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ANALYSIS

It takes two to dance: Institutional dynamics and climate-related financial policies[☆]

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ABSTRACT

This article studies how institutional dynamics might affect and be affected by the implementation of climate-related financial policies. First, we propose a three-dimensional framework to distinguish: i) motives for policy implementation (prudential or promotional); ii) policy instruments (informational, incentive-based or quantity-based); and iii) implementing authorities (political or delegated). Second, we use this framework to show how sustainable financial interventions in certain jurisdictions - most notably, Europe - rely predominantly on informational policy instruments to achieve both promotional and prudential objectives. Policymakers in other jurisdictions - e.g. China - also employ incentive- or quantity-based instruments to achieve promotional objectives. Third, we identify two main institutional explanations for this European 'promotional gap': i) a reduced intervention of political authorities on the allocation of financial resources; and ii) a stronger independence of technical delegated authorities supervising financial dynamics. This governance configuration leads to an institutional deadlock in which only measures fitting with both political and delegated authorities' objectives can be implemented. Finally, we identify and discuss the possible institutional scenarios that could originate from the current setting, and stress the need for close cooperation between political and delegated authorities.

1. Introduction

In 2017, the EU Commissioner Valdis Dombrovskis expressed his support to the idea of introducing a 'green supporting factor' in bank capital requirements - the amount of capital commercial banks are required to hold as a proportion of their risk-weighted assets - to incentivise lending to European sustainable activities (Dombrovskis, 2017). In principle, such a measure would allow banks lending to green activities to obtain higher profits. The following year, the European Commission included this idea in its Sustainable Finance Action Plan (EC, 2018). However, this position was greeted with scepticism by most central bankers and financial supervisors, who emphasised that the aim of prudential rules such as bank capital ratios is to mitigate financial

risk, not to steer private credit in any particular direction (see, among others: Dankert et al., 2018; Elderson, 2018; Rehn, 2018). Financial policies should not discriminate between low- and high-carbon financial assets, unless clear evidence of risk differentials is available. In a similar vein, central banks in recent decades have aimed at intervening in financial markets in a 'neutral' manner. For instance, their 'quantitative easing' programmes of financial asset purchases have been designed in a way not to distort the market, without taking into account the carbon intensity or sustainability credentials of the underlying issuers. This notion has been recently called into question by central bankers themselves, as conducive to a perpetuation of an unsustainable economy (Schnabel, 2020a). Others have explicitly looked into available options to 'green' monetary policy (Monnin, 2018; Schoemaker, 2021).

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These debates raise deeper questions. For what purposes should monetary policy and financial regulation be used? Could they be employed to support the low-carbon transition? And who should decide what the admissible purposes are? It appears that in the European Union, at least for now, financial regulation and monetary policy cannot be employed to actively reallocate private financial resources towards sustainable investments. However, it is considered appropriate to use them to nudge financial institution into assessing their exposure to climate-related risks and disclosing results to the rest of the market (NGFS, 2019; TCFD, 2017). Other high-income western economies (other European countries, US, Australia) exhibit similar institutional traits. In several emerging economies financial regulation and central banking policies are instead actively used to promote specific productive sectors, including renewable energy and other sustainable activities (Barnes and Livingstone, 2021; D'Orazio and Popoyan, 2019). Financial risk is still monitored, but stronger weight is given to development (e.g. green) objectives.

The first objective of this article is thus to explain the observed heterogeneity in institutional behaviours in the field of climate-related financial policies¹. To do so, we first develop a three-dimensional framework to distinguish: i) motives for policy implementation; ii) policy instruments; and iii) implementing authorities. Policy motives include the aim to tackle climate change by directly influencing the allocation of financial capital (*promotional*) and the desire to ensure the stability of the financial system in the face of climate-related challenges (*prudential*). Policy instruments can be categorised into tools aimed at expanding the climate-related information available to market actors (*informational*), policies introducing monetary incentives to make low-carbon strategies more convenient (*incentive-based*) and direct controls on credit allocation (*quantity-based*). Implementing authorities can be distinguished between governments and other public institutions charged with defining societal development strategies (*political*) and public institutions with narrow technical mandates delegated to them by political authorities (*delegated*). Our taxonomy builds upon and improves previous categorisations (e.g. Mazzucato, 2016), and offers a consistent conceptual framework to study, interpret and compare the mechanisms and rationales behind ongoing policy efforts.

We then apply this framework to climate-related financial policies in Europe. We show that these policies are mostly – if not exclusively – based on informational measures, to achieve both prudential and promotional purposes. Incentive- and quantity-based policies with promotional purposes, which represent a more direct intervention in the financial markets, are absent. We term this restricted usage of climate-related financial policies for promotional purposes in Europe a ‘promotional gap’. We explain this with two main institutional dynamics. First, European political authorities have progressively reduced their intervention in capital allocation, leaving more room for market mechanisms. Second, the supervision of these markets has been increasingly entrusted to delegated authorities with narrow technical mandates and strong independence from political pressures. The specific configurations these dimensions take in Europe have so far only allowed for the implementation of consensual informational policies and prevented the implementation of far-reaching policies with a mostly promotional purpose.

Our second objective is to explore the possible institutional evolutions of the current promotional gridlock in Europe. We identify three

main stylised scenarios. First, political authorities can step up their efforts to mitigate climate change and support the net-zero transition, allowing delegated authorities to stick to their prudential role. While this would respect current institutional boundaries, mandates, and missions, it requires significant action by political authorities in the fiscal and budgetary sphere, and may not be sufficient. Second, as climate pressures intensify, delegated authorities can gradually move towards more promotional measures without an underlying adjustment of their mandate. We observe signs of a similar promotional trend in recent documents and speeches by European financial regulators. If brought to its extreme, such a drift might eventually lead to a technocratic scenario characterised by an agency defining development objectives with weakened political control. Third, political authorities can decide to regain control of certain policy functions (e.g. banking regulation) and use them to achieve their development objectives (e.g. a low-carbon transition). This might improve the effectiveness of climate financial action, but it also raises concerns regarding the credibility of delegated authorities. Political authorities could preserve the independence of delegated authorities by adjusting their mandates, to give them new input legitimacy and define clear limits to their promotional actions.

Our work contributes to two main strands of literature. First, we provide more solid institutional and governance foundations to the ongoing debate concerning the role of central banks and financial supervisors in addressing climate change and the low-carbon transition (Bolton et al., 2020; Campiglio et al., 2018; Krogstrup and Oman, 2019; NGFS, 2019). Second, we contribute to the literature on the evolving institutional nature of central banking and financial regulation in the aftermath of the global financial crisis (Baker, 2013; Fontan, 2016; Mabbett and Schelkle, 2019; Schmidt, 2016), by applying its concepts to the issue of climate change and environmental sustainability.

