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European capitalisms in sustainability transition: the case of green bonds

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ABSTRACT
The EU's sustainable finance agenda aims to accelerate the sustainability transition through the 'greening' of finance. How such greening may trigger institutional transformation in Member States is not well understood. However, the political economy literature has elevated the importance of non-market coordination and institutional complementarity in sustainability transitions. The article investigates sustainable finance uptake in four distinct Member States (the Netherlands, Poland, Spain and Sweden). Green bond legal documentation is analysed for three dimensions of firm-finance coordination: exchange of information, monitoring and sanctioning. The micro-level analysis identifies local adaptations that relate to how actors incorporate sustainability commitments and the EU sustainable finance rules into financial transactions and whether they conceive these as a source of risk (the Netherlands and Sweden) or a guarantee of profit (Poland and Spain). One jurisdiction (Poland) is further differentiated by a strong legal sanctioning mechanism resulting from legal factors and the presence of international financial institutions. Notwithstanding local adaptations, several micro – and meso-level transformations are identified, such as the consistent emergence of new forums for both market and non-market coordination. The political economy impacts and micro-level tensions identified in the article highlight how comparative legal analysis can anticipate the sites of broader political struggles.

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Introduction

Framing sustainable finance as a policy regime and a political project reveals the scale of ambition that European Union institutions have associated with a

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series of interventions orientated at (re)shaping how financial markets across the EU operate (see the introduction by Mertens and van der Zwan in this issue). European Commission documents emphasise the potential of the sustainable finance regulatory agenda, not only to close the investment gap needed to meet the EU's sustainability goals, but also to achieve a deeper, longer-term transformation involving the adoption of a more sustainable corporate governance regime (European Commission, 2018). Finance becomes a lever pulled to diffuse the green transition and the EU Green Deal across the economy (Braun & Koddenbrock, 2022; Downey & Blyth, 2025; Mader *et al.*, 2020). Can this gambit work? Can the EU's sustainable finance agenda lead to the institutional transformation of capitalism? To help answer this question, the article investigates the early phases of sustainable finance uptake and EU policy impact across several EU Member States. Drawing on the literature on comparative capitalisms and legal institutionalism, I adopt a micro-perspective, exploring what the legal features of 'green bonds', that is, debt instruments issued in order to finance sustainable projects, can tell us about whether – and if so, how – market and non-market coordination dynamics are affected by the sustainable finance agenda.

Two complementary observations found in the literature on different strands of social science are integrated to provide a joint anchor for the analysis. Firstly, effective coordination between private and public actors across various levels of governance is a precondition for transition, as suggested by the sustainability transitions literature (Markard *et al.*, 2012). Secondly, there is a complementarity between coordinated market economies, which are reliant more on non-market forms of coordination between actors, and sustainability transition (Ćetković & Buzogány, 2016; Nahm, 2024). In this context, the article probes firm-finance coordination mechanisms through the legal features of green bond transactions in four different case study Member States (the Netherlands, Poland, Spain and Sweden). Approaches at the intersection of legal institutionalism, regulatory capitalism (Deakin *et al.*, 2017; Grewal, 2017; Levi-Faur, 2017; Pistor, 2019) and comparative political economy (Hall & Soskice, 2001; Teubner, 2001) have long sought to address the question of how legal change intersects with that of social institutions. Continuing this tradition, in this article I focus on green bonds, a novel form of financing where the issuer commits to using the proceeds to finance specific sustainable projects, such as improvements in energy efficiency or installations of renewable energy. Through comparative analysis I explore how the local institutional features related to market and non-market coordination dynamics are reflected in the different dimensions of coordination (exchange of information, monitoring and sectioning) found in the legal terms of green bond issuance. I identify the locally contingent differences that relate to how actors incorporate sustainability commitments and the EU sustainable finance rules into financial relationships and whether they conceive these as a source of risk (the Netherlands and Sweden) or a guarantee of profit (Poland and Spain). The analysis unpacks several micro – and meso-level adaptations that relate to both market forms of coordination (e.g., the role of dedicated secondary markets) and non-market ones (e.g., local 'platforms' creating new forums for sectoral and cross-sectoral exchange).

Green bonds are particularly well placed to be studied from the perspective of the EU as a policy regime and a political project, the themes of this special issue. Even before directly regulating this financial instrument through the EU Green Bond Regulation (EUGBR; Ramos Muñoz & Smoleńska, 2023), EU institutions have leveraged their various positions as policymakers and legislators, supervisors and central banks and market participants to facilitate market development. At the same time, we have observed relatively little political mobilisation around this instrument compared to other elements of the EU sustainable finance regulation and the EU Green Deal agenda more widely (Bocquillon, 2024; Fontan, this issue). Considering sustainable finance through the lens of individual 'green' transactions offers a glimpse into the profiting and powering dynamics the trend triggers, both within a particular country and across the EU as a whole.

The article contributes to the broader literature in the following ways. While comparative capitalisms scholarship has tended to focus on the distinction between coordinated and liberal market economies in evaluating the 'institutional fit' with the sustainability transition, here I show how non-market coordination is consequential in the EU sustainable finance context, both in terms of local adaptations and broader institutional transformation. With green bonds having already been explored across a number of fields, spanning finance (Lam & Wurgler, 2024), geography (Monk & Perkins, 2020; Perkins, 2021) and law (Curtis, Weidemeier, & Gulati, 2021; Ramos Munoz & Smolenska, 2023), by analysing these instruments with an additional level of granularity, I show green bonds to be heterogeneous and institutionally contingent. Methodologically, the article proposes an original analytical approach that combines legal institutionalism with comparative capitalisms scholarship. I show how law and legal documentation matter for the study of political economy, not just in terms of how local legal structures affect the implementation of sustainable finance policy (Steunenberg & Toshkov, 2009), but also how a combined law and political economy approach can capture institutional change beyond micro-interactions. In fact, the micro-perspective adopted in the article generates insights for the broader meso – and macro-financial regime, especially as regards the transactions that underpin the 'greening' of credit flows (Gabor & Braun, 2025). From a public policy perspective, the insights allow readers to anticipate the dynamics of EU regulation implementation across the Member States (Brendler & Thomann, 2023) and to formulate complementary local policies to support the achievement of policy objectives (Pistor & Berkowitz, 2003).

To this end, the analysis proceeds as follows. The following section explains how social science scholarship to date has explored the question of institutional fit in the context of EU policy in general, and sustainable transition in particular. Then, I outline the research strategy, which combines legal and comparative political economy methodologies. The next section explains the importance of green bonds in the EU's sustainable finance agenda, after which I outline insights from the analysis of green bonds' legal documentation as regards firm-finance coordination in the transition. On this basis, and before concluding, the following sections explore the institutional adaptations in micro – and meso-coordination dynamics triggered by the sustainable finance trend and draw broader insights for powering and puzzling dynamics triggered by the EU's sustainable finance policy regime and political project.

Institutional transformation in sustainability transitions – an empirical-theoretical puzzle

Can the EU's sustainable finance policy regime, as a political project, bring about a transformation of socioeconomic models in line with the objectives of the sustainability transition? Despite the growing interest of social science scholars in the phenomenon of sustainable finance, its transformative potential is met with broad scepticism (Babic, 2024; Green, 2022, Newell, 2021). Green financing instruments are criticised for a lack of additionality (Lam & Wurgler, 2024), a lack of clarity in their purpose (Zetzsche & Anker-Sørensen, 2022), 'empty promises' (Curtis, Weidemeier, & Gulati, 2023) and as a market-making façade (Monk & Perkins, 2020). And yet they involve several novel features: new types of categories (e.g., 'green' projects), obligations (e.g., green 'use of proceeds') and sanctions (e.g., financial ones). *Plus ça change* … ? As the share of green financing grows, especially within the EU, the puzzle of sustainable finance is transforming into an empirical puzzle as much as a theoretical one. Why are some countries more interested in green finance than others? What should we make of the differences between green bond practices across jurisdictions? Considering the potential differentiated institutional fit of sustainable finance's impact is a pressing public policy issue, given the centrality of this approach in the EU's Green Deal, notwithstanding the spectre of regulatory rollback as the competitiveness agenda in Brussels begins to gain ground (Financial Times, 2025).

