

**SHIFTING PRIVATE CAPITAL TOWARDS CLIMATE-FRIENDLY
INVESTMENTS: THE ROLE OF FINANCIAL REGULATORY REGIMES**

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I. INTRODUCTION

2° INVESTING INITIATIVE

The 2° Investing Initiative (2° ii) is a multi-stakeholder network bringing together financial institutions, issuers, policy makers, research institutes, experts, and NGOs. It focuses on promoting the integration of climate constraints in financial institutions' investment strategies and public regulation. The main tools of our work are coordinating and executing research projects, as well as the sharing and diffusion of knowledge on 'climate' finance.

The name of the initiative relates to the ultimate aim of setting the financial sector on an investment and financing trajectory in line with 2° climate and investment scenarios. Achieving this aim will require 2° investment metrics and a 2° investment regulatory framework that establishes the incentives for private capital to finance the transition to a low-carbon economy.

The association was founded in 2012 and operates in Paris and Beijing. It currently has roughly 30 institutional and 70 private members from 12 countries. Key French partners include the Ministry for the Environmental & Energy, the environmental agency (ADEME), the public banks (Caisse des Dépôts, and AFD), and the Prime Minister's policy reforms Center. The initiative also enjoys the support from Allianz, HSBC, as well as a technical partnership with Kepler-Chevreux, Oddo Securities and Morningstar.

Authors: Jakob Thomä (2°ii), Stanislas Dupré (2°ii), Hugues Chenet (2°ii), and Ulf Clerwall (2°ii). The authors thank Lise Pretorius (LSE) for her research support on benchmark investing.

1. A green investment gap.

A crucial condition for achieving the 2° climate target is mobilizing capital for green investment. One estimate suggests a necessary cumulative investment of \$36-\$42 tn until 2030, or the equivalent of roughly \$2 tn annually, to realize climate targets.¹ The G20 highlights the need "to address the challenge of climate change and other pressures on the environment via long-term investments in renewable energy and low-carbon technologies."² Current investment levels however are only roughly \$359 bn annually, giving rise to a 'green investment gap'.³ Climate finance also remains peripheral within finance itself. Thus, the size of the global bond market in 2011 was \$157 tn,⁴ of which climate themed bonds make up roughly \$174 bn, or 0.001%.⁵ This climate bond market in turn is 79% government backed.

2. Over-investment in high-carbon assets.

The energy transition is not only a question of additional climate-friendly investments. Based on IEA data, limiting global warming to +2°C over pre-industrial levels requires a massive shift in investments from fossil-fuel sectors (coal-fired power plants, oil extraction, etc.) to clean technologies.⁶ The economic case of their 2° scenario is based on average fuel savings estimated at \$2.5 tn per year until 2050.⁷ The associated reduction of coal and oil consumption suggests that a major part of existing reserves will become stranded. For financial markets, this requires a sharp investment drop in fossil-fuels industries. This reality currently stands in stark contrast with the following trends:

- The carbon content of fossil-fuels reserves is already 3 to 6 times higher than what we can release in the atmosphere until 2050 in order to meet the 2°C target. This situation challenges the macroeconomic case of investing \$600 to 700 bn each year in oil & gas exploration and production.
- On the other side of the energy supply chain, the locked-in emissions of existing fossil-fuel powered equipment (power-plants, factories, cars, buildings, etc.) will exceed our 'carbon budget' in 5 to 7 years. Even if carbon capture and storage delivers, unlikely before 2030, this capital stock will have to be replaced before the end of its planned lifetime. Despite this, \$300 bn are still invested each year in new fossil-fuel power capacities.⁸

From an investor's perspective, the energy transition requires a reallocation of investments and diversification of portfolios' exposure.

3. Barriers to decarbonisation

While policy uncertainty and the lack of short-term policy signals (e.g. ETS-system) have inhibited climate finance, the culprit behind the green investment gap is partly the design and structure of the financial system itself. Short-termism in financial markets does not provide incentives for long-term investment optimization and fails to align the investment horizon of asset-owners with asset managers. Carbon risk is not sufficiently integrated into financial risk analysis and regulatory stress-tests (p.11). There is evidence that current regulatory incentives (e.g. capital reserve requirements, etc.) may actually incentivize fossil-fuel investment vis-à-vis renewable energies (p. 12). The use of benchmarks, whose preference for large capitalization and free-float leads to an overweighing of fossil-fuel heavy assets, serve as role models for sectorial allocation by active fund managers and investors (p. 16).

All of these reasons underpinning the 'green investment gap' make it clear that it does not suffice to 'pull' capital, but that also incentives within the financial system need to be restructured in order to push private capital towards low-carbon investment. Given the current stress on public budgets in many countries and the substantial costs associated with green policies such as feed-in tariffs, eliminating barriers to green investment in the financial sector will likely reduce the burden on public budgets, both in terms of public financing and green industrial subsidies.

