, non-binding standards and principles for member jurisdictions to consider. See, eg, IOSCO, 'Recommendations on Sustainability-Related Practices, Policies, Procedures and Disclosure in Asset Management'

the US, and therefore, compromises have so far led to either dropping ambitious requirements or making them voluntary for member jurisdictions to adopt.<sup>229</sup>

Voluntary initiatives like the Glasgow Financial Alliance for Net Zero (GFANZ) and its sector-specific alliances for banks and asset managers can be meaningful in this regard by lobbying and engaging with financial institutions to commit to their goals, monitoring their progress and creating a kind of coordination.<sup>230</sup> Yet, this in itself poses distinct legal challenges in the form of antitrust. Competition law rules around the world normally prohibit coordinated boycott and imposition of certain terms and conditions that would limit the supply of services to another business unless it accepts them. This has the potential to make it illegal for financial institutions to collectively commit to boycott and disadvantage fossil fuel lending. Both the EU and the UK provided guidelines to provide relief to cooperation between competitors on sustainability, which will also redound to the benefit of net-zero alliances.<sup>231</sup> In contrast, antitrust is currently weaponized in the US by some States to chill such alliances.<sup>232</sup> And indeed, both the Net-Zero Banking Alliance and the Net Zero Asset Managers initiative under GFANZ have now halted operations.<sup>233</sup>

## VI. CONCLUSION

Sustainable finance has arisen, in recent years, as a powerful mechanism to leverage the channels in the financial system to exert influence on real economy firms to transition in line with sustainability and climate goals. One such mechanism is 'exit' either via total withdrawal of funds or via increased cost of capital. Various factors might push financial players to 'exit': shareholder/stakeholder/regulatory pressure, taste/preferences, or conventional asset pricing considerations (including expected cash flow or risk).

Yet, the lack of uniform effect by these factors on financial players across jurisdictions or within a jurisdiction is highly conducive to credit substitution in the real economy, diluting the intended effect of 'exit.' This in turn weakens the regulatory policies that aim to steer financial flows to achieve positive sustainability impacts or address and manage climate-related risks in the financial sector. This is because credit substitution means that firms are able to substitute their exiting creditors with new ones (with no impact on their investment/assets) and that any financial risk relating to the financial activity is simply transferred to another part of the financial system which is potentially less transparent and supervised. This defeats the common purposes of sustainable finance policy and regulation, which are to accelerate net-zero transition and address and manage climate-related financial risks.

Overall, there remain major differences across jurisdictions in terms of regulatory pressure and appetite to steer financial flows in line with sustainability goals ('cross-jurisdictional differences') and there are also significant differences within jurisdictions on the regulatory pressure and expectations put on the different parts of the financial system, a prominent example

(November 2021) <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD688.pdf>; IOSCO, 'Supervisory Practices to Address Greenwashing' (December 2023) <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD750.pdf>.

<sup>229</sup> See n 127 and accompanying text.

<sup>230</sup> On the Glasgow Financial Alliance for Net Zero and its eight sector-specific alliances, see <https://www.gfanzero.com/about/>.

<sup>231</sup> See European Commission, 'Guidelines on the Applicability of Article 101 of the Treaty on the Functioning of the European Union to Horizontal Co-Operation Agreements' (C(2023) 3445 final: Brussels, 1 June 2023) ch 9; Competition and Markets Authority, 'Green Agreements Guidance: Guidance on the Application of the Chapter 1 Prohibition in the Competition Act 1998 to Environmental Sustainability Agreements' (CMA 185: London, 12 October 2023) ch 6.

<sup>232</sup> See n 132 and accompanying text.

<sup>233</sup> Net Zero Asset Managers Initiative, 'Update from the Net Zero Asset Managers Initiative' (13 January, 2025), [https://www.netzeroassetmanagers.org/update-from-the-netzero-asset-managers-initiative/](https://www.netzeroassetmanagers.org/update-from-the-net-zero-asset-managers-initiative/); Kenza Bryan, 'Global banking climate alliance folds four years after launch', Financial Times (6 October 2025), <https://www.ft.com/content/841fb042-4f47-4da6-834e-6afe0c79d5c6>.

being the EU, with cross-sectoral differences between bank and market finance ('cross-sectoral differences').

This suggests that ambitious sustainable finance policies should be mindful of credit substitution; otherwise, progress will be very limited. International coordination—the lack of which largely plagued the necessary coordinated response to climate change—is needed regarding sustainable finance policies but this is, however, currently lacking. Credit substitution also presents a cautionary note for stakeholders and shareholders that create exit-related pressure.