Political economy scholars have begun to approach sustainability transition policies from a comparative capitalisms perspective. They have pointed to the underexplored question of how sustainability transitions affect the supply and demand dynamics underpinning individual growth models and the long-lasting impact of national governance tendencies on policies implemented in the service of transition (Feola, 2020, Newell, 2021,

p. 34). In a recent contribution, Driscoll and Blyth propose that countries' 'decarbonisation possibility frontier' can be identified as a function of a cost of capital and share of fossil fuels in energy consumption (2025). Bailey points to the underdeveloped understanding of how decarbonisation policies affect the alignment and coordination of varying interests (2024, p. 100853;), an aspect that appears particularly critical in the light of the sustainability transitions literature, which emphasises strategic horizontal and vertical coordination between public and private actors over longer periods as a precondition for shifting socioeconomic models into a more sustainable gear (Markard *et al.*, 2012, p. 957; Markard, Raven & Truffer, 2020). Accelerating the transition means that actors across the economy – the state (through industrial policy), the finance sector (through lending decisions) and businesses (by adjusting business models) – all must accelerate their decarbonisation efforts and align. But what kind of non-market coordination matters, and how? Non-market coordination refers here to a broad array of mechanisms for coordinating behaviour and interests that are not reliant on market supply and demand, but rather rely on networks, joint membership of associations, forward-looking planning and state policy (Hall & Soskice, 2001). The comparative capitalisms literature has already suggested that socioeconomic systems relying on non-market forms of coordination between actors foster collaborative, broad-based innovation that is coordinated and locally embedded government – industry – finance – science – society interactions, whereas the absence of non-market coordination between actors has hindered renewable energy development in the UK (an LME, Liberal Market Economy) (Bernauer & Bohmelt, 2013; Lachapelle & Paterson, 2013). Institutional complementarity is consequential, as Nahm argues 'some EU varieties of capitalism face less structural constraints than others and are thus better equipped to achieve economic, social and environmental benefits from advancing renewable energy sectors' (2024, p. 652). Conversely, weak institutional complementarity and structural constraints on non-market forms of coordination, such as low transparency and limited state capacity, have been identified as stumbling blocks to the transition (Ćetković & Buzogány, 2016).

Understanding these dynamics is crucial for capturing the impact of the EU's sustainable finance agenda. The literature on Europeanisation has considered how institutional factors shape the strategies and positions of actors over the course of EU policymaking (Callaghan & Höpner, 2005; Clift & McDaniel, 2021; Fioretos, 2001; Quaglia, 2011) or the local implementation of EU policy (Loxbo and Pircher, 2024; Zhelyazkova & Thomann, 2022; cf. Blom-Hansen *et al.*, 2022). However, our understanding of how EU policy coevolves with local institutions and practices, also at the micro-level, is underdeveloped. Capturing the impact of the sustainable finance agenda requires delving deeper into the dynamics of political economy transformations that are triggered by EU financial policies at the level of firm-finance interactions (Braun & Koddenbrock, 2022; Moschella *et al.*, 2024). To achieve the aims of the political project, such a transformation would require the consistent integration of sustainability considerations across different dimensions of strategic interactions of the firm vis-à-vis the local corporate governance regimes, industrial relations, labour force education and training and modes of innovation diffusion (Green, 2022; Hancké *et al.*, 2007).

In this context the law's potential to generate political economy insights is underexplored, and legal analysis can be particularly fruitful when applied to political economy in the context of sustainable finance. Following the varieties of capitalism approach, a micro-level analysis of actor interactions can generate insight into the broader workings of the socioeconomic system (Molina & Rhodes, 2007). The law constitutes such interactions in capitalism in the sense that it preconfigures and gives form to economic relationships, including financial ones (Deakin *et al.*, 2017, Hodgson, 2015). Specific legal modules such as contract, property or company law, 'code' capital, e.g., by pre-setting the distribution of risk and reward among actors and structuring the latter's interaction over time (e.g., via monitoring and reporting obligations) (Pistor, 2019). 'Legal encasing' of economic rationalities through the deployment of legal concepts, role of lawyering and modes of legal enforcement, limits the possible market ordering alternatives within a particular jurisdiction (Kampourakis, 2022; Purdy *et al.*, 2020; Sassen, 2000; Slobodian, 2018). Teubner's seminal work on 'legal irritants' in the 2001 Hall and Soskice volume explored how a legal concept tightly interwoven with social institutions (namely 'good faith' referring to the intention of parties entering into a contract) results in different outcomes in more 'liberal' versus 'coordinated' market economies (2001). What is encased in formal legal provisions (market coordination) is a reflection of the broader institutional context, including strategic (non-market) interactions. Even in the cases of globalised financial trends, such as green bonds, we can expect contractual and other forms of local institutional adaptations, especially as regards the legal encasing of the issuing firms' 'green commitments' to finance a specific project within their broader sustainable corporate strategy. Legal analysis can in this sense reinforce political economy analysis by unearthing the micro-level tensions tensions reflected in the legal gaps and inconsistencies in legal provisions that may, as indeed in the case of the EU sustainable finance political project, anticipate the sites of broader political struggles.

In the light of the existing comparative capitalisms literature, two hypotheses can be formulated as regards the EU's sustainable finance agenda as a political project supporting the sustainability transition. The first is that countries characterised by stronger non-market coordination, resulting in a greater alignment of interests between actors, might be receptive to integrating sustainability in firm-finance relationships, however this may occur outside of formal legal transactions (Ćetković & Buzogány, 2016; Grittersova, 2014). The second is that the countries with 'weak' non-market coordination and institutional complementarity will see the public authority (state or EU) play a more active role to overcome constraints in firm-finance relations (Bulfone, 2024), where growth of sustainable finance is identified as a public policy objective.

Research design

Legal analysis of green bond documentation

Green bonds are particularly well suited to be explored from an institutional perspective. Bonds are debt securities where the borrower (issuer of the bond) promises to pay the holders a fixed amount of interest over a period of time and to repay the full amount of the loan at maturity. *Green* bonds, the rise and origins of which are further discussed below, are differentiated from 'traditional' bonds by several features. Firstly, whereas traditional issuances raise funds for unspecified, general financing purposes, green bonds' use of the proceeds is for specific, defined sustainability purposes, such as building a renewable energy installation or improving the energy efficiency of a building. Secondly, the issuer develops and discloses a green bond framework (GBF) that specifies the types of projects that will be financed, the way that projects will be selected and any regular reporting on the use of proceeds. These documents are not intended to be legally binding, but rather serve as a framework to communicate the firm's sustainability investment strategy. Thirdly, external experts typically verify the GBFs for their accuracy and integrity. These analyses are likewise published on company websites and are known as second party opinions (SPOs). Bonds, as public offers of securities or when the securities are admitted for trading on a regulated market (such as exchanges), generally require a prospectus that includes the legal commitments of the issuer as regards the terms of the bonds.[1]

How the differentiating features of green bonds are integrated into the prospectus is a reflection of local firm-finance interaction, including the negotiations between the issuer and the banks structuring the transaction, potential investors and other stakeholders who might use the information to engage with the firm on sustainability-related topics. A comparative analysis of the prospectuses is therefore expected to generate insight into how sustainability can become integrated into firm-finance market interactions. Such coordination can be conceived to have three dimensions: how actors exchange information, monitor behaviour and performance and how they sanction behaviour (Ostrom cited in Hall & Soskice, 2001, p. 10). The first dimension of comparison, namely the exchange of information, relates to the extent and type of information covered in green bond prospectuses about green commitments. The second dimension of comparison relates to the monitoring aspects, including any commitments to regular reporting that the issuer makes as part of the legally binding documentation. The third dimension explores the references to the sanctioning mechanism for violating the green terms of the issuance, if any.

