

A modern credit guidance regime for the green transition



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Keywords: green transition, climate finance, green finance, credit policy, financial regulation, monetary policy, political economy, critical macro finance, market-based finance, shadow banks

JEL codes: Q54, Q57, E44, E58, E61, G28, P16

The green transition requires a substantive shift in financial flows that will require policy interventions. The current 'risk-based' approach relies on changing the relative prices of green or dirty assets to support private finance. This framework is poorly equipped to deal with the shift towards market-based finance, is vulnerable to arbitrage and regulatory capture, and is unable to deal with uncertainty or carbon lock-in dynamics. We propose an 'allocative green credit policy' regime that is organised around green industrial policy objectives and democratically agreed green missions. This draws on post-war credit policy regimes as it involves both quantitative and price-based interventions in credit and institutional capital markets but also deals with the specific challenges posed by market-based finance. We discuss the implications of such a regime for central bank independence, inflation targeting and the management of stranded assets.

The market-led, risk-based approach to decarbonisation and its weaknesses

The green transition¹ requires a fundamental transformation of our economies, and with it, financial flows. Historically, central banks coordinated with ministries of finance and other government agencies to proactively steer credit and support major structural change of the type required by the climate crisis, complementing active fiscal and industrial policy regimes (Monnet, 2018; Mikheeva and Ryan-Collins, 2022; Bezemer et al., 2021). In contrast, the current macroeconomic status quo prioritises both fiscal conservatism and the operational independence of inflation targeting central banks from fiscal authorities. As a result, the dominant policy narrative relies on the private sector to lead the pace and direction of the green transition. Policy interventions by financial authorities are limited to mandate-relevant actions that support price- and financial stability.

Such support primarily takes two forms (see Table 1). First, reducing information gaps relating to climate-related exposures and risks to enhance price discovery. Many central banks have begun to incorporate private-sector-led climate risk disclosure initiatives into supervisory expectations, for example. Second, states should embrace a ‘de-risking’ role to correct price signals (Gabor 2021). Examples of this include central bank interventions to change the relative price of ‘green’ and ‘dirty’ financial assets (e.g., by adjusting the criteria used in collateral frameworks or asset purchase programs) and government and development bank initiatives to socialise risks associated with private green investments (for example through ‘first-loss’ instruments, guarantees and ‘blended finance’). In each case the aim is to recalibrate the risk-return profile on green investments to make them more commercially attractive to private investors. Importantly, this risk-based policy approach does not overtly seek to target sector-specific prices or quantities of capital in line with any climate policy trajectory. Instead, sectoral allocation decisions are deferred to the private sector, who are assumed to rationally assess and respond to climate-adjusted price signals in a way that reorients capital flows in support of the green transition (Kedward et al, 2022).²

Despite its growing prominence and prioritization within policy circles, the risk-based approach has not succeeded in materially shifting financial flows away from transition-incompatible activities and towards green investment (Ameli et al., 2021; Rainforest Action Network, 2022; Bryan, 2022). Four flaws can be identified that undermine this approach to decarbonising finance.

Table 1: Risk-based and green credit policy approaches to decarbonising finance

	Risk-based approach		Credit allocation policies	
Paradigms vis-à-vis green transition	Monetary dominance; Market-led decarbonisation		Fiscal dominance; State-led green industrial strategy	
Purpose	Prudential – financial stability		Promotional – supporting industrial policy	
Focus	Enhancing price discovery; Correcting price signals (de-risking)		Steering credit to green sectors; Restricting credit to dirty sectors	
Mechanisms	Informational	Incentive	Incentive	Coercive
Policy targets	Transparency and disclosure	Relative prices through de-risking interventions	Sector-specific green targets on price and conditions of credit	Sector-specific green targets on quantity of credit, or credit growth (+ conditions)
Scope	Banks + standard financial assets (loans + bonds + equity)		Banks + whole ecosystem of institutional capital (+ private equity + repos)	

Source: Kedward et al (2022).

¹ Which we define as a structural transition away from carbon-intensive and environmentally-damaging activities, and towards low-carbon/sustainable production and modes of living.

² For a detailed argument, including a theoretical elaboration, see Kedward et al (2022).