The research design of this article follows a two-stage approach. First, we develop a conceptual framework to categorise climate-related financial policies, drawing upon primary and secondary data inputs. We critically review the evolving literature around the interactions of climate risks, financial policies, central banks and supervisors, and improve on it by developing a harmonised and consistent framework. Second, we apply this framework to selected jurisdictions with the aim of comparing the European approach to climate-related financial policy-making to other regions. For this, we analyse official documents, directives, reports, conference interventions and relevant speeches by policymakers, and we engage with relevant experts and stakeholders via informal private correspondence and semi-structured interviews.

The remainder of the article is structured as follows. Section 2 presents our three-dimensional framework to categorise climate-related financial interventions. Section 3 examines existing approaches to climate-related financial policymaking and identifies a ‘promotional gap’ in Europe. Section 4 argues that two institutional features, namely a weaker control on financial dynamics and delegated authorities’ stronger independence, can contribute to explaining the European setting. Section 5 examines the resulting policy gridlock and discusses how this prevents the implementation of more ambitious promotional policies. Section 6 explores possible institutional scenarios stemming from the present situation. Section 7 concludes.

2. Setting the scene: motives, instruments and authorities

In this section, we present our theoretical framework. This allows us to classify climate-related financial policies along three dimensions: motive, instrument and implementing authority. Table 1 proposes a summary of our framework.

2.1. Promotional and prudential motives

We identify two main motives behind the implementation of climate-related financial policies.

¹ In this article, by financial policies, we mean policies that modify the conditions in which private investment or lending decisions are taken. This broad definition includes both central bank policies (e.g. monetary policy) and banking/financial regulation. Climate-related financial policies refer to a subset of such policies linked to either climate change or the transition to a carbon-free society. We here focus on policies aimed at domestic/regional financial systems. We thus abstract from the debate related to international concessional climate finance between high- and low-income regions.

Table 1
A taxonomy of climate-related financial policies.

Policy motives	
<i>Promotional</i>	Mitigate climate change by steering credit allocation towards low-carbon activities
<i>Prudential</i>	Ensure the stability of the financial system in the face of climate-related risks
Policy instruments	
<i>Informational</i>	Improve climate-related information available to financial actors and provide them with clear definitions, rules and instruments
<i>Incentive-based</i>	Introduce (monetary) incentives to make low-carbon strategies more attractive to financial actors
<i>Quantity-based</i>	Impose direct quantitative controls on financial flows
Implementing authority	
<i>Political</i>	Authorities in charge of defining and pursuing development strategies (e.g. governments)
<i>Delegated</i>	Institutions with specific mandates delegated to them by political authorities (e.g. central banks and financial supervisors)

First, public intervention could be motivated by the desire of tackling climate change by directly influencing the allocation of financial capital. This is what we define as the *promotional motive*. One of the objectives stated in the Paris Agreement is to ‘make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development’ (UNFCCC, 2016). Climate-related promotional financial policies can stimulate physical and financial investments in sustainable activities. They are therefore based on a ‘market shaping’ approach (Mazzucato, 2016) and usually respond to development strategies defined by political authorities.

Second, policies could be motivated by the desire to ensure the stability of the financial system in the face of climate-related challenges. This is what we define as the *prudential motive*. Several climate-related risks (CRRs) could threaten financial systems and require the implementation of prudentially-motivated policies. Since Carney (2015), the literature traditionally distinguishes three categories of risks: i) direct and indirect effects of climate-induced events and trends (physical risks); ii) implications of shifting towards a low-carbon economy (transition risks); and iii) losses incurred as a result of legal actions against companies and regulators for their inaction to tackle climate change (liability risks). CRRs could trigger ripple effects via production and financial networks (Roncoroni et al., 2021; Baer, 2020; Cahen-Fourot et al., 2021) and have larger macroeconomic impacts, possibly leading to systemic disruptions sometimes referred to as a ‘Green Swan’ (Bolton et al., 2020). Acknowledging this, prudential-motivated policies are aimed at identifying, monitoring and mitigating these climate-related risks to ensure financial stability.

To sum up, promotional policies are mainly aimed at protecting climate stability from finance-related challenges (e.g. obstacles to low-carbon investing). Prudential policies are instead aimed at protecting financial stability from climate-related risks. The boundary between these two types of objectives is often porous. It is reasonable to expect prudential policies to have some kind of promotional consequence. Likewise, promotional policies will probably have some impact on individual and aggregate levels of financial risks. It is also possible to argue for actively steering credit towards low-carbon activities precisely to mitigate climate physical risks.

2.2. Informational, incentive- and quantity-based policies

Policymakers have multiple tools at their disposal to achieve promotional and prudential objectives. They can improve the information communicated to agents (e.g. awareness campaigns on carbon emissions), modify the incentives structure in which they make their decisions (e.g. fiscal policy with carbon taxes) or impose quantity constraints by rationing or even prohibiting certain practices (e.g. ban excessively polluting combustion engines). These levers can be activated

at multiple levels, from production to consumption of final goods. In this paper, we focus on policies intervening in the financial sphere, i.e. interventions that directly tackle the way private financial flows are distributed across economic activities. Since this allocation of capital takes place upstream of physical investment, production and final consumption, such measures allow to act *ex ante* on future greenhouse gas emissions.

First, regulators can act to improve the quantity and quality of climate-related information available to financial market players and to provide them with a clear shared set of definitions, rules and instruments. We call these *informational* policies, as their goal is to bridge the market failures stemming from imperfect and asymmetric information. The informational policy toolkit includes the development of better methodologies to assess the exposure to CRRs, the introduction of disclosure incentives or requirements, the setting of standards and benchmarks, the creation of taxonomies, and others. These policies can be implemented for both prudential and promotional motives.

Second, regulators can modify the structure of incentives (e.g. the relative prices) that financial actors face when making investment decisions. We refer to these as *incentive-based* policies, as the allocation of capital remains a market prerogative and investors are free to invest in high-carbon or risky assets, although at a cost. Several policies in the financial regulation toolkits (e.g. capital requirements) can be calibrated so to differentiate the treatment of assets depending on the CRR-exposure of bank loan portfolios (D’Orazio and Popoyan, 2019). Monetary policy tools can also be adjusted by including CRRs in the evaluation of asset eligibility as part of collateral frameworks or asset purchase programs (Oustry et al., 2020). Such policies can be implemented either to encourage investors to reduce their exposures to CRR risks (prudential motive) or to increase sustainable investments (promotional motives).