There are several qualifications related to an approach which focuses on green bonds specifically as a proxy for market and non-market institutional transformation triggered by the sustainable finance agenda. Firstly, if green bonds are a form of market contracting, what insight can they offer into non-market forms of coordination between actors? Given the heterogeneity of practices, quite a lot, it turns out, especially combined with other social science methods to contextualise the legal provisions. Secondly, green bonds' contribution to the transition has been contested. In fact, research draws attention to the 'empty promises' of green bonds, or the misrepresentation of the green commitments that undermines their 'additionality' (Agostini, 2023; Curtis, Weidemeier, & Gulati, 2023; Lam & Wurgler, 2024). Such criticism, however, often focuses on a few jurisdictional examples and does not account for the broader context within which such financing is obtained. Thirdly, the relevance of green bonds across different countries will be shaped by the specific transition financing needs in each one. While sustainability transition goals, such as 'climate neutrality', are formulated jointly at the EU level, the differences between countries' trajectories are significant (Driscoll & Blyth, 2025). The national transition pathways are defined by local politics as well as societal (e.g., transition alone) and geopolitical (e.g., energy security) concerns. These result in different combinations of transition financing needs, whether that is financing for innovation or decarbonisation or write-offs for stranded assets (Driscoll and Blyth, 2025; Semieniuk *et al.*, 2022). Though the transition pathway will indeed determine the ambition or popularity of green bond issuance (relative to other sustainable finance instruments), we can expect to still be able to distil the locally shaped features of such instruments.

Case selection

In this article I compare green bond issuance in four non-liberal market economies in the EU: the Netherlands, Spain, Sweden and Poland. The case selection reflects the article's hypotheses regarding the implications of the 'strength' of non-market mechanisms of firm-finance coordination and the related role of the state. In the comparative capitalisms literature, the Netherlands has typically been considered a 'traditional' CME, with Sweden, Spain and Poland falling into the bespoke 'Nordic', 'Mediterranean' and 'Central

Eastern European'/'dependent' types, respectively. As regards the overall institutional fit impacting the outcomes of strategic coordination, the literature generally argues that Sweden and the Netherlands have more complementary institutions, whereas in Spain and Poland the complementarities are 'weaker', with fewer formats for non-market coordination and stronger segmentation across sectors (Mykhnenko, 2007). Weaker institutional complementarity is compensated for by a greater role of the state/public authority. In Spain, the state has been characterised as an *ex post* mediator between the interests of the firm and that of finance, supporting 'capital coalitions' and mutual accommodation (Burroni *et al.*, 2021; Molina & Rhodes, 2009). In Poland the policies of 'comprador' banks have supported the emergence of an aligned state-bank developmental agenda (Naczyk, 2021), notwithstanding the continued capital constraint and underdeveloped local capital market (Bohle & Greskovits, 2012; Ćetković & Buzogány, 2016; Nölke & Vliegenthart, 2009; Rapacki, 2019). Meanwhile in the case of Sweden and the Netherlands, the literature generally characterises the state's role in firm-finance policy as more 'hands-off' (Lindgren, 2011), also in the light of strength of strategic coordination between industry actors.

Data sources

In terms of data sources, I analyse 31 green bond issues in the selected Member States from 2019 to 2024, i.e., the period leading up to the EU Green Bond Regulation's entry into force, when the EU's sustainable finance political project was already taking off (Supplementary Material 1.A). To maximise the sample size of the prospectuses, I adopt a broad approach that includes the finance, energy, retail and manufacturing sectors, excluding only local government and state bond issues. The prospectuses were obtained from the issuers' websites or regulatory databases. Where issuers tapped the bond markets multiple times, I considered the differences between the prospectuses to capture market evolution over time and the impact of EU sustainable finance agenda.

The analysis of green bond issuance was supplemented by 18 semi-structured interviews with lawyers, bankers and representatives of the broader ecosystem (public authorities and civil society organisations) (see Supplementary Material 2). The interviewees were identified on the basis of their direct involvement in the structuring of green bonds as lawyers or bankers. The insights from the interviews were used to probe the validity of the inferences from the comparative legal analysis, e.g., by gauging the market participants' interpretation of the legal provisions and their assessment of the evolution of green bonds over time. The desk research covered policy briefs, market analyses and the existing legal and political economy literature.

Green bonds in the EU's sustainable finance policy regime and political project

Green bonds are a market and regulatory phenomenon shaped in several ways by the EU's sustainable finance policies. Supporting sustainable debt issuance has been at the core of the EU's sustainable finance agenda since the European Commission's Sustainable Finance Action Plan that by 2025 was implemented through over 20 pieces of legislation (European Commission, 2018) – even the EU Green Bond Regulation was only introduced in 2023. The Regulation introduces a bespoke, yet voluntary, regime for requirements that issuers would have to fulfil in order to label their bonds as 'EUGBs' (Ramos Muñoz & Smoleńska, 2023). Such requirements include financing projects that are considered sustainable under the EU green taxonomy (Fontan, this issue), a suite of mandatory pre – and post-issuance disclosures and a supervisory regime for providers of external verification services.

The EU's sustainable finance policy regime has affected the issuance of green bonds even before that piece of legislation was in place. In fact, the EU institutions have leveraged their various positions – as policymakers and legislators, supervisors and central banks and market participants – to facilitate market development. The European Investment Bank issued the inaugural Climate Awareness Bond in 2007 and was subsequently a key actor in the EU regulatory process (Spielberger, 2024). In 2020 the EU became the single largest sovereign issuer of green bonds under the Next-Generation EU pandemic recovery fund joint issuance (Smoleńska, 2022). On the regulatory front, the 2020 EU Taxonomy Regulation was introduced with sustainable finance product design in mind. By 2023 green bonds accounted for almost 7 per cent of all corporate bonds issued in the EU, almost double the global average of 3 per cent (EEA, 2024). However, we can observe significant variance in the uptake and development of sustainable finance products across Member States, as reflected in the trajectories of sustainable finance's development across the case study jurisdictions (Table 1).

Swedish banks and corporations were early adopters of sustainable finance. The Swedish real estate company Vasakronan was the first company in the world to issue a green bond, in 2013 (Interviews 13-SE and 16-SE). In 2024, 16 per cent of the overall corporate issuance in Sweden was categorised as green, with 140 individual firms seeking this type of financing – for the most part real-economy corporations (Karltorp & Maltais, 2024). The Netherlands is also considered a sustainable finance leader, not least due to the active role that Dutch experts and public officials play in shaping the broader ecosystem of sustainable finance within the EU (Siderius, 2023). However, the first Dutch corporate green bond was not issued until 2016, and it was by a bank (NWB) rather than a

Table 1. Green bond market development in case study jurisdictions.

	First corporate green bond issuer, sector (year)	Total no. of issuers	Types of issuers	Average issues per issuer	Green issuance as a per cent of overall corporate issuance	Green bond issuers in the sample
Netherlands	NWB, bank (2016)	39	Finance companies (over 60%), corporations	6	11%	8
Poland	PKO Bank Hipoteczny (2019)	16	Corporations, banks	2	4%	6
Spain	Iberdola, energy (2014)	50	Corporations, banks, local governments	5	8%	8
Sweden	Vasakronan, real estate (2013)	140	Corporations (over 60%), local governments, finance companies	6	16%	9

Source: EEA (2022); See also Supplementary Material 1 A.I for list of Prospectuses.

real-economy corporation. Since then, financial companies have been particularly active in the sustainable finance market segment, with the overall number of issuers remaining relatively low. In Spain, the energy company Iberdola issued green bonds in 2014, which was followed by a moderate trend of banks, energy companies and municipal governments doing so. However, whereas companies in all countries list their bond issuances on exchanges abroad (especially in Dublin or Luxembourg), this trend is particularly visible among Spanish non-financial companies. The green bond segment is smallest in Poland, despite the Polish government having been the first to issue a sovereign green bond, in 2016 (Lewandowski & Smoleńska, 2023). The first corporate green bond was issued in Poland in 2019, by the largely state-owned bank PKO; the pool of issuers remains small, however is relatively diversified among non-financial corporates (energy, real estate, media companies). Notwithstanding the differences in the state of green bond markets, across the four jurisdictions the EU sustainable finance trend intersects with market trends, whether on the corporate (Netherlands, Sweden and Spain) or government side (Poland).