First, climate-related financial risks are extremely challenging to quantify because they are subject to fundamental uncertainty (Bolton et al., 2020; Chenet et al., 2021). As unprecedented risks, assigning meaningful probabilities is problematic and the results of forward-looking risk assessment are subject to wide uncertainty ranges. This may explain the reluctance of financial institutions to disclose their risk exposures on a voluntary basis and then act as if these results are financially material. Five years after the launch of the Taskforce on Climate-related Financial Disclosures (TCFD), an ECB supervisory assessment found that ‘banks continue to significantly underestimate the breadth and magnitude of such [climate] risks, and almost all banks (96%) have blind spots in identifying them’ (ECB, 2022). ECB board member Frank Elderson has openly decried the state of European bank climate risk disclosures, calling them ‘a lot of white noise and no real substance’ (Arnold, 2022).

Second, the market-led, risk-based approach has suffered from accusations of regulatory capture and greenwashing as disclosure and ESG frameworks have been largely led by coalitions of multinational firms acting through non-profit entities (Knox-Hayes and Levy, 2014; McGee, 2014; Abbott et al., 2016; Azizuddin, 2021). Private sector-led methodologies are arguably subject to perverse incentives to underestimate risks to avoid potential adverse consequences on the cost of capital (Smoleńska and van 't Klooster, 2022). Criticisms of the proximity of vested interests have also plagued the development of public regulatory initiatives, such as the EU sustainable taxonomy (Rauhala, 2022), and the contracting of Blackrock in the development of EU prudential climate rules; a decision later lambasted by the European Ombudsman (O'Reilly, 2020).

Third, scaling up the demand and supply of finance for green innovation is likely to require a supportive policy environment that is much broader than targeting just price incentives (Aghion et al., 2014; Hall et al., 2017). Relative price adjustments are blunt tools to stimulate investment in green innovation which is subject to complex non-linear dynamics such as path dependency and ‘lock-in’ effects, network externalities, technological inertia and institutional feedbacks (Grubb et al., 2021). Market actors leading green innovation are often excluded from the sorts of finance targeted by the risk-based approach until much later in the innovation cycle (Mazzucato and Semieniuk, 2018). Compared to the fossil fuel industry, the renewable energy sector is more geographically fragmented, sensitive to local conditions, lacks consolidation (i.e., ‘Majors’), and is not (yet) producing a globally-traded, dollar-denominated commodity (Ameli et al., 2021). Renewables are consequently treated by financial investors as a developing asset class rather than as an equivalent to fossil fuel incumbents that only requires pricing incentives to stimulate capital reallocation (Ameli et al., 2019; Donovan et al., 2020).

Fourth, the risk-based approach has neglected the rise of market-based finance. Policy interventions so far, for example, the focus on central bank asset purchases and collateral frameworks, primarily influence bank lending. Yet in market-based financial systems, credit creation occurs both on banks’ balance sheets and via capital markets (Gabor, 2016, Coeure 2016). A framework is also required for decarbonising institutional capital – pension funds, insurance companies, family offices and their asset managers, including alternative asset managers like Blackrock– that have collectively generated a global portfolio glut (Gabor 2021). The recent concerns over the failure of the Glasgow Financial Alliance on Net Zero (GFANZ) to decarbonise its investments illustrates the limits of a voluntary disclosure approach in regard to capital market finance. GFANZ members continued to fund fossil fuel activity in the aftermath of its creation at COP26, including bond issuance for coal companies maturing in to the 2030s (Bryan, 2022).

The complex ecosystem of market-based finance presents several avenues where alternative sources of credit and capital can continue to finance carbon-intensive activities. Institutional capital can allocate dirty financing indirectly via equity or bond Exchange Traded Funds (ETFs), and via alternative asset managers like hedge funds and private equity funds. When placing cash via the repo market, institutional capital can also provide indirect financing to holders of dirty bonds (and thus ease financing conditions for dirty issuers), by accepting those bonds as collateral. Alternative asset managers in turn may finance dirty activities via private credit markets, dirty equity/bonds or by acquiring physical fossil assets. Private credit markets – by which we refer to loans extended to companies by private equity funds – are increasingly important for companies in higher credit risk middle and low-income countries, particularly in Asia (Aramonte and Avalos 2021). It is estimated that private credit markets reached USD 1.53 trillion assets under management by 2022, of which USD 438 million in highly liquid, cash-like securities. This shadow banking infrastructure rivals the global banking sector in size and scope, but is not subject to the same regulatory regime in terms of climate risk disclosure and financial supervisory oversight.