4. Policy incentives for the financial sector remain limited

The policy and regulatory role in driving capital towards financing the transition to a low-carbon economy has largely ignored the incentives within the financial system. The Renewable Energy Network 21 (REN21) online policy database only lists one financial regulatory policy among 500.¹⁰ While this does not cover the whole breadth of policies, it does reflect the relative dearth and, perhaps equally important, the lack of focus on these type of policies in the public eye. The financial sector policies that do exist are largely limited to the role of public banks. While many countries have industrial policies designed to achieve climate or emissions targets, there is currently no country that accounts the role of the financial sector in achieving these targets.

WHAT IS THE 2° INVESTING POLICY FRAMEWORK?

The *2° Investing Policy framework* describes the set of rules, regulations, and policy instruments that in concert help to align financing and investment in an economy with 2°C climate and investment scenarios, as published by the IEA or other institutions. The concept is based on the idea that in order to drive capital towards financing the transition to a low-carbon economy, industrial incentives (e.g. feed-in tariffs, subsidies, etc.) must be complemented by incentives in the financial system eliminating barriers to decarbonising finance. The policies thus focus on the 'financial' policy-maker pushing capital in addition to the 'industrial' policy-maker pulling capital.



WHAT ARE 2° INVESTING METRICS?

2° Investing Metrics describe the set of metrics that allow regulators, banks, and investors to measure a portfolio's alignment with 2°C investment scenarios. While metrics of this nature currently do not exist, they will become an integral piece of a policy framework designed to provide appropriate decarbonisation incentives in the future. A description of the nature of these metrics can be found on p. 24. A first study on the current state of environmental impact metrics for the financial sector was published by the 2°ii in July 2013.⁹



138 countries have renewable energy targets,¹¹ but not a single country has 2° C investment targets or an associated 2° investing policy framework. The initiatives that do exist remain isolated and instrument-specific. This is despite a very broad set of instruments available to policy-makers. Public bank financing neither exhausts the available policy spectrum, nor will it suffice to close the green investment gap.

5. Landscaping a 2° investing policy framework

Part of the challenge of implementing green financial regulation is that there is currently very little analysis on green financial regulatory incentives. This study constitutes the first comprehensive overview on the range of instruments available to policy-makers to align the financial sector with 2° investment scenarios. Developing such an overview would allow for more research on qualitative and quantitative research on the mechanisms of individual tools and their impact. As such, this working paper should not be read as a policy primer, nor as a conclusive analysis as to the relative merits of individual policies. More importantly, policies highlighted in the following pages may in fact turn out to be counter-productive, inefficient, or simply inappropriate in addressing the 2° investment challenge. Instead, the paper is designed to provide a comprehensive overview of the financial policy tools that can *potentially* form a part of a 2° investing policy framework in the next years.

Fig. 1 on the next page provides an overview of the tools discussed. The ‘example’ iterations of these rules should be read as examples of how these rules could hypothetically be applied (or have been applied by regulators in the past). The different instruments highlighted in this report are organized according in terms of the mechanism by which they intervene in financial markets:

- 1) *Monetary policy instruments*: The set of tools used to govern the interaction between the monetary authority of an economy on the one hand and commercial banks and the economy on the other.
- 2) *Financial Regulation*: The framework that sets the ‘rule of engagement’ for the financial market as a whole, notably in terms of origination of assets, rules for market participants, and asset market parameters.
- 3) *Public incentives*: The range of incentives targeted at the financial system that are directly (or indirectly) linked to the provision of public finances.
- 4) *Accounting & Disclosure*: The requirements associated with the accounting and reporting frameworks by financial market actors to the general public, other investors, and regulators.

Many of the tools highlighted in the following sections are controversial on their own merits. Moreover, even those actors that see these tools as pertinent disagree on the exact iteration and role of these tools. The limited scope of this working paper inevitably brushes over some of these controversies. This paper should thus be seen as framing the debate, an opportunity to identify the tools considered and open the discussion on what role these tools should serve.


6. The research agenda moving forward


The paper can be read in the context of the larger research programme of the 2° Investing Initiative. The broad thrust of the working paper thus flanks specific studies moving forward, on the materiality of different carbon risks (cf. 2°ii study on climate litigation, 2°ii study on stress testing), the role of investment processes in driving long-term and climate finance (cf. 2°ii study on benchmark investing), and specific policy proposals addressed in this working paper (cf. 2°ii on taxation incentives on savings’ interest in France). The working paper itself will provide the basis for the 2° investing policy research moving forward.


FIG. 1: OVERVIEW OF A 2°INVESTING POLICY FRAMEWORK FOR THE FINANCIAL SECTOR
(Source: 2°ii)