Market adaptations – exchange of information, monitoring and sanctions in green bond prospectuses

Overall, the analysed bond prospectuses have a set of common features as regards the ‘green’ commitments of the issuer. EU law requirements under the Prospectus Regulation results in a similar overall structure of these documents (Veil, 2024), including disclosures about the risks of investing in the bond, information about the issuer and the specific terms of the issuance. Furthermore, all the issuances relied on the global green bond standard (Green Bond Principles of the International Capital Market's Association), which requires issuers to define the use of proceeds in the GBF, and externally verify the latter (Ramos Muñoz & Smoleńska, 2023). Across the prospectuses, information related to green commitments is covered predominantly in three sections: risk disclosures, template term sheets and separate sections dedicated to 'use of proceeds' commitments. However, how such information is presented, in what detail and how the green commitments are integrated into the contractually binding terms of issuance vary substantially from country to country, as well as across sectors and over time.

How issuers integrate the sustainability commitments into the bond prospectuses is by no means consistent. In terms of integrating the green bond into the binding elements of the bond issue, the prospectuses most commonly mention that the 'green bond' use of proceeds is the 'reason for issue', or they include reference to a 'use of proceeds' section clarifying that the proceeds (or an equal amount) will be used to finance green projects in the disclosed bond terms, as part of non-binding features of the bonds. The level of commitment varies: generally, issuers 'will' use the proceeds to finance eligible green projects, although several issuers use lighter language – having such an 'intention' (Swedish Volvo, 2024[2]) – or they allow for the fungibility of funds (e.g., Swedish Fabege, 2024). Only in five Polish bond issues is the green use of proceeds identified as a legally binding 'purpose of issue'. In one case this is further supplemented with a Supervisory Board resolution that further shores up the commitment (Ghelamco, 2023).

As regards the level of detail in the green commitments, generally across the issuances the GBFs are kept explicitly legally separate ('not incorporated' in the prospectus document).[3] Most bond issues instead emphasise that updates to the GBF are not considered changes to the base prospectus.[4] Two thirds of them include a separate 'use of proceeds' section that summarises the key aspects of the GBF as regards the projects to be financed, governance structures and reporting, although these separate sections vary in length. The level of detail, including as regards common definitions of 'green projects' or green bond principles varies, is notably low in many Swedish bond issues.

It is in the definitional aspects that EU sustainable finance policy comes to the fore. Particularly in countries where the issuance of green bonds predates the rise of the EU green bond agenda, the positive impact of EU sustainable finance policies geared towards providing market participants with clearer definitions is by no means obvious. In fact, many bond issues include phrasing in which the issuers emphasise that there is no common understanding of what activities are sustainable, only to follow this statement with a reference to the EU taxonomy. For example, the 2022 issuance by Iberdola states:

> it should be noted that there is currently no clear definition (legal, regulatory or otherwise) of, nor market consensus as to what constitutes, a 'green' or an equivalently-labelled project, including … the so called EU Taxonomy, the operative provisions of which are due to enter into force over the course of 2022 and 2023 or as to what precise attributes are required for a particular project to be defined as 'green' or such other equivalent label nor can any assurance be given that such a clear definition or consensus will develop over time or that any prevailing market consensus will not significantly change.

Similar wording is found in most of the bond issues from multinational firms (with the exception of the more local Spanish and Polish firms, which have much more shorter risk disclosure sections). According to these issuances not only is the EU sustainable finance framework barely helpful in clarifying the meaning of 'what is green', but it can also in fact be a risk factor. The Swedish company Cibius in its 2024 prospectus, for example, alerted potential investors to the losses that non-compliance with EU regulations can bring about in directly financial or reputational terms, even while making tentative pledges to comply with the standard (see also Swedish bank SEB, 2023; Dutch Green Storm, 2024).[5] The application of the EU sustainable finance framework appears easier in Poland and Spain – at least according to the information disclosed in the prospectuses. The 2023 issue from the Polish bank Pekao includes commitments to follow the Green Taxonomy classifications in selecting eligible projects to be financed, without qualification. The Spanish bank BBVA meanwhile refers to its internal efforts to follow that regulation (2024).

By comparing where information about the impact of sustainability commitments to be financed through green bond issuance is disclosed, jurisdiction-specific tensions can be identified, especially as regards the motivations of actors involved in green finance. In Swedish and Dutch prospectuses (as well as those of banks in all jurisdictions), we find more information about the green features of the bond in the 'risk' section than in any other part of the prospectus. The (increasingly elaborate) list of the risks associated with investing in green bonds span both external (e.g., regulatory changes or investor expectations) and internal factors (e.g., not following through with a project). Complex legal fortification protects the issuers, but also banks/dealers and SPO providers, from liability should the issuer deviate from their green commitments. The tension is evident. In one Dutch prospectus, the issuer makes a commitment that 'proceeds will be used' to finance green projects, while emphasising and detailing in the risk section why it cannot guarantee that (Alliander, 2024). Another Dutch issuer refers to the reasons for issuing their green bond as 'reasons different from making profit' (ING, 2022). Meanwhile, in most of the Polish and Spanish issuances, we see quite a different approach. The sections dealing with the risks of investing in green bonds (if they are included at all[6]) are much shorter. While issuers also refer to the difficulties they may encounter in executing green projects, they preface such information by providing detail on how the firms intend to mitigate such risks (e.g., Colonial, 2024) or use external verification to further shore up the credibility of the foreseen projects (e.g., Spanish Audax, 2020 and Greenalia, 2020; Polish Polenergia, 2024).

As regards the monitoring dimension of coordination, the often-overlooked core feature of green bonds is the issuer's commitment to report on how the proceeds will be allocated. Such reporting enables the investors as well as other stakeholders to monitor the allocation of funds (Park, 2018). For traditional bonds no such requirement exists. While the monitoring aspects would be consistently covered in the green bond frameworks, these documents – as mentioned above – are not legally binding, although prospectuses increasingly include generic references to annual reporting commitments in the 'use of proceeds' sections that summarise the GBFs. References across the prospectuses place the monitoring onus on the interested parties (investors and stakeholders), with the more recent bond issues are more specific on the reporting content and frequency, following a broader trend of increased granularity. In several of the Polish bond issues we additionally find the incorporation of the reporting commitment and GBF updates as part of the 'purpose of issue' section (Polenergia, 2024; RPower, 2022). From the perspective of broader strategic coordination, two further aspects are interesting. Firstly, the monitoring responsibility of banks/dealers and SPO providers is explicitly waived to some extent. For example, the 2024 prospectus of the Spanish company Adif Alta states: 'Neither the Arranger nor the Dealers nor any of their respective affiliates will verify Eligible Green Projects or monitor the use of proceeds of Green Bonds and Noteholders shall have no recourse to them'. Secondly, the issuances may also refer to being included in (or potentially excluded from) dedicated sustainable segments on exchanges where bonds can be listed. Several issuers explicitly include their intention to seek inclusion in the sustainable finance segment in the bond terms, which showcases the importance of such designation (Triodos, 2022; Volvo, 2024). That bond inclusion on sustainable finance segments might be consequential from the perspective of coordination, is only reinforced by the inclusion of targeted waivers ostensibly seeking to curb such effects in several prospectuses, e.g.,:

> in the event any such Notes are … listed, or admitted to trading on a dedicated 'green', 'social', 'sustainable' or other equivalently-labelled segment of a stock exchange or securities market, no representation or assurance is given by the Dealers, the Arranger or their respective affiliates that such listing or admission will be obtained or maintained for the lifetime of the Note. (Volvo, 2024)

Finally, as regards sanctions, most prospectuses expressly protect the issuers (and other involved parties, such as SPO providers or banks/dealers) from responsibility should the company not implement the green projects, especially emphasising that not using the proceeds as outlined in the GBF is not to be considered an event of default or to give rise to early redemption rights. The literature on the subject highlights these empty promises of green bonds. Nevertheless, the present analysis reveals two caveats. Firstly, in the case of Polish bond issues we do find references to explicit sanctions for deviating from the green use of proceeds, e.g., in the form of early redemption of the bonds (Famur, 2021; Ghelamco, 2022; RPower, 2022). Meanwhile, particularly Swedish and Dutch prospectuses emphasise market sanctions, such as the reputational and financial decrease in the bond's value should the issuer fail to meet investor expectations as regards the bond's green impact.