Finally, public institutions can intervene directly on the quantity of financial resources allocated to specific productive activities. We call these *quantity-based* policies, as these policies impose direct quantitative controls on financial flows rather than adjusting the environment in which individual decisions are made. These include for example policies targeting directly the composition of bank loan portfolios (e.g. sectoral credit quotas), minimum credit floors or maximum credit ceilings for certain sectors (Bezemer et al., 2018). The aim of these policies is usually seen as predominantly promotional. However, they could also be used for a prudential motive (e.g. lowering exposure of banks to industries prone to transition risk by imposing maximum credit ceiling on coal financing).

Informational, incentive- and quantity-based policies form a gradient of public interventions ranging from the most diverted to the most direct ways of steering private capital flows. These three shades of intervention can be used in conjunction with each other, offering policymakers a set of measures to be implemented in the financial sphere, whether for prudential or promotional reasons.

2.3. Political and delegated authorities

Policy objectives (promotional or prudential) as well as the instruments to achieve them (informational, incentive- and quantity-based policies) can belong to different authorities. We distinguish two main types of public institutions that can be involved in the design and implementation of climate-related financial policies.

First, we identify political authorities (PAs) as the public organisms in charge of determining the direction of economic development on behalf of their populations, deciding between competing interests. They include parliaments, governments, ministries and other public institutions able to contribute to the definition of development strategies. All of them enjoy some form of legitimacy, at least temporarily (Schmidt, 2013). PAs are typically in charge of designing and implementing policies with a promotional aim, as these often have distributional and other socio-economic implications. Depending on the underlying governance framework, they might also be more or less

involved in designing prudential policies (D’Orazio and Popoyan, 2020).

Second, we identify delegated authorities (DAs) as autonomous or semi-autonomous organisms with specific mandates given to them by the PAs. Their legitimacy thus lies in the nature and limits of the delegation and specified mandate (*input* legitimacy) and in their ability to fulfil their mission (*output* legitimacy) (Scharpf, 1999). Two main DA categories interacting with financial systems can be identified: central banks and financial supervisors. Central banks are typically tasked with the mandate of achieving price stability, but their mandate can also include full employment, exchange rate management and others (Dikau and Volz, 2021). In the aftermath of the global financial crisis (GFC) several central banks have also become responsible of ensuring the financial stability of the system. Financial supervisors are delegated authorities with diverse mandates and shapes across countries, tasked with protecting consumers, ensuring the solidity of individual institutions or the resilience of the financial system. They are sometimes in charge of supervising specific sectors of financial systems (e.g. banks, securities markets, insurance companies, etc.). DAs are usually involved in determining policies with prudential aims. They are often required to have a neutral impact on markets so not to distort financial asset pricing, which, in efficient markets, should already incorporate a correct consideration of risk.

The boundaries between PAs and DAs are not always well defined and vary across jurisdictions. In Europe, for instance, there is a relatively clear distinction of institutional responsibilities. The European Commission (European Parliament) and the governments of member states (national parliaments) are the political authorities with executive (legislative) power and legitimacy to carry out development policies. Monetary policy is delegated to national central banks and, for the 19 countries belonging to the Eurozone, to the European Central Bank (ECB). Financial supervision is ensured by the existence of both European- and national-level supervisory authorities. Both central banks and financial supervisors in Europe enjoy a significant degree of freedom in achieving their mandates, and do not have to align to political objectives. In other regions the distinction between PAs and DAs is instead less clear, as the overall governance framework is designed to promote political strategies. In such contexts, central banks and financial supervisors are usually compliant with government’s directives.

3. The ‘promotional gap’ of European climate-related financial policies

In this section we examine a selection of climate-related financial policy approaches through the lens of our framework. In Europe, informational instruments are the only tools used by political and delegated authorities, for either prudential or promotional reasons. By contrast, other jurisdictions, especially in emerging regions, have a more diversified promotional portfolio that also includes incentive- and quantity-based policies. This reveals what we call a European ‘promotional gap’, i.e. a restricted usage of the set of conceivable climate-related financial policies to be used for promotional purposes.

3.1. Climate-related financial policies in Europe

Most policy efforts on climate-related finance in high-income regions rely on informational measures. We can identify three main categories of instruments: i) clarification of concepts and standards; ii) development of risk assessment methodologies; and iii) disclosure of risk assessment.

First, several initiatives are attempting to create a transparent and common market understanding of what it means to be ‘green’ by providing new standardised information. For instance, the European Parliament and the EU Council agreed on a taxonomy² stating which activities can be labelled as sustainable. Such a taxonomy represents ‘an

essential step in supporting the flow of capital into sustainable sectors in need of financing’ (EC, 2018). The EU Low Carbon Benchmarks Regulation³ enforces disclosure requirement for sustainable benchmarks regarding their integration of environmental, societal and governance (ESG) factors and sets out the conditions to be labelled as ‘Climate Transition’ or ‘Paris-aligned’ benchmarks. The aim of this regulation is to improve the reliability of sustainable benchmarks by reducing greenwashing. Finally, the creation of an EU Green Bonds Standard represents the last step of the Commission’s Action Plan in order to ‘facilitate channelling more investments into green projects’ (EC, 2018). The presence of this label would give the information to potential investors that the project is indeed ‘sustainable’.

Second, both private financial institutions and regulators are starting to develop and use methodologies aimed at assessing the exposure to climate-related risks. This applies to the operations of non-financial firms, to the portfolios of financial institutions, and to financial systems as a whole. French supervisors, for instance, developed a modelling framework focusing on the potential disruptions associated to ‘disorderly’ transition scenarios (Allen et al., 2020), and submitted it to a group of banks and insurance companies to perform a pilot bottom-up risk assessment (ACPR, 2020). Similar approaches are being adopted by De Nederlandsche Bank (Vermeulen et al., 2019), the Bank of England (BoE, 2019) and the European Central Bank (ECB, 2020).