TYPE	INSTRUMENT	EXAMPLE
Monetary Policy Instruments	Quantitative Easing	<i>“Integrate long-term and climate investment needs in QE considerations”</i>
	A carbon-linked monetary instrument	<i>“Create carbon assets that can serve as legal reserves with central banks”</i>
	Collateral frameworks	<i>“Improve the liquidity of ‘green’ assets through preferential treatment in collateral frameworks”</i>
Financial Regulation	Stress-testing	<i>“Integrate carbon risks into stress-testing frameworks”</i>
	Capital reserve requirements	<i>“Expand the scope of portfolio matching by insurers in the context of capital reserve directives”</i>
	Lending guidelines	<i>“Establish guidelines for integrating environmental considerations and risks into investment processes”</i>
	Lending mandates	<i>“Establish lending restrictions for ‘high-damage’ sectors”</i>
	Bond markets	<i>“Expand the rules for covered bond markets to increase the issuance of ‘green’ covered bonds”</i>
	Mortgage markets	<i>“Provide incentives for climate-friendly home ownership in the framework of mortgage origination”</i>
	Carbon markets	<i>“Design carbon markets under a regulatory auspice that guarantees transparency”</i>
	Benchmark investing	<i>“Mandate ‘diversification assessments’ of mainstream indices and strengthen associated reporting”</i>
	Stock exchange regulation	<i>“Implement rules increasing the rigour around entry criteria and index construction.”</i>
	Banking rules	<i>“Expand the definition of fiduciary duty to include sustainability criteria”</i>
Public Incentives	Credit rating agency regulation	<i>“Strengthen the rules regarding carbon risk reporting for credit rating agencies.”</i>
	Tax incentives	<i>“Provide tax incentives for savings’ interest and pension fund benefits that invest in low-carbon assets”</i>
	Public initiatives	<i>“Utilise public-financing schemes (e.g. PACE bonds) to incentivize energy-efficiency in real estate”</i>
Accounting & Disclosure	Public banks	<i>“Leverage public banks to increase private investment in ‘green’ assets”</i>
	Developing new metrics	<i>“Invest in developing and adopting more sophisticated carbon metrics reflecting both climate-friendliness and carbon risk concerns”</i>
	Disclosure for non-financial companies	<i>“Improve reporting standards and requirements for non-financial companies”</i>
	Rules governing KIDs	<i>“Integrate climate-friendliness and carbon risk indicators in KIDs”</i>
	Disclosure for financial companies	<i>“Strengthen carbon disclosure requirements for banks and other financial institutions”</i>
	Disclosure to regulators	<i>“Expand the reporting requirements to financial regulators”</i>
	Public banks reporting	<i>“Road-test new reporting metrics by public banks”</i>
Stock exchange reporting	<i>“Extend the carbon reporting requirements of stock exchanges”</i>	

7. Landscaping carbon risks¹²

 **Carbon risk** can be defined as the family of risks correlated with the GHG-emissions allocated to an asset. Generally, these risks exclude climate change-related physical and macroeconomic consequences, such as variation in temperature, the rise of the sea level and their impacts on national economies.

 **Risk factors.** The financial risk can be conceptualized as the probability for the various entities that derive profits from activities releasing GHG-emissions (including companies, banks, asset-owners) to assume at least a part of the related *social cost*.¹³ Most risk factors that have materialized to date concern emitters, their clients and their suppliers (A,B, C on the chart). However, a forward looking analysis suggest that financiers and owners might also directly face risk factors related to their 'financed emissions' via an evolution of investment regulatory frameworks (E on the chart).

 **Risk transfer.** The risks faced by the investees (A,B, and C on the chart) are partly transferred to those who finance and own these entities, since a drop in asset value or creditworthiness translate into losses accounted in their books.


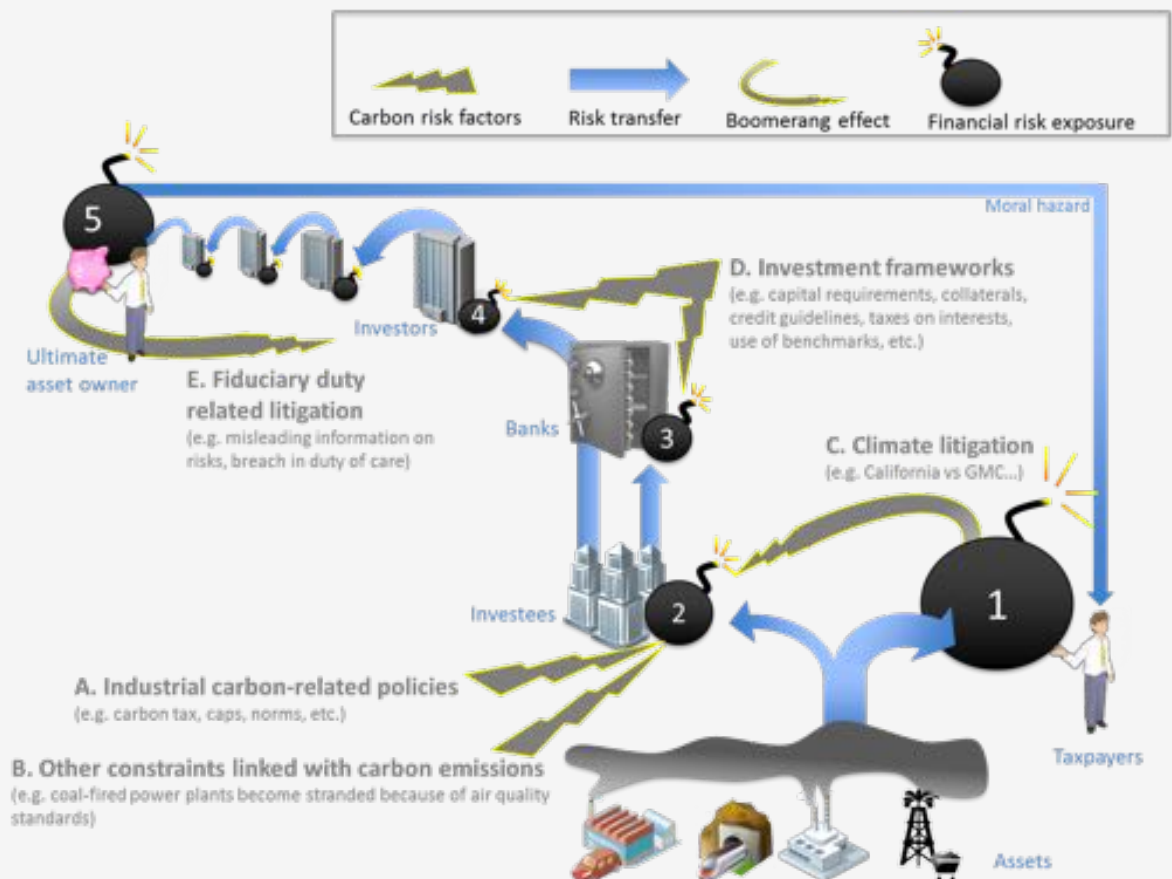
 **Boomerang effect.** Some types of risk result from 'boomerang effects', through litigation for instance (C and E on the chart). In this case, the risk exposure is correlated with the tort cost, and therefore the success of the entity in externalizing or transferring the cost of 'its' GHG-emissions in the first place.