Several key insights follow from this analysis. Green bond issuances are generally a global trend with significant cross-fertilisation and common practices, driven by international standard setters (such as the ICMA) and global law firms (Pistor, 2019). In many cases the difference between national and (large) multinational issuers (especially banks) is more pronounced than cross-national differences (Callaghan, 2010). Nevertheless, from the perspective of capturing how the sustainable finance trend affects and coevolves with forms of market coordination, several jurisdictional differences can be identified that are puzzling, given the expectations about the institutional characteristics. Firstly, Sweden and the Netherlands appear to struggle more with incorporating EU sustainable finance in the legal form of green bond prospectuses, despite the trend being more prominent in those jurisdictions. Secondly, issuers in Poland and Spain are more optimistic about the alignment between green investments and profits for investors. Thirdly, in Poland the legal structuring of green bonds is visibly more stringent across all the dimensions of coordination. Fourthly, in all case study countries, the prospectuses point to an elevated importance of new actors (external providers) and meso-structures for coordination.

Green bonds and institutional complementarities

In this section, drawing on interviews in particular, I discuss how the local institutional features and complementarities are likely to have influenced the legal provisions of green bond issuance discussed above. Institutional analysis complements the legal exploration of green bond prospectuses. This perspective can identify the broader micro – and meso-adaptations triggered by the sustainable finance trend, including relevant EU policy interventions.

Firstly, several of the differences in practice between countries can be explained by reference to the broader legal framework. For example, concerns about litigation risks in the Netherlands, known for high-profile cases related to climate change mitigation, may explain the prevalence of waivers and the granularity of risk disclosures. When probed, interviewees representing the legal profession explained how the ambiguous references to EU frameworks would be intended to protect the issuers from risks associated with the market participants' understanding of sustainability diverging from EU definitions (Interviews 2-NL and 4-NL). This suggests the importance of non-market forms of coordination in developing common understandings of sustainability, notwithstanding EU efforts to codify such definitions. In the Polish context, the local law of obligations foresees criminal sanctions for allocating funds from a bond issue for purposes other than those specified in its terms (Interview 8-PL).[7] However, here again, the interviewees pointed to the role of the International Finance Corporation and the European Bank for Reconstruction and Development as central to building up the demand book for bond issuance (Interviews 3-PL and 12-PL). A shallower capital market strengthens the relative position of such investors, who demand that the risks related to investing in green bonds be counterweighted by credible company transition strategy. Such actors are also driven by public mandates related to 'greening' of the economies. In other words, contrary to the existing literature on the empty promises of green bonds, stronger promises are possible and in fact appear in markets where competition for capital seeking sustainable investments is higher and a prominent role is played by multilateral development banks.

Secondly, as regards the broader political economy context, green bonds as a form of sustainable market contracting in countries considered to be characterised by greater institutional complementarity and broader mechanisms of non-market coordination appear to indeed struggle more with integrating sustainability commitments into legal documentation of the green bond. This observation is corroborated by the interviews with legal and banking professionals, who were much more sceptical as regards the inclusion of sustainability considerations in bond terms (Interviews 2-NL, 13-SE and 15-SE). From a narrow legal perspective, this finding may suggest that greenwashing is more prevalent in certain jurisdictions, especially where we observe ambitious green bond issuers such as Volvo backtracking on their transition commitments (Financial Times, 2024). Furthermore, the fact that issuers in these jurisdictions identify more risks associated with green finance may be the result of investor pressure within the context of 'financialisation' and increasingly 'impatient' capital (McCarthy *et al.*, 2016; Torvanger *et al.*, 2021). The importance of mutual expectations between firms and finance, however, remains high; legal expert interviewees in those jurisdictions questioned the tenability of the waivers in the prospectuses *precisely* because of mutual expectations between firms and finance, as well as evolving corporate governance rules on directors' duties in the context of decarbonisation and repeated nature of financing relationships where firms repeatedly seek financing (Interviews 4-NL and 6-NL).

Finally, the role of the state in supporting sustainable financing appears more restricted in the jurisdictions under study than expected. While both the Dutch and Swedish supervisors displayed early interest in improving how the financial sector deals with climate-related risks (Siderius, 2023), the interviewees downplayed the public authorities' role in green bond market development focusing rather on private actors, and individual bankers, in driving the trend (Interviews 5-NL and 12-SE). The interviewees from Poland and Spain pointed to EU law compliance and EU fund disbursements as key driver of green bond issuance (Interviews 8-PL, 12-PL, 9-ES, 18-ES, see also Raudla *et al.*, 2025). The role of local authorities was considered limited beyond informational campaigns (e.g., Interviews 9-ES and 12-PL). However, as further discussed below, alternative meso-structures for coordination have emerged to offer a supporting role in coordinating behaviour, especially as regards exchange of information and mutual monitoring.

Sustainable finance and transformations of strategic coordination

The analysis of green bond issues in a broader institutional context draws attention to several micro – and meso-transformations of firm-finance interactions, which are summarised in Table 2. At the micro-level, the issuance of green bonds requires firms and financial actors (e.g., banks as investors and underwriters) to coordinate on issues related to what is a sustainable project, how its implementation will be monitored and whether there are any sanctions for deviating from commitments. Insights from lawyers and bankers involved in structuring the transactions suggest that banks increasingly take on new roles in the context of the financing transaction, as sustainability 'advisors' to firms (Interviews 6-NL, 12-PL and 16-SE), although the capacities across banks and other relevant professional services vary widely (Interview 9-ES), with a particularly prominent role of cross-border corporate groups (Interview 12-PL). This change in the behaviour of banks can be explained by both the development of new business lines (Monk and Perkins, 2020; Torvanger *et al.*, 2021) and the changing prudential context, which increasingly incorporates transition risks as a matter of supervisory concern (Smoleńska & van 't Klooster, 2022). Firms align differently on common understanding of what 'green' projects entail: whereas in some countries we observe an emphasis on *ex ante* and contractual alignment on definitions (e.g., Poland; Interview 12-PL), in other cases this alignment happens outside of the formal contracting (as in the case of Sweden – see above).

Table 2. Market and non-market adaptations.