Third, measures are being taken to facilitate the disclosure of information by financial and non-financial firms concerning their exposure to CRRs and their strategies to address them. For instance, the EU Disclosure Regulation⁴ lays down harmonised transparency rules for market participants and financial advisers regarding their integration of ESG risks, including CRRs. The aim of the regulation is to ‘reduce information asymmetries in principle-agent relationships with regard to the integration of sustainability risks’. Such efforts to promote transparency and disclosure of climate-related information have proliferated in recent years. In its newest Sustainable Finance Strategy, the EU Commission adopted a Delegated Act on sustainability-related information (EC, 2021). At the national level, France led the way in 2015, requiring listed companies and institutional investors to evaluate, report and address their exposure to CRRs on a comply or explain basis (Mason et al., 2016). At the global scale, the Taskforce on Climate-related Financial Disclosure (TCFD), created by the Financial Stability Board, supports the development of climate-related disclosure methods in order to improve the information available to financial investors and facilitate the inclusion of climate-related factors into decision making (TCFD, 2017).

It is worth noticing how these policy initiatives have been conducted by both political and delegated authorities, often in collaboration. For example, the European Banking Authority (EBA) was mandated by the European Commission to develop a technical standard for ESG disclosure and to assess how ESG risks (with a particular focus on CRR) could be included in the regulatory and supervisory framework for credit institutions and investment firms (EBA, 2019). The Commission also requested the European Insurance and Occupational Pension Authority (EIOPA) for an opinion on sustainability within Solvency II, relating in particular to those aspects that concern climate change mitigation. The three European Supervisory Authorities (ESAs) have also been requested to collect evidence of undue short-term pressure from the financial sector on corporations (EC, 2019).

3.2. International comparison and the European promotional gap

Based on our framework, all the climate-related financial interventions examined above can be considered as informational. Whether implemented for prudential or promotional reasons, either by political or delegated authorities, the main strategy is always to improve

² Regulation (EU) 2020/852

³ EU Regulation 2019/2089

⁴ EU Regulation 2019/2088

the information available to market players (standards, labels, disclosure requirements, etc.) in order to nudge capital reallocation without forcing behaviours or providing direct monetary incentives. Although these measures are widely used around the world, relying solely on information enhancement seems to be more the exception than the rule. Indeed, many authorities supplement informational policies with incentive- and/or quantity-based policies to reach their promotional objectives. The use of such instruments is particularly prominent in emerging regions, but also appear in some high-income countries such as Japan (Campiglio et al., 2018; Dikau and Ryan-Collins, 2017). For example, the Bank of Japan and the Bank of Lebanon have implemented incentive-based policies for banks, with the former offering more favourable refinancing terms to banks that lend to sustainable projects and the latter differentiating reserve requirements based on lending to green projects. Other countries have implemented quantity-based financial policies for promotional motives. For example, the Reserve Bank of India requires banks to allocate 40% of their credits to priority sectors, including renewable energy. Bank of Bangladesh's 'green floor' obliges its commercial banks to allocate 5% of their credits to green sectors.

Yet, the most striking example of comprehensive financial policies with promotional purposes can be found in China. In addition to informational measures, China implements a combination of incentive- and quantity-based instruments. These measures are mainly incorporated into the Macro Prudential Assessment (MPA), a scoring system through which the People's Bank of China (PBoC) assesses the performance of banks. It is composed of seven categories, in turn defined by aggregating a large number of sub-dimensions (Zheng, 2018). While several of them are in line with policies being applied in western societies (e.g. capital adequacy ratio), some go well beyond what European regulators would consider as part of the macro-prudential policy toolkit, e.g. the alignment of banks' loan portfolios with the PBoC 'green' credit policy strategies (PBoC, 2018). The interest rates on banks' deposits at the PBoC are then differentiated across performance categories, hence making it economically attractive for banks to align with top-down policy objectives, such as green lending. Additional promotional measures include the acceptance at favourable conditions (e.g. lower credit rating requirements) of green bonds as banks' collateral within the PBoC's medium-term loan facility; and the introduction of green-related criteria into the assessing of banks managers' performance.

Europe appears well advanced in the implementation of informational financial policies. However, it uses neither incentive- nor quantity-based policies to actively reorient financial flows towards sustainable activities. This uncovers what we call a 'promotional gap', as promotional objectives of European authorities are only being pursued through a partial use of all the tools at their disposal. This promotional gap raises doubts on the ability of the European financial system to support a rapid low-carbon transition (Ameli et al., 2020).

4. Institutional drivers of the promotional gap

In this section, we examine the institutional characteristics that could explain the promotional gap observed in Europe, i.e. the reasons why informational policies are the only policies implemented for promotional purposes. We identify two main explanatory dimensions: i) the low level of control of EU political authorities over financial dynamics; and ii) the high level of independence and power of EU delegated authorities.

4.1. Limited public control on financial capital allocation

Political and delegated authorities have different levels of will and power to act on financial markets allocation. We observe in this area a stark divergence between high-income and emerging regions, consistent with the identified promotional gap.

European economic frameworks place a strong emphasis on market

freedom and efficiency. This reflects the traditional framing of markets as the bottom-up institution that better allocates resources to the most productive uses. The process of economic and monetary European integration has contributed to gradually reducing the role of the 'interventionist' state and simultaneously expanding the 'regulatory' state (Majone, 1997). Public interventions, in this context, should be justified by the necessity to address specific 'market failures', rather than engaging in active 'market shaping' activities steering economic activity in specific directions (Mazzucato, 2016). In Europe, as in other high-income economies, regulators are careful to avoid 'distortions' in financial markets, where interaction between market participants seeking profitable investment opportunities and 'market discipline' are expected to lead to the most efficient outcome. Creation of credit can be restricted as a whole to mitigate excessive risks - as currently done via the Basel III rules (BCBS, 2010) - but the allocation of credit across sectors and technologies should be left to the autonomous decisions of financial actors. This approach is well rooted in the European Union institutional framework. For instance, Article 127 of the Treaty on the Functioning of the European Union (TFEU) states that the European System of Central Banks 'shall act in accordance with the principle of an open market economy with free competition' (Consolidated version of the Treaty on the Functioning of the European Union, 2012). This free-market perspective logically leads to European regulators being inclined to finding solutions 'for the market, by the market' (Carney, 2016), entrusting financial markets to direct flows to low-carbon activities, once risks are properly understood. In this context, bridging informational gaps is crucial to restore market efficiency 'without the need for detailed or costly regulatory interventions' (Carney, 2015). An additional reason not to create market distortions in the EU as a transnational entity is given by the risk of inadvertently causing a reallocation of resources among member states without the necessary political processes in support. Monnet (2018) shows that the demise of credit allocation policies in Europe was key for achieving the convergence of central bank practices necessary for the European Monetary Union.