FIG. 2: THE CARBON RISK LANDSCAPE FOR FINANCIAL INTERMEDIARIES AND SOCIETY (SOURCE: 2°II)



8. Assessing the impacts on financial intermediaries

In order to understand and assess a carbon risk, the first step is to define who is concerned and how the risk faced by the investees are transferred across the investment chain. Five key ‘risk-takers’ can be identified in this context: society/taxpayer, investees, banks, investors, ultimate asset owners. The following table highlights the materiality of carbon risks for these five groups:

FIG. 3: OVERVIEW OF RISKS FOR DIFFERENT CONSTITUENTS (Source: 2°ii)

	Tax payers (external cost)	Investees (Impairments and costs)	Bank (credit risk)	Investors (Value-at-risk risk)	Ultimate asset owner (tail risk)
Nature of risk	Cost of climate change (damages, adaptation costs, macro-economic consequences)	Impact of future policies (A), constraints (B), and litigation (C)	Impact of future policies (A), constraints (B) and litigation (C) on investees, as well as investment frameworks (D).	Impact of future policies (A), constraints (B) and litigation (C) on investees, as well as investment frameworks (D) and fiduciary duty related litigation (D)	Impact of future policies (A), constraints (B) and litigation (C) on investees, as well as investment frameworks (D).
Timeframe	Now to 2100	Not significant before ~5 years	Not significant before 5-10 years	Not significant before 5-10 years	Not significant before 5-10 years
Assessment	Social cost of emissions	Impact of a scenario (to be developed) on DCF	Integration of the alternative DCF calculation in credit risk assessment, + assessment of potential new financial policy & tax risks.	Alternative assessment for each asset line or assumption by asset-class and industry + assessment of potential new financial policy & tax risks.	Same for each investment product
Carbon data requirements	Cumulated past, annual, and locked-in emissions	Locked-in emissions by type and country	Not relevant, carbon-stressed DCF required for each investee	Not relevant, requires alternative credit ratings and valuations	Not relevant, carbon-stressed DCF required for each company
Other data requirements	Social cost of CO ₂	Cost pass-through capacity, policy risk exposure	Credit risk assessment	Strategic asset allocation model	Same
Obstacles to calculation	LOW Allocation rules	MODERATE Systematic integration into equity research and credit risk analysis	HIGH Systematic integration into credit risk analysis	HIGH Systematic integration into strategic asset allocation models	HIGH Same



Carbon risks exploratory paper available upon request

Forthcoming 2°ii/CDP study on the next generation of carbon data: get involved!

II. THE 2° INVESTING POLICY LANDSCAPE

MONETARY POLICY

≠ MONETARY POLICY

INSTRUMENTS

Using monetary policy instruments in order to stimulate green investment is not tantamount to using *monetary policy as such for the same purpose*. Instead, it implies taking instruments that normally are used to attain monetary policy objectives – the precise nature of which depends on the mandate of the central bank e.g. their “monetary policy regime” – in order to attain another objective. The distinction is important, especially as the latter may come into conflict with the former. Deploying monetary policy instruments for green investments may *in fine* have effects on real economic variables that conflict with the objectives of monetary policy themselves. While green investment today may support the overarching goal to stimulate economies, this positive relationship may not be stable in time.

Central banks will be wary of distortions created by the deployment of their traditional instruments for other objectives, such as a potential ‘green asset bubble’ or an increase in the cost of capital in other sectors as the result of a major shift in capital allocation. The fact that most central banks also have had their mandate in macro-financial stability and prudential oversight reinforced also means that the bank financing of a green capital shift will also be closely watched in terms of its effects on risks carried in the banking system.