	Micro-level adaptations		Meso-level adaptations	
Coordination dimension	Legal (contractual) adaptations	Other coordination adaptations	Market coordination adaptations	Non-market coordination adaptations
Exchange	'Green project' definitions 'Use of proceeds' commitments	'Green' advisory roles for banks	Green bond frameworks External verification, role of sustainability advisors Entry regulations for secondary markets	Dedicated industry platforms Facilitative role of international financial institutions Facilitative role of the state
Monitoring	Disclosure and reporting commitments	Integration of sustainability monitoring in ongoing client relationships	Voluntary reporting ESG rating Secondary markets for green bonds	NGO ecosystem
Sanctions	Early redemption	Exclusion of clients	Exclusions Exclusion from secondary markets/indices	

New forms and roles in the interaction between firms and finance trigger changes in cross-industry coordination. New actors become an integral part of both the contractual and non-market coordination around sustainability topics: namely sustainability experts that provide external verification to green financing frameworks. A non-market coordination perspective on the roles of these actors puts the abundant 'market' waivers in perspective. While waivers may protect actors from legal liability, the reputational risks remain high, all the more so as one of the consistent features of the sustainable finance landscape is the emergence of sustainable finance 'labs', 'observatories' or 'platforms' intended to support non-market coordination between actors and to generate knowledge and insights. The Dutch Sustainable Finance Lab (SFL), established in 2012, is perhaps the best-known, and it has emerged as an academic and civil society endeavour with significant participation from financial institutions. The SFL has played an important role in convening and elevating the topic of sustainability on the banks' and financial policymakers' agenda (Interview 5-NL). *El Observatorio Español de la Financiación Sostenible* in Spain was established as a bank initiative in 2020, with a view to facilitating predominantly financial actors' exchange on sustainable finance. In Poland, since 2022 an EU Commission-supported Platform on Sustainable Finance gathers representatives of civil society and industry as well as government officials from various relevant ministries (Interviews 8-PL and 12-PL). The Polish Platform on Sustainable Finance elevated the topic within the government, but was also an impetus for the industry to develop more fora for strategic exchanges on common challenges related to data availability, methodological approaches and other institutional aspects (education and training) (Interview 12-PL). These complementary developments suggest that the EU sustainable finance policy project may support institutional transformation, serving as a lever to overcome 'weak' features of coordination mechanisms for the purpose of transition. Such findings of institutional innovation in Central and Eastern Europe to adapt to the EU integration agenda are consistent with earlier findings (Bohle, 2018).

In terms of the market-type meso-level adaptation, the green bond prospectuses draw attention to the role of sustainable finance segments on bond exchanges as a secondary market coordination mechanism. This finding suggests that sustainability transition may, in some cases, harness 'liberal' market coordination mechanisms. However, even here we observe local adaptations, in terms of what the inclusion of bonds in such a segment requires and how the continued meeting of requirements is monitored. While the stock exchanges in Amsterdam, Madrid, Stockholm and Warsaw all boast dedicated ESG bond market segments, only the latter two have in place explicit procedures to 'verify' the greenness of bond issues. Nasdaq Stockholm requires a submission of the GBF and the respective SPO, in addition to the bond-specific information, in order for a listing to be approved and has specific exclusion criteria in place. Meanwhile, in Poland, issuers that wish to add their green bonds to the dedicated Catalyst market segment of the Warsaw Stock Exchange are required to sign and disclose an additional document confirming their sustainability ambitions (Interview 8-PL).

The findings show some of the complexities of the EU sustainable finance political project arising, *inter alia*, due to institutional factors relating to how actors coordinate through market and non-market means. The central role of finance is shown to induce new forms of non-market coordination both at the level of micro-interactions and spur emergence of market and non-market formats to complement the former. However, the local adaptations show heterogeneity that translates into differentiated political economy outcomes even within the broadly similar 'legal encasing' of green bond issuances. Such findings reveal existing varieties of 'green macroprudential' regimes underpinning the transition (Gabor & Braun, 2025). The differences in institutional adaptations may in particular require a calibrated monetary policy to support the differentiated status of sustainable finance, an area which requires further investigation with central banking policy remaining still a largely unexplored variable in comparative capitalisms (Jackson *et al.*, 2024). Furthermore, under specific conditions the sustainable finance agenda has tentatively been shown to have a broader impact in terms of strengthening cross-industry forms of coordination, e.g., by supporting the emergence of new forms of non-market coordination (such as dedicated platforms, see also Fontan this issue for the EU-wide context).

As regards the powering dimension, the legal encasing of green bonds is revealed as an important battleground for risk/reward trade-offs of the transition, however leading to different outcomes. Tensions, such as the one regarding the definitional disagreements continuing despite the EU Green Taxonomy entering into force, show how the EU's sustainable finance policy as a political project encounters friction, especially in jurisdictions where market practice predates it. The review of green bond issuances reveals two ways of addressing the tension between sustainability objectives and profit within the same overall legal structure of green bond issuances. Issuers and financial institutions may emphasise the increased risks associated with investing in sustainability. Though cloaked in the language of 'sustainability preferences', the increased risk amounts to a financial implication: lower returns. Alternatively, the sustainability features of the bond may be made to reinforce the safety of returns narrative – with green financing being reaffirmed as part of the growth paradigm, in which sustainability performance is treated as the essential condition of financial performance. Such differences have important implications for how we think about the fit between green finance and profit-maximising capitalism. They also reveal the limits of what the EU's sustainable finance political project can achieve across EU economies.

Sustainable finance policy interventions may, therefore, create different opportunities across the internal market. At the same time, where some jurisdictions seek to use the sustainable finance trend to jumpstart local capital markets, the tensions identified in this article are likely to lead to both intra-EU and wider tensions: if sustainable finance is truly about financing the transformation in particular regions (especially for energy production, construction and transport), the question of *where* capital is invested becomes an ever growing concern of policymakers (McNamara, 2023) in addition to the question of growth. These findings provide further insights into finance and financialisation processes in the EU, highlighting the emerging paradoxes (Babic, 2024; Schelkle & Bohle, 2021).

Conclusions

In this article I have investigated how the legal features of green bonds' can provide insight into the institutional adaptations of capitalist economies in the context of the sustainability transition, and the EU's sustainable finance regime and political project in particular. I have shown how notwithstanding the common legal encasing of green bonds, key coordination features relating to exchange of information, monitoring and sanctioning, remain a reflection of the broader institutional context – the 'way of doing things' in that jurisdiction. The analysis has offered insights into the micro – and meso-level adaptations and transformations, both within particular institutional regimes and more generally. The comparative capitalisms lens has proven fruitful in guiding the analysis and identifying loci of institutional adaptation and transformation triggered and amplified by the EU's sustainable finance agenda. However, it has also shown the limits of the varieties of capitalism approach when dealing with economic systems undergoing rapid change (Blyth, 2003; Zeitlin & Rangoni, 2023), in particular one orientated towards integrating motivations other than growth into the firm-finance relationships (Green, 2022).

What broader insights follow from these findings in terms of whether the sustainable finance policy project can shift the pathological path dependencies of capitalist institutions (Dryzek & Pickering, 2018; Kupzok and Nahm, 2025)? Despite the grand designs of the EU sustainable finance policy project, the impact on the ground is incremental and stunted. Although specific features of sustainable finance have systematic impacts, sustainability considerations and forward-looking planning may be at odds with the firm-finance 'way of doing things', with concomitant tensions emerging. The law offers one avenue to strengthen the firms' transition commitments, especially in more financially developed countries where weaker legal enforceability may make these more amenable to greenwashing practices, in particular by large and powerful firms. Meanwhile, weaker complementarity and less strategic non-market coordination seems conducive to stronger legal provisions regarding green commitments in financial instruments. However, the article problematises such differentiation as one also reflecting the fundamental tension at the heart of the EU's sustainable finance political project, namely that of the place of profit and growth in sustainability transitions, which remains unresolved.

Notes

1. See Supplementary Material A.II for an overview of prospectus structure.
2. Full list of prospectuses analysed and referenced in this section is available in Supplementary Material A.I.
3. The Swedish Vasakronanincorporates GBF in 2019, but no longer in the 2022 issuance.
4. One exception is the Dutch company Alliander, which commits to publishing a supplement if the revision results in 'significant new factors'.
5. The Swedish Fabege's 2019 issuance identifies as a risk that bond issues might not meet EUGBR already. Meanwhile, the Swedish Sveaskog's prospectus considers the EUGBR and Green Taxonomy, as 'initiatives … still under development and it is not clear to what extent they, or other developments in market practices or regulatory requirements in the area, will impact the Green Terms and/or the Company.' (2023)

6. E.g., there is no risk section was published in prospectuses of Polenergia (2024) or RPower (2022) Valfortec (2021) included one sentence, whereas several pages in Dutch/Swedish prospectuses at the time are dedicated to risk disclosure.
7. Ustawa z dnia 15 stycznia 2015 r. o obligacjach, Dz. U. 2015 poz. 238. See also Ghelamco (2023, section 10.6). In fact, one prospectus issued under Polish law clarifies that despite the commitment that the proceeds will be used exclusively for projects eligible under the GFF, the issue itself has no purpose. This practice is not consistent, however; the Femur/Greenvia (2021) issue is explicit that the green use of proceeds is in line with Polish law.