On the contrary, emerging economies' regulators usually maintain a higher systemic control of macro-financial dynamics, guiding capital allocation towards specific activities deemed as socially useful. This is particularly true for the governance of the banking system, in which central banks and financial regulators in emerging economies appear to be much more hands-on than high-income ones (Dikau and Ryan-Collins, 2017). Promotional interventions in financial dynamics represent the normal day-to-day functioning of 'state capitalism' shaping markets to achieve its development goals, rather than being perceived as distortive shocks to be avoided. For instance, the presence of the Chinese government in the financial network is systemic, as owner of companies and banks and as a top-down creator of new markets. Banks are run by the state, with deep entanglements of communist party hierarchies; financial markets and stock exchanges are politically embedded and ultimately subordinated to the Chinese government (Petry, 2020).

4.2. Independence and powers of delegated authorities

EU authorities are reluctant to influence financial dynamics for fear of causing distortions and inefficiencies. But they also have fewer levers to do so, having delegated both monetary policy and financial supervision to independent authorities with restricted mandates and, since the global financial crisis, increasing powers.

Central bank independence is a relatively recent phenomenon. The claim that delegating monetary policy functions to independent technical agencies would improve the ability of societies in keeping low and stable inflation was first put forward by academic economists (see for instance Kydland and Prescott, 1977). These contributions, originating from a period of prolonged high inflation, argued that 'rules', rather than 'discretion', would solve monetary policy time inconsistency issues and protect central banks from the undesired interference by

governments and ‘political business cycles’ (Nordhaus, 1975). Despite the presence of counter-arguments (McNamara, 2002), the theory was successful in triggering the rapid diffusion of interventions aimed at making central banks independent during the ‘80s and ‘90s (Goodhart, 2010). This independence shift was particularly salient in market-friendly high-income countries. Most developing economies tend instead to preserve a higher level of political control over their central banks (Dikau and Volz, 2021; Dincer and Eichengreen, 2014). The creation of independent specialised agencies in Europe fitted with the governance shift to a rule-making political authority framework (Majone, 1997).

As a counterpart to this greater independence, the mandate of central banks is generally defined narrowly to avoid institutional drift (i.e. to prevent the independent delegated authorities from claiming undue autonomy and powers from the elected political authorities). This is particularly true in high-income regions. Delegated authorities must respond to a precise mandate providing them legal *input* legitimacy, the fulfilment of which is their sole source of *output* legitimacy. In high-income countries, price stability is central banks' predominant prerogative, although some development objectives may remain (the US Federal Reserve, for example, has a mandate for both price stability and unemployment). This tends to prevent promotional interventions. Financial supervisors are requested to adhere to their prudential mandate without distorting private capital allocation or ‘picking winners’ among economic activities. In emerging economies, the promotional dimension is often more prominent and central banks are granted less restrictive mandates, which is consistent with their higher level of political control. As a result, mandatory green financial policies and regulations are adopted mainly in jurisdictions characterised by low central bank independence (D’Orazio and Popoyan, 2020).

Finally, it should be stressed that recent developments in EU financial governance have exacerbated this prudential tendency. Indeed, the cascading effects triggered by the global financial crisis have led to a reshaping of the European institutional framework, placing greater emphasis on the prudential missions of delegated authorities, giving them responsibility for new instruments to govern finance (Baker, 2013; Blinder et al., 2017). In addition to monetary policy and price stability, both the ECB and the BoE (re)gained explicit control of prudential missions after the global financial crisis. The Single Supervisory Mechanism and the Banking Union allowed the ECB and national CBs to expand their functions to include financial stability and macro-prudential regulation, and even fostered the creation of new delegated authorities such as the European Systemic Risk Board and the three ESAs. With a prudential mandate, delegated authorities have been granted control over new unconventional policies such as quantitative easing or macroprudential discrete interventions, even though their distributional consequences are unclear (Baker, 2013). This expansion led to higher independence and a reinforced prudential side of policy interventions.

5. Europe's institutional gridlock: the need for consensus

As discussed in the previous section, European jurisdictions are characterised by a weak public control on private financial dynamics and strongly independent delegated authorities. In this section, we

unfold how this institutional framework leads to an *impasse*, preventing the implementation of far-reaching promotional financial policies.

Table 2 tracks two dimensions of the climate-related financial policy space: i) what fits (or does not fit) with the objectives of political authorities; and ii) what fits (or does not fit) with the objectives of delegated authorities. We identify four quadrants.

The top-left quadrant contains all the ‘consensual’ policies that simultaneously: i) mitigate (or at least do not worsen) exposure to financial risk; and ii) push the financial system in a direction compatible with the development objectives of political authorities. We find in this quadrant all the policies that we observed being implemented essentially in every jurisdiction: disclosure requirements, taxonomies, sustainability benchmarks, green bond standards, climate stress test exercises, data sharing, etc. These informational measures do not meet with any resistance from either side, as they fit with both promotional and prudential aims. From the prudential perspective, they are considered means to overcome issues related to imperfect and asymmetric information regarding the exposure to CRRs, which prevents financial market players to price assets appropriately and financial regulators to ensure adequate supervision. From the promotional perspective, informational policies are considered a means to encourage financial flows towards sustainable activities, while preventing green washing thanks to comparable and harmonised standards.

The top-right quadrant includes conflictual policies that are likely to have a positive impact on the reallocation of financial resources towards sustainable sectors, but do not fit with the prudential objectives of delegated authorities as they have uncertain or negative implications on the exposure to financial risk. We illustrate this scenario with two salient policy examples: a ‘green supporting factor’ and ‘green’ monetary policy.

As mentioned in Section 1, a ‘green supporting factor’ (GSF) on capital requirements has been proposed by the European Parliament and Commission to ease regulatory constraints for banks that are lending to sustainable activities. In principle, this measure would contribute to allocating larger amounts of credit to sustainable activities (although the evidence for the effectiveness of a similar policy implemented in favour of small and medium enterprises has been mixed; see EBA, 2016). However, since solid evidence of lower risks associated to green loans is currently missing, the proposal of introducing a GSF did not meet the favour of delegated authorities, as ‘the essence of capital requirements is to safeguard financial solidity and stability’ (Dankert et al., 2018). The European Commission decided to put the legislative proposal on hold and to mandate the EBA to carry out an expertise mission on the relevance of such an instrument (see the revised Capital Requirements Regulation (CRR 2); EBA, 2019). That is, a delegated authority with a prudential nature has been delegated to decide on the implementation of an instrument designed to serve promotional objectives.