1. MONETARY POLICY

Monetary policy strictly defined describes the set of instruments used to influence the money supply in the economy. The dominant tool in this regard is the setting of the interest rates applied to the refinancing operations with commercial banks. The central bank also interacts with banks in a number of additional ways, notably in setting collateral frameworks and, for some countries, setting reserve requirements. In addition, monetary policy during the financial crisis resorted to more ‘unorthodox’ policies such as quantitative easing.

This section will discuss the extent to which monetary policy instruments could be used to improve the financial conditions for the shift to green capital. Eventually, monetary policy instruments could also be used to compensate for the illiquidity, higher volatility, longer lead times to profitability etc., that impose a premium on their financing. From this perspective, monetary policy instruments should indeed be part of the scope of the analysis. Equally, it is important to recognize their limits and potential problems. Furthermore, monetary policy should be distinguished from monetary policy instruments (see box).

1.1. Quantitative Easing

Following the financial crisis, a number of commentators called for the implementation of ‘green quantitative easing’. The asset-purchase programme described as ‘quantitative easing’ should according to this analysis be limited to (or at least favour) climate-friendly assets. More broadly, the idea to use ‘targeted’ quantitative easing has been put forward by a number of different policymakers, including Adam Posen, member of the Monetary Policy Committee of the Bank of England. Given that quantitative easing however is not expected to be a ‘permanent policy’, it is unlikely to be considered as key tool in the context of a 2° regulatory framework. The focus of such a framework is likely to be more relevant for capital-reserve and collateral regulation, as here an opportunity exists for the integration of ‘carbon risks’.

1.2. A carbon-linked monetary instrument¹

Instead of pressing existing monetary *policy* instruments into the service of the transition to a low carbon economy, it is possible to create a monetary *instrument* for this purpose. Here, the urgency for enhanced climate financing and the need to relaunch economic growth coincide.

If it is possible to set a fixed price of carbon and a volume of GHG emission reductions per investment project, it is also possible to create a new *carbon asset* that can serve as underlying to carbon bonds in which institutional investors (pension funds, insurers, sovereign funds) can be takers, and as legal reserve with central banks. In the latter case, and with an additional monetary and regulatory authority backing, especially in the area of project certification, carbon certificates could be exchangeable against preferential financing conditions. If central banks in turn recognize these carbon assets as legal reserve as investment projects come online, lending banks would be able to refinance themselves by depositing the certificates with the monetary authority, thereby reinforcing their balance sheet without restraining credit to the real economy.

This idea allows for a monetary instrument insulated from other uses to be used in support of the transition to a low carbon economy, thus fulfilling the criteria of insulation from policy leakage identified above. This is a far cry from trying to ‘tweak’ existing monetary policy instruments and instead going towards a wholesale modification of the monetary system. In the process, we also avoid the blind injections of liquidity, the risk associated with QE and collateral regime changes that still are anchored in the money supply school of monetary economics. Instead, the growth of carbon asset reserves and their injection in the monetary system will be driven by the monetary demand emerging from the creation of green capital. This new monetary policy channel would also be less inherently conflicting with the rest of the monetary policy regime. The latter can remain oriented towards money supply instruments, acting as an overall framework.

The carbon asset channel has potential positive synergies with the rest of the financial regulatory regime considered in this paper, as well as diverting savings from speculative uses via the introduction of climate-related financial instruments benefiting from a strong guarantee, liquidity, lower risk and a long term return higher than the current average household financial portfolio.

1.3. Collateral regimes

Collateral requirements are rules regarding the collateral accepted by central banks. Central banks generally adopt a collateral framework that delineates both the type of assets eligible as collateral and their associated ‘haircut’. The composition of collateral can thus change substantially over time.

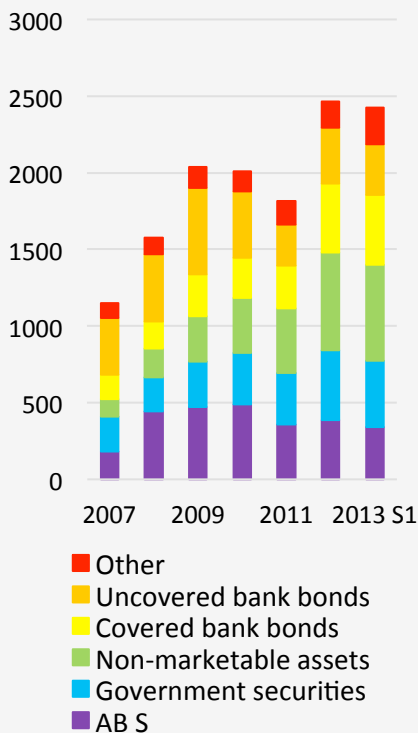
BLUNT POLICY INSTRUMENTS

One of the main challenges of applying monetary policy instruments is that they are blunt instruments. In the first instance they rely on ‘policy uptake’ by the sector towards which they are immediately directed. The reaction of commercial banks to changes in the settings of monetary policy instruments is not mechanical and intended effects may materialise fully, partially, or not at all. Thus, the interaction between money supply through the banking system and money demand in the real economy are processes that are generally difficult to fine-tune through monetary policy instruments.