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References

Agostini, F. (2023). From "green bond principles" to "green bond clauses": Mitigating greenwashing through contract law. In M. Heidemann & M. Andenas (Eds.), *Quo vadis commercial contract? Reflections on sustainability, ethics, and technology in the emerging law and practice of global commerce* (pp. 51–77). Springer.

Babic, M. (2024). Green finance in the global energy transition: Actors, instruments, and politics. *Energy Research & Social Science*, *111*, 103482. doi:10.1016/j.erss.2024.103482

Bailey, D. (2024). The comparative political economy of sustainability transitions: Varying obstacles, accelerants, and power in national capitalisms. *Environmental Innovation and Societal Transitions*, *51*, 100853. doi:10.1016/j.eist.2024.100853

Bernauer, T., & Bohmelt, T. (2013). Coordination and policy success in international climate politics: Insights from the EU. *Journal of European Public Policy*, *20*(1), 31–49.

Blom-Hansen, J., Christensen, J. G., Grøn, C. H., Jensen, M. H., & Mortensen, P. B. (2022). "Transposition" of EU regulations: The politics of supplementing EU regulations with national rules. *Journal of European Public Policy*, *30*(12), 2786–2806. doi:10.1080/13501763.2022.2118355

Blyth, M. (2003). Same as it never was: Temporality and typology in the varieties of capitalism. *Comparative European Politics*, *1*(2), 215–225. doi:10.1057/palgrave.cep.6110008

Bocquillon, P. (2024). Climate and energy transitions in times of environmental backlash? The European Union 'green deal' from adoption to implementation. *JCMS: Journal of Common Market Studies*, *62*(S1), 124–134. doi:10.1111/jcms.13675

Bohle, D. (2018). European integration, capitalist diversity, and crises trajectories on Europe's eastern periphery. *New Political Economy*, *23*(2), 239–253. doi:10.1080/13563467.2017.1370448

Bohle, D., & Greskovits, B. (2012). *Capitalist diversity on Europe's periphery*. Cornell University Press.

Braun, B., & Koddenbrock, K. (Eds.). (2022). *Capital claims: Power and global finance* (1st ed.). Routledge.

Brendler, V., & Thomann, E. (2023). Does institutional misfit trigger customisation instead of non-compliance? *West European Politics*, *47*(3), 515–542. doi:10.1080/01402382.2023.2166734

Bulfone, F. (2024). Selling the jewels: Patient capital, state-business relations, and the privatization of strategic utilities in Italy and Spain. *Review of International Political Economy*, *31*(5), 1347–1370. doi:10.1080/09692290.2023.2284323

Buller, A. (2022). *The value of a whale: On the illusions of green capitalism*. Manchester University Press.

Burroni, L., Pavolini, E., & Regini, M. (Eds.). (2021). *Mediterranean capitalism revisited: One model, different trajectories*. Cornell University Press.

Callaghan, H. (2010). Beyond methodological nationalism: How multilevel governance affects the clash of capitalisms. *Journal of European Public Policy*, *17*(4), 564–580. doi:10.1080/13501761003673351

Callaghan, H., & Höpner, M. (2005). European integration and the clash of capitalisms: Political cleavages over the takeover liberalization. *Comparative European Politics*, *3*(3), 307–332. doi:10.1057/palgrave.cep.6110061

Ćetković, S., & Buzogány, A. (2016). Varieties of capitalism and clean energy transitions in the European union: When renewable energy hits different economic logics. *Climate Policy*, *16*(5), 642–657. doi:10.1080/14693062.2015.1135778

Clift, B., & McDaniel, S. (2021). Capitalist convergence? European (dis?)integration and the post-crash restructuring of French and European capitalisms. *New Political Economy*, *26*(1), 1–19. doi:10.1080/13563467.2019.1680963

Curtis, Q., Weidemaier, M. C., & Gulati, M. (2023). Green bonds, empty promises. *N.C. Law Review*, *102*, 131.

Deakin, S., Gindis, D., Hodgson, G. M., Kainan, H., & Pistor, K. (2017). Legal institutionalism: Capitalism and the constitutive role of law. *Journal of Comparative Economics*, *45*(1), 188–200. doi:10.1016/j.jce.2016.04.005

Downey, L., & Blyth, M. (2025). Macrofinance and the green transformation: Nudging, attracting, and coercing capital towards decarbonization. *Review of International Political Economy*, *32*(3), 529–541. doi:10.1080/09692290.2025.2493797

Driscoll, D., & Blyth, M. (2025). Decarbonising national growth models: derisking, 'hobbled states', and the decarbonisation possibility frontier. *Review of International Political Economy*, *32*(3), 617–642.

Dryzek, J., & Pickering, J. (2018). *The politics of the Anthropocene*. Oxford University Press.
European Commission. (2018). *Sustainable Finance Action Plan*.
European Environmental Agency. (2024). *Green Bonds in Europe*. https://www.eea.europa.eu/en/analysis/indicators/greenbonds-8th-eap (last accessed 24 June 2025)
Feola, G. (2020). Capitalism in sustainability transitions research: Time for a critical turn? *Environmental Innovation and Societal Transitions*, *35*, 241–250. doi:10.1016/j.eist.2019.02.005
Financial Times. (2024, September 4). *Volvo Cars ditches pledge to sell only electric cars by* 2030.
Financial Times. (2025, February 27). *EU to keep climate goals but loosen rules for companies, says green chief*.
Fioretos, O. (2001). The domestic sources of multilateral preferences: Varieties of capitalism in the European community. In P. Hall & D. Soskice (Eds.), *Varieties of capitalism* (pp. 213–244). Oxford University Press.
Gabor, D., & Braun, B. (2025). Green macrofinancial regimes. *Review of International Political Economy*, 542–568. doi:10.1080/09692290.2025.2453504
Ghelamco. (2023, September 26). Resolution of the Supervisory Board of Ghelamco.
Green, J. (2022). Comparative capitalisms in the Anthropocene: A research agenda for green transition. *New Political Economy*, *28*(3), 329–346. doi:10.1080/13563467.2022.2109611
Grewal, D. (2017). The legal constitution of capitalism. In H. Boushey, J. B. DeLong, & M. Steinbaum (Eds.), *After piketty: The agenda for economics and inequality* (pp. 471–490). Harvard University Press.
Grittersova, J. (2014). Non-Market cooperation and the variety of finance capitalism in advanced democracies. *Review of International Political Economy*, *21*(2), 339–371. doi:10.1080/09692290.2012.742920
Hall, P., & Soskice, D. (2001). *Varieties of capitalism*. Oxford University Press.
Hancké, B., Rhodes, M., & Thatcher, M., eds. (2007). *Beyond varieties of capitalism: Conflict, contradictions and complementarities in the European economy*. Oxford University Press.
Hodgson, G. (2015). *Conceptualizing capitalism: Institutions, evolution, future*. Chicago University Press.
Jackson, J., Lindberg, E., Ronkainen, A., & Stahl, R. M. (2024). Varieties of central banking: The Nordic Model beyond a fiscal-centric approach. *New Political Economy*, *30*(1), 62–76. doi:10.1080/13563467.2024.2389510
Kampourakis, I. (2022). Legal theory in search of social transformation. *European Law Open*, *1*(4), 808–821. doi:10.1017/elo.2023.15
Karltorp, K., & Maltais, A. (2024). Financing green industrial transitions: A. *Swedish Case Study*, *5*, 100138.
Kupzok, N., & Nahm, J. (2025). Green macrofinancial bargains: How economic interests enable and limit climate action. *Review of International Political Economy*, 569–592. doi:10.1080/09692290.2025.2453502.
Lachapelle, E., & Paterson, M. (2013). Drivers of national climate policy. *Climate Policy*, *13*(5), 547–571. doi:10.1080/14693062.2013.811333
Lam, P., & Wurgler, J. (2024). *Green bonds: New label, same projects* [Working Paper].
Levi-Faur, D. (2017). Regulatory capitalism. In P. Drahos (Ed.), *Regulatory theory: Foundations and applications* (pp. 289–302). Australian National University Press.
Lewandowski, W., & Smoleńska, A. (2023). Member states sovereign green bond issuance and the development of local green bond markets in the EU. In D. Ramos

Muñoz & A. Smoleńska (Eds.), *Greening the bond market* (pp. 51–77). Palgrave Macmillan.