A second relevant example of conflictual policy is the ‘greening’ of monetary policy tools such as the ongoing ‘quantitative easing’ programs of financial asset purchases. The standard approach taken by central banks in Europe has been guided by the principle of ‘market neutrality’. This consists in buying assets in a way so not to distort the market-driven allocation of capital; for instance, by allocating purchases across sectors in the same proportion to the sectoral outstanding amounts in corporate bond markets. However, the high carbon intensity

Table 2
Climate-related financial policy space in Europe.

		Delegated authorities	
		Fits with objectives	Does not fit with objectives
Political authorities	Fits with objectives	Disclosure standards; taxonomies; benchmarks; stress-testing; green bond standards	Green-supporting factor; other green prudential policies; green monetary policies
	Does not fit with objectives	Dirty-penalizing factor; sectoral leverage ceilings; credit controls	

and heavy impacts on biodiversity of modern financial markets lead central bank interventions to reinforce their unsustainability lock-in (Dafermos et al., 2020; Kedward et al., 2021). The *de jure* principle of not choosing leads to a *de facto* choice in favour of polluting activities. With these conclusions in mind, several contributions have argued for monetary policy to be ‘greened’ (Monnin, 2018; Schoenmaker, 2021). This is generally not supported by delegated authorities, who see it as possibly negatively affecting their legitimacy as well as their ability to attain their primary objectives. Weidmann (2020) epitomises such view, arguing that ‘it is not the task of the Eurosystem to penalise or subsidise certain industries. Correcting market distortions often has intricate distributional implications. Such decisions need strong democratic legitimacy and are a matter for governments and parliaments.’ So far, delegated authorities have resisted the implementation of such promotional-motivated policies that might hinder their mandate or objectives. However, this situation could change as climate-related issues become more pressing (see the next section).

The bottom-left quadrant includes conflictual policies that would have a positive impact on the exposure to financial risk but might have contrasting effects on some development objective. For instance, using banking and financial regulation to introduce disincentives to high-carbon investments (e.g. a ‘dirty-penalizing factor’) might mitigate the exposure to financial risks, but could negatively affect bank credit volumes and economic growth. These measures naturally encounter the opposition of the banking sector, which can lobby policy-makers against them (Scialom, 2019). For this reason, the policies in this quadrant are generally supported by delegated authorities but not by political authorities.

The institutional setting present in Europe restrains the allowable policy space in green finance to consensual policies (top-left quadrant). Delegated authorities, in charge of preserving price and financial stability, possess the institutional strength and independence to push back conflictual policy initiatives that might put at risk the achievement of their objectives. Other jurisdictions have instead a wider green financial policy space, since the balance of powers between political and delegated authorities is different and development objectives are given more weight. Certain policies are admissible, and often carried out by delegated authorities themselves, even if they could potentially have distributive impacts and/or negative implications in terms of financial risks.

6. Future institutional scenarios

In this section we leverage on our proposed framework and adopt a forward-looking perspective to identify the possible evolutions stemming from the current promotional gap. Table 3 provides a schematic view. We assume political authorities to have two main strategies: i) take a strong action to mitigate climate change (e.g. implement a carbon pricing policy in line with climate stabilization objectives); and ii) take no or limited climate action. Delegated authorities also have two main strategies: i) continue adhering to market neutrality and prudential motives; and ii) adopt policies with promotional aims. These strategies represent stylised extremes of a continuum of possible behaviours by both PAs and DAs. We identify four main scenarios (1. to 4.) and three main dynamics (a. to c.)

6.1. The status quo

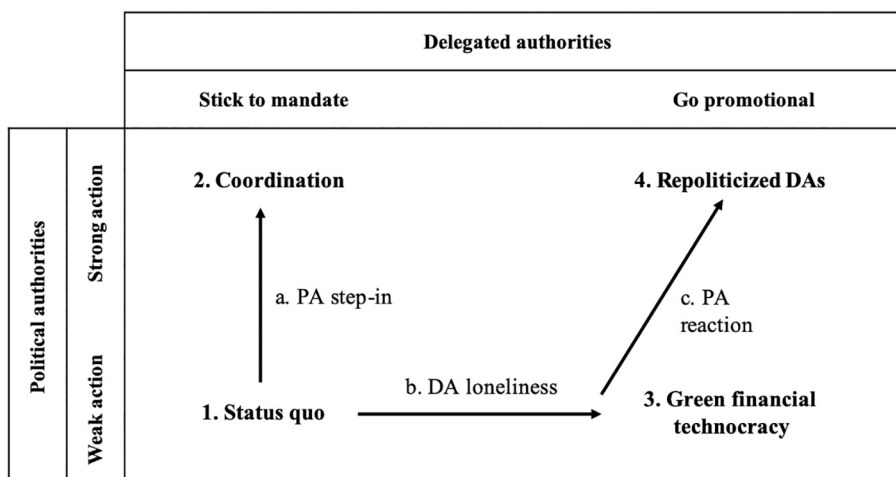
We start by analysing the equilibrium we have been experiencing in recent decades (Scenario 1. Status quo). In this setting, limited climate action is taken by PAs, as evidenced by the insufficient adoption of carbon pricing initiatives (World Bank, 2020) and DAs limit themselves to the achievement of the objectives stated in their mandate, without overstepping. When they get involved in climate-related issues, they do so by respecting market neutrality and demanding evidence of financial risks before intervening in a ‘market distortive’ manner.

We argue this equilibrium to be ultimately unstable due to the increasing environmental constraints. As argued in Section 5, the only policies that can be implemented to shift financial resources towards sustainable investments are informational ones. However, these policies by themselves are unlikely to either fully capture inherently uncertain climate-related risks or to push financial resources towards sustainable activities with the sufficient strength (Ameli et al., 2020; Christophers, 2017). A prolonged status quo may lead to a ‘too late too sudden’ scenario (NGFS, 2020), where the sudden future realisation of the necessity of a low-carbon transition, possibly driven by an unanticipated climate disruption, causes large repercussions to economic and financial stability. To avoid this undesirable scenario, either PAs or DAs need to adopt promotional measures to steer credit in the direction of low-carbon activities.

6.2. PA step-in and coordination

The first path out of the status quo would be for the political

Table 3
Stylised institutional scenarios.



authorities to significantly step up their promotional efforts to mitigate climate change, relieving DAs from the necessity to go beyond their prudential objectives (dynamics a. PA step-in). This would lead to a scenario in which each authority separately contributes to a common coordinated objective, while respecting their respective fields of competence: PAs implement fiscal policies shifting the incentive of market players away from carbon-intensive activities, and DAs closely monitor the impacts of climate-related financial risks on price and financial stability (scenario 2. *Coordination*).