This problem becomes central when targeting credit and capital flows towards a *specific sector or a specific cross-sector use of capital* such as clean energy technology. Instead of the policy uptake problem identified above, this is an issue of ‘policy leakage’ i.e. the resources that are supposed to be channelled towards a specific use are used for other purposes. The problem is already evident in recent QE and collateral regime changes – liquidity that is supposed to provide a credit boost to the real economy is largely reinforcing the liquidity positions and the solvency of commercial banks.

In terms of climate finance, the need is for a much more stable and direct financing mechanism, structured in such a way as to minimize leakage, thus preventing undue benefits to other uses from the monetary conditions created specifically to incentivize green investing. This particularly applies to the use of collateral regimes and other components of transactions between the central bank and the banking system that are seen as stimulating green investment.

FIG. 4: ECB COLLATERAL BY ASSET TYPE in EUR bn
(SOURCE: ECB 2013)²



COLLATERAL REGIMES

History: Historical factors may determine both the types of collateral accepted and eligible institutions. Thus, the ECB has a wide application of eligible institutions as a result of the diverse provisions of the member central banks prior to the monetary union.

Type of economy: The liquidity provisions of a central bank may also be determined by the general function of the bank, i.e. a bank that manages a liquidity surplus vs. a liquidity shortfall.

Legal determinants: Some central banks may face a very restrictive legal framework. Thus, “the Federal Reserve Act in the United States, requires open market operations to be covered by certain assets (such as US Treasury securities, agency securities and agency mortgage-backed securities).

SOURCE: BIS 2013³

Noticeable in this regard is the recent growth of covered bonds as ECB collateral (Fig. 4). Following the financial crisis, almost all central banks ‘eased’ their collateral framework (Fig. 5). An inclusion of an asset in the collateral framework (or the lowering of the ‘haircut’ to the asset) will incentivize banks to increasingly hold these assets. Thus, providing climate-specific collateral rules (e.g. for climate bonds, etc.), while taking into account the overall risk profile, can boost the liquidity of green assets.

A recent historical precedent for using collateral policies to stimulate liquidity is the ECB. In July 2013, the ECB updated the haircuts for marketable instruments, the risk control measures for retained covered bonds, the replacement of the current requirement of two ‘triple A’ ratings with the requirement of two ‘single A’ ratings for the six classes of asset-backed securities (ABS) subject to loan level reporting requirements, reflecting their improved transparency and standardisation, and the reduction of the haircuts applicable to ABS.⁴ The ECB links this policy change explicitly to recent initiatives by European institutions to improve funding conditions for Small and Medium-sized Enterprises (SMEs), particularly in terms of the possible acceptance of SME-linked, ABS-guaranteed mezzanine tranches as Eurosystem collateral in line with established guarantee policies. The ECB argued that due to the review and adjustment of the risk control framework, the net risk effect will be neutral. This policy initiative could potentially in a next step be expanded to ‘green’ assets and/or even involve the exclusion of certain types of high-carbon assets as collateral.

FIG. 5. COLLATERAL FRAMEWORKS (SOURCE: BIS 2013³)

Eligible (green), Newly eligible post-2007 (blue), Non-eligible (red)

	Public sector securities	Financial entity debt	Covered bonds	Other asset-backed	Corporate debt	Non-securities
Australia	Eligible	Eligible	Newly eligible post-2007	Non-eligible	Non-eligible	Non-eligible
Canada	Eligible	Eligible	Non-eligible	Non-eligible	Non-eligible	Newly eligible post-2007
Eurosystem	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible
India	Eligible	Non-eligible	Non-eligible	Non-eligible	Non-eligible	Eligible
Japan	Eligible	Newly eligible post-2007	Non-eligible	Eligible	Non-eligible	Eligible
Korea	Eligible	Non-eligible	Non-eligible	Non-eligible	Non-eligible	Eligible
Mexico	Eligible	Newly eligible post-2007	Non-eligible	Newly eligible post-2007	Newly eligible post-2007	Eligible
Singapore	Eligible	Non-eligible	Non-eligible	Non-eligible	Non-eligible	Non-eligible
Sweden	Eligible	Non-eligible	Eligible	Eligible	Eligible	Non-eligible
Switzerland	Eligible	Eligible	Eligible	Non-eligible	Eligible	Non-eligible
U.K.	Eligible	Newly eligible post-2007	Newly eligible post-2007	Newly eligible post-2007	Newly eligible post-2007	Newly eligible post-2007
U.S.A.	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible

2. FINANCIAL REGULATION

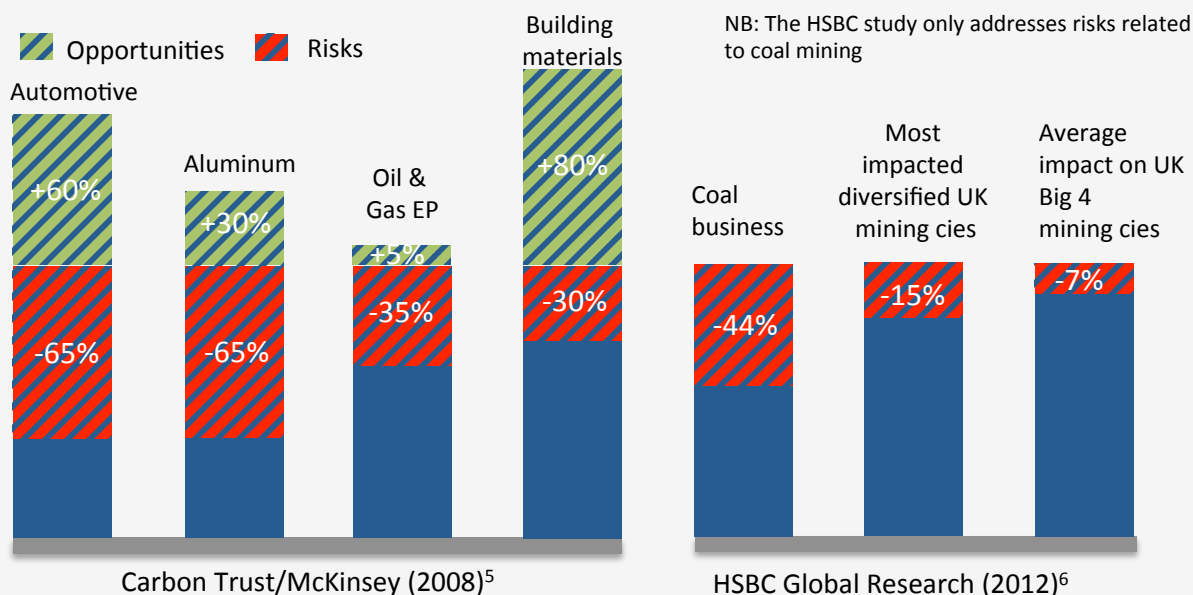
Financial regulation covers the universe of rules governing the commercial activity of banks and financial institutions. In the context of this paper, this precludes the non-financial activity (e.g. reporting & disclosure) and the public sector activity (e.g. monetary policy and the role of fiscal incentives). The two key areas under review will be macroprudential policy and the market and institutional regulation.

- *Macroprudential policy* covers the set of policies ensuring systemic financial stability. In this context, capital reserve requirements and stress-testing will be discussed. These policies are usually administered by the central bank or a specific financial regulatory authorities. There is a substantial degree of international coordination in this regard, notably in the form of the global Basel III and European Solvency II agreements (cf. 2°ii note on Solvency II and p. 13).
- The second area of financial regulation refers to *the rules governing the financial markets* and activity within these markets. While the number of different regulatory tools and approaches counts in the hundreds, this paper will focus on the rules governing the main markets relevant for 2° policies, the rules governing the origination of bonds and mortgages, public guidelines and mandates setting the parameters for financial activity, banking regulation, and ‘benchmark investing’ driving a substantial share of investing. While this paper will ‘cherry-pick’ three potentially important markets for low-carbon finance, a more comprehensive study would cover a broader set of markets.

Mechanisms:

2.1. Stress testing. A number of countries stress-test so-called ‘*systemically important financial institutions*’ on a regular basis. They evaluate the resilience of the bank to an extreme adverse economic scenario, described by the IMF as ‘unlikely but plausible’ and then lay out resiliency requirements. To date these scenarios do not include the surge of point-in-time carbon risks related to a new wave of climate policies, the associated risk of ‘stranded assets’, and successful mass litigation. This is despite growing evidence of the impact of these risks on asset value (Fig. 6). Given the cumulated weight of highly exposed industries in financial institutions portfolios, it arguably makes sense to include such a scenario in future stress-tests. These tests can then pave the way for a modification of risk-weighting for capital requirements, if relevant. One of the key challenges here is integrating risks with no historical precedent (e.g. the energy transition) into existing stress-test

FIG.6. IMPACT OF A 2° SCENARIO ON ASSETS VALUES



WHY DO NEW CAPITAL RESERVE RULES CONSTITUTE A BARRIER TO DECARBONISATION?

Low-carbon assets are reputed to have longer lead times to profitability and significant volatility and illiquidity over that time, compared to investment in more “mature technologies” with long established economic models. Whereas neutral policy and financial regulation is a real issue, this notion itself also has to be challenged. Equally, as a rule, renewable energy projects have much higher up-front capital costs and lower operating costs compared to fossil-fuel installations. As a result, the immediate capital hit is higher and the payback period likely longer. Moreover, low-carbon assets are as a rule much more reliant on long-term bank credit, with their role in securitization and fixed-income still peripheral. This leads them to be particularly exposed to bank lending and refinancing risks.

2.2. Capital Reserve Requirements

Strengthening the capital reserve requirements has been the key thrust of Basel III and Solvency II, new international standards for the financial system. However, subsequent analysis of these new frameworks suggests that they may in fact actively act as disincentives for green investment (see box). Thus, new requirements provide implicit subsidies to short-term investment and highly-capitalized companies. In addition, they do not require the accounting of carbon risks as part of the risk-weighting.