This ‘blind spot’ in the risk-based approach results in regulatory arbitrage effects, which undermine the effectiveness of green financial policy efforts. For example, the Private Equity Stakeholder Project documented that the top 10 US private equity firms have increasingly been absorbing fossil assets divested by large fossil fuel companies and investors (Seidman et al., 2022). As US and European banks pull out of the oil and gas sector, large-scale exploration and production debt deals are now being underwritten by private equity and hedge funds, who are also purchasing loan portfolios at significant discounts from traditional banks (Porter and Deveau, 2021). The predictable cashflows and respectable credit ratings of mature oil and gas companies also make them well-suited to raising finance through off-balance sheet securitisation structures, which are growing in popularity (Kang, 2021; Allison, 2021). While these developments do point to a higher cost of capital for the oil and gas sector, these relative repricing effects have not been enough to curtail investment appetite, especially as we move into a commodity boom cycle, as higher relative interest rates are generally attractive to yield-hungry shadow lenders.

Towards an allocative green credit policy regime

Given these fundamental problems, the risk-based approach is unlikely to decarbonise finance at the pace needed. The green transition requires simultaneously accelerating the growth of innovation across new and existing sectors, whilst also managing the orderly decline of ‘transition-incompatible’ sectors to avoid economic and financial instability. This herculean task calls for a ‘market-shaping’ role for public policy, predicated by public investment in strategic priority sectors alongside state-led green industrial strategy that is coordinated with fiscal, financial, and regulatory spheres.

A new macrofinancial approach for central banks and financial regulators is needed to ensure the dynamics of private finance do not undermine green industrial policy efforts. We propose a green credit policy framework that targets both the banking system and market-based finance. The focus is on sector-specific targets on quantities and prices to ensure the orderly reallocation of capital under conditions of uncertainty (Table 1). Credit creation would be directed to priority sectors dictated by green industrial strategy, and obstructed for dirty sectors, defined by a public taxonomy. A typology of allocative credit policies is shown in Table 2 to map out how different measures could be combined to align the 21st century, market-based financial system with the needs of the green transition.

Table 2: Selected allocative green credit options

	Banking system	Institutional capital	
Indirect price-based policies <i>[via central bank balance sheets]</i>	Capital requirement adjustments Reserve requirement adjustments Credit guarantees Dirty-penalising factor for G-SIBs Large exposure limits Countercyclical capital buffer <i>Sector-targeted refinancing lines Collateral haircut adjustments Tilting in asset purchase programmes</i>	Capital requirements for allocations to dirty (alternative) assets Punitive leverage ratio Collateral haircut adjustments Margin requirement adjustments	
Direct price-based policies	Interest rate floors and ceilings Subsidised credit for households/SMEs/priority sectors (e.g., through SIBs)*		
Direct quantity-based policies	Portfolio restrictions: outright bans financing certain sectors/assets Credit quotas Lending ratios Large-scale public investment (e.g., through SIBs) Favourable loan-to-value/debt-to-income ratios*	Portfolio restrictions: - Outright bans on financing certain sectors/alternative assets - 100% repo haircuts on dirty collateral Mandatory exclusion of dirty assets from (ESG) indexes for passive investment Ineligibility of certain assets for securitisation Forced sale of dirty assets to state 'bad bank'	

* tools targeting demand for credit

Indirect price-based credit policies

Indirect allocative policies aim to adjust the relative costs of providing capital to different sectors, hence influencing capital allocation through incentive rather than coercive means. Many of these tools, such as climate-risk adjusted capital requirements or collateral criteria, are already under discussion at major central banks such as the ECB. Under our approach, sector-based adjustments based on discretionary criteria in alignment with green industrial policy goals would be specified, rather than relying on ostensibly 'objective' measures of risk differentials. This discretionary approach acknowledges that radical uncertainty precludes the precise measurement of climate risks, hence requiring 'precautionary' rather than reactionary policy actions (Chenet et al., 2021). Penalising capital requirements should be set at very high levels in order to materially impact the cost of capital and confined to a narrow selection of prioritised legacy sectors, such as coal (Chamberlin and Evain, 2021; Ford et al 2022). One policy proposal calls for capital risk weights for exposures to new fossil fuel reserves to be set at 1250% – a level that forces banks to finance these activities entirely through equity whilst preventing the leverage effects usually resulting from bank lending (Philipponnat, 2020).

Direct price-based credit policies

One limitation of indirect price-based policies is that adjusted incentives may not stimulate sufficient adjustments in the price or quantity of credit. Coercive credit allocation intervenes directly by setting the price or quantity of bank credit for particular sectors. Whilst high income and developmental states have a long history of using direct targets on interest rates and outright lending volumes to influence credit allocation (Loriaux et al., 1997; Epstein, 2006), the use of such tools for the green transition has so far been confined to economies that maintain a high degree of state control over the financial system.