However, this scenario poses a number of challenges. First, it is uncertain that sole fiscal action would be enough to tackle climate change. Due to a number of market failures, action in the financial sphere could be needed in conjunction to fiscal policy in order to provide an orderly transition (Campiglio, 2016). Second, if fiscal action were to represent all climate action, it would have to be far-reaching and effective. However, it is unclear how likely strong climate mitigation policies might be implemented in the near future. Ambitious carbon pricing policies have strong immediate economic and political costs making them unpopular (see for instance the *gilets jaunes* movement in France), leading to insufficient action from political authorities (Maestre-Andrés et al., 2019). This has not been a phenomenon unique to Europe: despite the decade-long discussion on how essential it would be to price carbon, policy initiatives implemented so far at the international level still do not live up to the stated ambitions (World Bank, 2020). For this reason, some argue for delegating the management of the carbon price path to a new independent authority free from political pressures such as a ‘carbon council’, or ‘carbon central bank’, so to improve the credibility and predictability of policy commitments (Delpla and Gollier, 2019; G30, 2020).

In addition, both European national governments and the European Union apparatus appear distracted by a vast range of persistent complex issues (e.g. the Eurozone crisis, Brexit, increasing inequality, migration flows), therefore paying insufficient attention to longer-term objectives as climate mitigation and adaptation. Further, the Covid-19 crisis and imminent fiscal recovery packages could slow down political progress on climate change (Hepburn et al., 2020). Finally, the European institutional framework is further complicated because of the presence of multiple veto players among which it is often cumbersome to find an agreement over ambitious climate policies (Tsebelis, 2002).

For these reasons, sufficient action by PAs in the fiscal area to stabilise the climate may seem difficult to achieve. Faced with weak or delayed action from PAs, pressure could build up to force DAs to step in. In fact, as we shall see, this move might have started for some delegated authorities.

6.3. DA loneliness and green financial technocracy

The second path out of the status-quo would be for DAs to adopt climate-related promotional policies. Whether and to what extent delegated authorities will go promotional without an explicit *ex ante* institutional agreement will depend on the relative weight they attach to two sets of factors: i) input legitimacy, institutional credibility, and mandate constraints on one side; and ii) output legitimacy and environmental concerns on the other. Some DAs might consider their input institutional legitimacy more important and decide to stick to their prudential-oriented mandates. Other DAs might instead consider climate change likely to jeopardise their primary objectives: besides endangering financial stability with increased physical risks, climate change would disturb monetary policy transmission channels and limit the European central banks' ability to achieve their objective of price stability in the future (Andersson et al., 2020). ECB President Christine Lagarde seems to be of that opinion: ‘I contend that price stability can be significantly affected by climate change, and that as a result of that, if we want to deliver on our mandate, we have to be not only mindful but also take action in order to prevent climate change from affecting that price stability that is our mandate’ (Lagarde, 2020).

In a context characterised by political authorities' inaction, this might force DAs to intervene to compensate for the lack of promotional effort in the face of an unfolding climate crisis (dynamics b. *DA loneliness*). This situation mimics the ‘loneliness’ of central banks in the aftermath of the financial crisis, when the policy gridlock affecting governments' actions forced delegated authorities to become the ‘only game in town’ and led to unprecedented monetary interventions (Mabbett and Schelkle, 2019). The longer PAs delay sufficient action, the more likely it is that DAs will step in to compensate for the lack of political will and to avoid irreversible physical risks, using the ‘authorization gaps’ in their mandate (de Boer and van't Klooster, 2020). Recent developments suggest that we are already experiencing a gradual move of independent DAs towards promotional policies. This move is especially prominent for the ECB. In 2020, ECB set up a dedicated climate-related research group to inform policy decisions and started evoking the option of abandoning the market neutrality principle in asset purchase programs (Schnabel, 2020b). In 2021, it revealed its first strategy review since 2003 with a 4-year plan to concretely integrate climate in its actions. This includes modifying the collateral framework and introducing climate considerations in the corporate-sector purchase program (ECB, 2021). This trend is justified by the concern that climate change might affect price and financial stability, i.e. primary objectives. Promotional interventions to mitigate climate change could therefore be interpreted as an attempt to ‘lean against the (climate) wind’ (D’Orazio and Popoyan, 2020), in a same preventive way as macroprudential policies proactively counter the accumulation of risks during the build-up phase.

Delegated authorities could also argue that going promotional is not only a way to achieve their primary objectives, but also part of their secondary objectives. For example, Article 127 of the Treaty on the Functioning of the European Union (TFEU) states that the European System of Central Banks (ESCB) ‘shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union’ (among which we find protecting and improving the quality of the environment), if this comes ‘[w]ithout prejudice to the objective of price stability’ (Consolidated version of the Treaty on the Functioning of the European Union, 2012). Solana (2019) argues that the central banks are also bound by the Article 11 of the TFEU, which states that ‘[e]nvironmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities’. The mandate of the ECB, and more in general those of delegated authorities, could thus leave some room to legitimise a certain greening of financial policy actions. In addition, DAs are sometimes explicitly pushed to be more proactive in the climate policy sphere by PAs themselves (see for instance EU Parliament motion 2018/2007(INI) that ‘acknowledges the independence of the ECB and its primary mandate as being to preserve price stability but recalls that the ECB as an EU institution is also bound by the Paris Agreement’).

Besides, reinterpretations of delegated authorities' mandate are possible, as shown by ECB's actions in the aftermath of the global financial crisis (GFC) (de Boer and van't Klooster, 2020). Before the GFC and the sovereign bond crisis, the interdiction of monetary financing⁵ of the EU states used to be interpreted in a narrow sense, preventing ECB from buying sovereign bonds to close spreads between national bonds. During the sovereign debts crisis, unconventional policies such as Securities Market Programme (SMP), Outright Monetary Transactions (OMT) and Public Sector Asset Purchase Programme (PSPP) led to large-scale buying of sovereign debts on secondary markets, therefore closing

⁵ See Article 123 of the Consolidated version of the Treaty on the Functioning of the European Union

the spreads and de facto annihilating the disciplinary role of market pricing. Both OMT and PSPP were brought to court but confirmed *ex post* as legitimate (see Court of Justice of the European Union's judgments of June 16, 2015 (aff. C-62/14⁶) and October 08, 2018 (aff. C-493/17)). The past successes of the ECB in broadening its actions and reinterpreting its missions could set an important precedent, showing delegated authorities that they can enlarge the spectrum of their actions and engage in the promotional sphere, moving continuously towards a DAs loneliness' outcome, as there is room for safe 'stealth' institutional drift (Schmidt, 2016).