Lindgren, K.-O. (2011). The variety of capitalism in Sweden and Finland: Continuity through change. In U. Becker (Ed.), *The changing political economies of small west European countries* (pp. 45–72). Amsterdam University Press.

Loxbo, K., & Pircher, B. (2024). Complexity meets flexibility: Unintended differentiation in EU public procurement. *Journal of European Public Policy*, 1–27.

Mader, P., Mertens, D., & Zwan, N. V. (2020). *The Routledge international handbook of financialization*. Routledge.

Markard, J., Raven, R., & Truffer, B. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy*, *41*(6), 955–967. doi:10.1016/j.respol.2012.02.013

McCarthy, M. A., Sorsa, V.-P., & van der Zwan, N. (2016). Investment preferences and patient capital: Financing, governance, and regulation in pension fund capitalism. *Socio-Economic Review*, *14*(4), 751–769. doi:10.1093/ser/mww020

McNamara, K. R. (2023). Transforming Europe? The EU's industrial policy and geopolitical turn. *Journal of European Public Policy*, *31*(9), 2371–2396. doi:10.1080/13501763.2023.2230247

Molina, O., & Rhodes, M. (2007). The political economy of adjustment in mixed market economies: A study of Spain and Italy. In B. Hancké, M. Rhodes, & M. Thatcher (Eds.), *Beyond varieties of capitalism: Conflict, contradictions and complementarities in the European economy* (pp. 223–252). Oxford University Press.

Monk, A., & Perkins, R. (2020). What explains the emergence and diffusion of green bonds? *Energy Policy*, *145*, 111641. doi:10.1016/j.enpol.2020.111641

Moschella, M., Quaglia, L., & Spendzharova, A. B. (2024). *European political economy: Theoretical approaches and policy issues*. Oxford University Press.

Mykhnenko, V. (2007). Strengths and weaknesses of "weak" coordination: Economic institutions, revealed comparative advantages, and socio-economic performance of mixed market economies in Poland and Ukraine. In B. Hancké, M. Rhodes, & M. Thatcher (Eds.), *Beyond varieties of capitalism: Conflict, contradictions, and complementarities in the European economy* (pp. 351–378). Oxford University Press.

Naczyk, M. (2021). Taking back control: Comprador bankers and managerial developmentalism in Poland. *Review of International Political Economy*, *29*(5), 1650–1674. doi:10.1080/09692290.2021.1924831

Nahm, J. (2024). *Collaborative advantage: Forging green industries in the new global economy*. Oxford University Press.

Newell, P. (2021). *Power shift: The global political economy of energy transitions*. Cambridge University Press.

Nölke, A., & Vliegenthart, A. (2009). Enlarging the varieties of capitalism: The emergence of dependent market economies in East Central Europe. *World Politics*, *61*(4), 670–702.

Park, S. K. (2018). Investors as regulators: Green bonds and the governance challenges of the sustainable finance revolution. *Stanford Journal of International Law.*, *54*(1), 1–47.

Perkins, R. (2021). Governing for growth: Standards, emergent markets, and the lenient zone of qualification for green bonds. *Annals of the American Association of Geographers*, *111*(7), 2044–2061. doi:10.1080/24694452.2021.1874866

Pistor, K. (2019). *The code of capital*. Princeton University Press.

Pistor, K., & Berkowitz, D. (2003). Of legal transplants, legal irritants, and economic development. In P. K. Cornelius & B. Kogut (Eds.), *Corporate governance and capital flows in a global economy* (pp. 347–368). Oxford University Press.

Purdy, J., Grewal, D., Kapczynski, A., & Sabeel Rahman, K. (2020). Building a Law-and-PoliticalEconomy framework: Beyond the twentieth-century synthesis. *Yale Law Journal*, *129*, 1784–1835.
Quaglia, L. (2011). The "old" and "new" political economy of hedge fund regulation in the European Union. *West European Politics*, *34*(4), 665–682. doi:10.1080/01402382.2011.572383
Ramos Muñoz, D., & Smoleńska, A. (2023). *Greening the bond market: A European perspective*. Springer International Publishing.
Rapacki, R. (2019). *Diversity of patchwork capitalism in central and Eastern Europe*. Routledge.
Sassen, S. (2000). Territory and territoriality in the global economy. *International Sociology*, *15*(2), 372–393. doi:10.1177/0268580900015002014. (Original work published 2000).
Schelkle, W., & Bohle, D. (2021). European political economy of finance and financialization. *Review of International Political Economy*, *28*(4), 761–774. doi:10.1080/09692290.2020.1808508
Semieniuk, G., Holden, P. B., Mercure, J.-F., Salas, P., Pollitt, H., Jobson, K., Vercoulen, P., Chewpreecha, U., Edwards, N. R., & Viñuales, J. E. (2022). Stranded fossil-fuel assets translate to major losses for investors in advanced economies. *Nature Climate Change*, *12*(7), 532–538. doi:10.1038/s41558-022-01356-y
Siderius, K. (2023). An unexpected climate activist: Central banks and the politics of the climate-neutral economy. *Journal of European Public Policy*, *30*(8), 1588–1608. doi:10.1080/13501763.2022.2093948
Slobodian, S. (2018). *Globalists: The end of empire and the birth of neoliberalism*. Harvard University Press.
Smoleńska, A. (2022). Euro as the currency of the EU's green transition. *European Law Open*, *1*(4), 1048–1058. doi:10.1017/elo.2022.51
Smoleńska, A., & van 't Klooster, J. (2022). A risky bet: Climate change and the EU's microprudential framework for banks. *Journal of Financial Regulation*, *8*(1), 51–74. doi:10.1093/jfr/fjac002
Spielberger, L. (2024). EIB policy entrepreneurship and the EU's regulation of green bonds. *Journal of Economic Policy Reform*, *28*(1), 37–54. doi:10.1080/17487870.2024.2356810
Steunenberg, B., & Toshkov, D. (2009). Comparing transposition in the 27 member states of the EU: The impact of discretion and legal fit. *Journal of European Public Policy*, *16*(7), 951–970. doi:10.1080/13501760903226625
Teubner, G. (2001). Legal irritants: How unifying law ends up in new divergences. In P. A. Hall & D. Soskice (Eds.), *Varieties of capitalism: The institutional foundations of comparative advantage* (pp. 417–441). Oxford University Press.
Torvanger, A., Maltais, A., & Marginean, I. (2021). Green bonds in Sweden and Norway: What are the success factors? *Journal of Cleaner Production*, *324*, 129177. doi:10.1016/j.jclepro.2021.129177
Veil, R. (2024). Prospectuses: Primary markets law in a European capital markets code. In R. Veil (Ed.), *Regulating EU capital markets union: Vol. I. Fundamentals of a European code* (online edition). Oxford Academic.
Zeitlin, J., & Rangoni, B. (2023). EU regulation between uniformity, differentiation, and experimentalism: Electricity and banking compared. *European Union Politics*, *24*(1), 121–142. doi:10.1177/14651165221126387

Zetzsche, D. A., & Anker-Sørensen, L. (2022). Regulating sustainable finance in the dark. *European Business Organization Law Review*, *23*(1), 47–85. doi:10.1007/s40804-021-00237-9

Zhelyazkova, A., & Thomann, E. (2021). 'I did it my way': customisation and practical compliance with EU policies. *Journal of European Public Policy*, *29*(3), 427–447.