For direct price-based tools, for example, the central banks of Bangladesh and South Korea have both explicitly set lower interest rates for green activities (Dikau and Ryan-Collins, 2017). The People's Bank of China has a green targeted refinancing scheme stipulating that banks must lend to green activities at close to benchmark rates in order to qualify for discounted funding. Additionally, acceptance on the scheme is only granted after the loan is made – hence encouraging banks proactively seek eligible green lending opportunities. The need to ensure that the transition is socially just as well as green provides further justification for a reconsideration of the need for direct interventions on interest rates within economies characterised by a high degree of financial liberalisation. Many of the most immediate decarbonisation steps to be taken by households and businesses, such as building retrofits and switching to electric vehicles, require large upfront capital expenditures. Some have called for credit policy intervention in the form of reduced rates on mortgages for energy efficiency properties and zero interest loans for housing retrofits, implemented alongside other credit guidance policies to ensure adequate supply of such green loans (Batsaikhan and Jourdan, 2021; Krebel and Van Lerven, 2022).

Direct quantity-based credit policies

Direct quantity-based policies are also already used for green purposes within some middle-income economies. For example, the Reserve Bank of India requires banks to allocate at least 40% of loans to priority sectors, including renewable energy. Similarly, Bangladesh has a minimum bank lending ratio of 15% for sustainable financing. The Brazilian central bank has imposed outright portfolio restrictions on certain forms of financing – such crop expansion in the ecologically important zones (Resolution No. 3814/2009) and to borrowers who fail to comply with environmental regulations (Resolution No. 3545/2008). Econometric analysis has shown that these portfolio restrictions resulted in a material reduction in Brazilian deforestation over the period 2003 to 2011 (Assunção et al., 2020).

Quantity-based limits on credit allocation are already widely implemented in high-income economies for macroprudential purposes. Lending limits or outright exclusions on selected transition-incompatible activities, such as coal-fired power generation or the exploration and production of new oil and gas reserves, would be the most direct means of managing credit flows to legacy industries (Ford et al., 2022). The extension of existing public taxonomy initiatives to also classify activities that are 'always significantly harmful' and 'where urgent, managed exit/decommissioning is required' – as proposed by the EU Platform on Sustainable Finance (2022, p.8) – would legitimise such targeted, exclusion-based credit policies.

On the green-supporting side, minimum lending quotas and ratios could be applied to sectors that urgently need accelerated green credit. For example, to support industrial policy on the decarbonisation of buildings, banks could be required to ensure that a certain percentage of new mortgage lending is allocated to houses of a certain minimum energy efficiency rating, with the ratio increasing over time. Minimum lending quotas (i.e., targets on absolute volumes) could be applied to green housing retrofit loans, forcing banks to go out and seek lending opportunities. If combined with effective industrial policy, such a policy could have important spillover effects in terms of stimulating the growth of new retrofitting sectors (Hepburn et al., 2020).

State Investment Banks (SIBs) are another common means by which credit allocation policies have been historically implemented, particularly in the provision of finance to SMEs and to support innovation and economic development and transition (Mazzucato and Penna, 2016; Mikheeva and Ryan-Collins, 2022). With access to low borrowing costs and public guarantees, SIBs are able to offer discounted interest rates for priority sectors that then set a pricing benchmark for lending by private institutions. To the extent that SIBs also lend where the private sector will not, public lending is also a form of quantitative credit allocation. Far from crowding out private finance, such initiatives have had significant success in leveraging private sector involvement when deployed for green purposes (Deleidi et al., 2020; Mazzucato and Semieniuk, 2018). The German KfW, for example, has mobilised €9 of private investment for every €1 of subsidised public lending (Schröder et al., 2011), whilst the UK's formerly public Green Investment Bank realised a leverage ratio of 3:1 for its public lending to green sectors (Matikainen, 2017).

Credit policy for market-based finance

Given the structural considerations relating to market-based finance, the bulk of policies targeting this sector should be price-based, targeting especially the indirect ('backdoor') provision of capital to dirty activities through shadow lending institutions. This includes applying higher capital requirements for institutional holders of carbon-intensive equity, bonds, and related Exchange Traded Funds and for institutional allocations to hedge funds and private equity funds targeting these assets – building upon, for example, the new European prudential regime for investment management firms. Additionally, new financial regulation could restrict leverage for hedge funds and private equity fund holders of carbon-intensive assets, while also levying differentiated but punitive haircuts on repos collateralised with these assets. This could build upon the work of the Financial Stability Board on a haircuts framework for reducing systemic risks in shadow banking (see Gabor, 2016). Importantly, punitive collateral haircuts for dirty assets must be implemented regardless of the ultimate use of cash proceeds, to prevent greenwashing via so-called 'green repos'.