However, if brought to its extreme, this trend could lead to the establishment of a climate-friendly technocratic setting (scenario 3. *Green financial technocracy*), i.e. a situation characterised by independent technical agencies with the power of defining the features of economic and societal development with no or little political control and without an appropriate adjustment of their mandates (Climate Leviathan or Behemoth of sorts, see Fontan, 2016, and Wainwright and Mann, 2018). The entrance of delegated authorities in the fight against climate change would certainly help reorienting financial flows and facilitate the transition. However, letting delegated authorities fully use their authorization gaps without democratic input legitimacy might ultimately put at risk the credibility of these institutions and affect their ability to reach their primary goals (Cochrane, 2020). In addition, promotional DAs may not properly address prudential concerns related to CRRs, possibly allowing or exacerbating a 'disorderly transition'.

6.4. PA reaction and re-politicisation of financial policies

We argue that the scenario of a green financial technocracy is also inherently unstable. An increasing disconnection between the *de jure* institutional arrangement and the *de facto* distribution of financial governance powers is likely to eventually force a reaction from political authorities. PAs could step in to disavow DA promotional pushes and prevent further agency drift, or to offer its political support by legitimizing them *ex post* (dynamics c. *PA reaction*).

As delegations were designed and assigned in the past, they can be changed or revoked. In national jurisdictions this can usually be achieved by an act of the Parliament. Governments can thus decide to bring back monetary policy and financial regulations under their control. This would allow them, for instance, to differentiate bank capital requirements according to the carbon intensity of lending for purely promotional motives, as the European Commission has already proposed. If such a change would represent a break in the historical trend of increased independence of central banks, Goodhart (2010) argues this movement towards a new regime of central banking characterised by more intrusive regulations, greater government involvement and less confidence in market mechanisms, has already started since the GFC. This setting would see DAs aligning their actions to PAs development objectives, even if they might have negative prudential implications (scenario 4. *Re-politicized DAs*). This might seem implausible in the European context, but it is very common in other jurisdictions (see Section 3), and has been the default institutional setting in Europe for a long period in the past (Monnet, 2018) despite what 'institutional amnesia' often suggests (Braun and Downey, 2020). Several contributions have argued that limiting DA independence could be beneficial to implement effective climate action. However, this could also imply costs, as price and financial stability were delegated to independent authorities to avoid problems of time inconsistency and political capturing. Revoking the delegations could bring these problems back.

Of course, PAs' reaction doesn't have to be that radical. Instead of

⁶ Articles 72 to 76 of this judgment recognise the legitimacy of the ECB to intervene in an unbalanced way in its asset repurchase when i) the market pricing was unsatisfactory, imposing an 'excessive risk premia'; ii) this undermined the ESCB's monetary policy transmission mechanism.

regaining control of the delegated authorities and abandoning central bank independence, political authorities could grant DAs new input legitimacy to implement promotional policies. This would lead to an intermediate situation between scenario 2 (*Green financial technocracy*) and scenario 3 (*Re-politicized DAs*) as PAs react to the lonely drift of DAs to give them both clearer grounding and boundaries to democratically clarify the 'authorization gaps' of their mandates. This would allow a new form of cooperation between political and delegated authorities, giving the latter a genuine role in climate change mitigation. We observe such a shift in the UK, where the BoE has received an updated remit to align regulatory monetary policies consistent with the government's economic strategy to reach net-zero (Sunak, 2021). The European case is more complex, as ECB's missions are enshrined in international treaties that require long processes to be modified. Even if a mandate change is preferable, it is not necessary. Indeed, ordinary legislative procedures (e.g. clarifying the ranking of the objectives or the statutes of the ECB) could prove sufficient to grant DAs adequate input legitimacy (van't Klooster, 2021). Another form of reaction could be a legal procedure (similar to the one that followed the programs of the OMT and the PSPP at the European Court) stating *ex post* the legitimacy of green promotional policies conducted by DAs and providing them with legal ground. Nevertheless, such a procedure acting retrospectively and emanating from a magistrate, rather than from elected authorities, would not have the same force, as judicial review does not by itself provide democratic legitimacy (de Boer and van't Klooster, 2020). Therefore, political authorities will need to intervene at some point, either to rein in delegated authorities or to provide them with renewed legitimacy and boundaries for their promotional actions.

7. Conclusions

Using a novel conceptual framework distinguishing policy motives, instruments and implementing authorities, we have argued that the ability of European countries and similar jurisdictions to introduce promotional climate-related financial policies is limited by: i) a weak public control on private financial markets; and ii) the presence of strong independent technical authorities with delegations concerning financial markets. These traits limit the European green finance policy space to consensual informational policies. Proposals of promotional financial policies with uncertain prudential implications - such as a green supporting factor or a green monetary policy - have been pushed back by delegated authorities. This is less the case in emerging economies, where central banks and supervisors often align financial policies with governments' development and sustainability objectives.

Where could this 'promotional gap' lead to? Several scenarios of future institutional evolutions have been explored. First, governments could introduce ambitious mitigation policies (e.g. carbon pricing), allowing delegated authorities to focus uniquely on price and financial stability. This promotional-prudential coordination would be welcome; however, several hurdles currently exist that prevent strong government action on climate. Second, in the face of timid political action, delegated authorities concerned about their output legitimacy might decide to go promotional 'by stealth' and without an appropriate underlying change in mandate. Recent changes by some European delegated authorities hint that this change may have begun. While scope for extending their actions within their current interpretation of mandates exist, this trend, if brought to its extreme, might result in a green technocratic setting or trigger a coercive repossession of policy functions by political authorities. Finally, political and delegated authorities could cooperate in making the necessary adjustments to achieve a new institutional setting, such as a revision of the mandate, or an ex-post validation of promotional drifts.

In a 2018 speech meaningfully titled 'Let's dance', the chair of the NGFS Frank Elderson, outlined the contributions that central banks and supervisors could make in the societal effort to address climate change (Elderson, 2018). This article shows that central banks cannot and

should not dance alone. Either through strong action in the fiscal sphere and/or through new clear delegations of climate missions to delegated authorities, political authorities will have to step-in at some point, as central banks and other delegated authorities cannot do it all. It will take two to dance: only through strong cooperation from early stages will it be possible to simultaneously achieve effective climate action and continued strong institutional legitimacy.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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