More coercive credit policies are also necessary to address the structural and regulatory blind spots raised by shadow lending. The mandatory exclusion of dirty assets from indexes marketed as ESG would ensure that index providers do not succumb to perverse (greenwashing) incentives as well as set the basis for an adequate regulation of dirty investments in passive funds (Buller and Hayes, 2022). To address the indirect financing mechanisms identified above, regulators of pension funds or insurance companies, the largest allocators to hedge and private equity funds, could also set more explicit portfolio restrictions, such as outright bans on investments in funds that include transition-incompatible assets – as Californian legislators have already proposed for the USA's largest public pension funds.³ National securities markets authorities should also consider a 100% haircut on securities issued by fossil fuel companies, to limit the potential for 'greenwashed' credit allocation via private repo markets. Such a punitive haircut effectively excludes the use of dirty assets as collateral in private repo markets, reducing its leverage appeal for institutional holders and contributing to relative asset repricing effects. To ensure that dirty borrowers cannot access 'backdoor' financing through shadow lenders, regulators should also explore outright bans on the securitization of dirty loans on shadow/bank balance sheets, building upon current debates around simple, transparent and standardised securitisation in the framework of the EU's Capital Market Union.

³ See <https://www.ft.com/content/c9430eb5-201c-46e8-a10d-d9c098c9d4b4>

If these policies are put into place, a best-case scenario is that the most transition-incompatible activities become virtually unable to access affordable debt financing – whether from regulated banks or market-based finance. This will in turn impact equity valuations. Yet, whilst legacy sectors are still revenue-producing there will still be private sector interest to hold and develop these assets outside of regulated capital market infrastructure. One salient example lies in the recent rush of private equity purchases of the most carbon-intensive fossil fuel reserves from the oil ‘Majors’ (Seidman et al., 2022). For these types of still-profitable yet transition-incompatible assets, policymakers should consider the case for a ‘bad bank’ type public financial institution that can buy majority equity interest in order to manage an orderly wind down in ways that support the aims of a just transition.

Discussion

The proposed allocative green credit policy framework presents some trade-offs for policymakers to consider, with broader institutional implications.

First, using credit allocation policies to accelerate the growth and diffusion of new innovation-intensive industries whilst concurrently managing the decline of legacy sectors has no obvious historical precedent and may pose macro-financial stability risks in certain sectors. This trade-off could be managed by deploying credit policy in careful coordination (e.g., on an ‘escalating’ basis) with a broader suite of industrial policy measures designed to mitigate the economic dislocations associated with transitioning sectors. This implies far more institutional coordination between financial and fiscal/industrial policy than is currently deemed appropriate under the existing macrofinancial regime.

Second, and relatedly, dislocations in legacy sectors may have inflationary consequences if new green sectors are not readily able to absorb excess labour and capital – dynamics that are already playing out in energy markets, albeit under geopolitical rather than transition-related circumstances. Central banks may have to tolerate short- or even medium-term periods of inflation to enable the green transition, calling into question the current inflation-targeting regime. More broadly, targeting quantities of credit through policy is arguably already incompatible with inflation-targeting, given this implies that price is no longer market determined – although one solution to this might be to disaggregate measures of inflation and in other ways further refine central banks’ inflation targets and policy tools. Further research is needed to address these questions.

To operationalise the allocative credit policy framework, several enabling policy reforms will be required. First, a public taxonomy that determines harmful activities that are incompatible with government transition objectives, where capital allocation must be urgently restricted. National governments should also identify priority activities and sectors where finance urgently needs to be scaled up, to support broader green industrial policy goals. Second, mandatory disclosures – for both regulated lending institutions and broader institutional capital – of portfolio composition to priority and dirty activities, together with mandatory phase-out plans for the latter, where relevant, are required. Finally, to ensure the effective design and coordination of green credit policy, new national public agencies comprised of representatives from central banks and relevant financial supervisory bodies and ministries of finance, industry and environment/climate may be needed that could and monitor its ongoing effectiveness in supporting green industrial strategy. ■

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