The discussion of providing incentives for financing the transition to a low-carbon economy through capital reserve requirements mainly addresses three main questions:

- 1) Do new capital reserve requirement rules accurately reflect or take account of carbon risks, affecting both the risk of specific assets and systemic stability (cf. page 6)?
- 2) To what extent can capital reserve requirements be a tool for not only levelling the regulatory playing field but also actively providing incentives for low-carbon investment?
- 3) Can the specific set of disincentives these new capital reserve requirements tools provide for low-carbon finance be ‘offset’ through other regulatory initiatives?

FOCUS. BASEL III



Specific exploratory paper available upon request

New barriers to decarbonisation.

Basel III in its current form and its expected adaptation in economies around the world (e.g. CRD IV) will likely create new barriers for long-term and climate-finance (and thus in turn provide incentives for high-carbon investment). The emphasis on short-term and highly-rated assets with high liquidity intrinsically disadvantages small-scale renewable energy and energy-efficiency projects with long payback periods, high up-front capital expenditures, and low scalability to date. Equally, the financial crisis has shown that the goal to incentivize specific asset-classes or sector-finance cannot come at the expense of overarching financial stability.

Offsetting macroprudential rules

As a result of these two seemingly conflicting goals, the discussion of Basel III has partly focused on opportunities to specifically offset these new rules with other regulation. Thus, IDDRI (2013) published a paper highlighting a number of policy recommendations, including creating a low-carbon refinancing facility in public banks and a secondary bond market for low-carbon assets. The IDDRI study specifically disavows sector-specific adjustment to Basel III and related macroprudential rules.

Integrating carbon risks

An alternative (or complementary approach) is to push for a more comprehensive integration of carbon risks into capital reserve requirements considerations. While it would be dangerous to provide sector-specific incentives, a more accurate integration of carbon risks from a systemic stability perspective and for certain assets at risk (given the scope of carbon risks, p. 6) can reconcile both the goal of stability and sustainability.

FOCUS. SOLVENCY II

New rules for insurers

The Solvency II regulatory reform programme initiated by the European Commission (EC) with the Directive 2009/138/EC constitutes a significant challenge for the insurance industry. The reform is largely focused on harmonising and modernising the solvency, risk measurement and management framework, and reporting requirements of insurers. In the context of financing the transition to a low-carbon economy, the Directive raises a number of questions, notably with regards to the more stringent capital reserve requirements favouring liquid, less volatile assets with high credit ratings, requirements that provide disincentives to long-term low-carbon investments.

Carbon dis-neutrality of new regulation

Questions can be raised as to the *effective neutrality* of current prudential regulations in terms of impact on insurance asset portfolios and the balance between the business-as-usual high-carbon investment strategies and the new low-carbon strategies that will need to replace them. Under current prudential rules low-carbon investment strategies are generally evaluated as carrying higher risk and lower returns in the short term and therefore incur higher costs for institutions than do high-carbon investment strategies. For Solvency II, there are two areas where the ‘prudential’ cost wedge generated by risk-weighting rules can be adjusted to level the playing field for low-carbon, 2° C scenario compatible investment strategies.

Portfolio matching

Insurance companies are, as a function of the nature of their liabilities, ‘natural’ long-term investors. They are able to operate with longer holding times, exchanging longer term asset performance for short-term risk. As opposed to a bank balance sheet, liquidity risk is also less pronounced, enhancing the ability to stay within an investment strategy longer. This also means that there is a degree of compatibility between the long liabilities of insurers and the generally longer lead time for low-carbon investment strategies that should be placed at the forefront today. Solvency II will make this type of portfolio matching more difficult. Regulation for insurers should thus investigate making more allowance for ‘portfolio matching’ when considering requirements.

Own Risk and Solvency Assessment (ORSA)

The ORSA is intended to establish an insurance company’s economic view of the capital required to run its business *regardless of requirements set by regulators and the quantitative requirements under Pillar 1*. Through the ORSA, companies must, to cite the Directive, demonstrate “sound and prudent management of the business” and assess overall solvency needs, on time horizons different from the capital requirements evaluated under Pillar 1.

Moving forward, voluntarily extending the ORSA obligations in this area is a crucial and immediate step forward and represents an opportunity for the sector to demonstrate that all material risks are taken into account. The potential payoff is double – effectively avoiding additional capital charges, all while mobilising more capital for the energy transition. Implementing Solvency II in practice could thus actually implies both positive climate externalities and more sustainable investment strategies.



Specific exploratory paper
available upon request

2.3. Lending Guidelines

A prominent form of lending stimulus for specific sectors appears in the form of lending guidelines. Lending guidelines can industry guidelines that do not engage a public agency, or direct guidelines developed by regulators. The most prominent example for industry sustainability standards is the voluntary Equator Principles, which have been adopted by a large number of banks worldwide (Fig. 7). In terms of regulation, China currently employs a ‘Green Credit Policy’ guideline, which it plans to make mandatory in the near future.⁷ This guideline is also linked with more stringent reporting requirements (p. 27). Our analysis suggests that these guidelines must be strengthened however to have a meaningful impact on capital-allocation decisions. Guidelines are generally process-based (e.g. certain mechanisms integrating climate constraints in capital allocation decisions) rather than climate performance-based.

2.4. Lending Mandates

Lending mandates are particularly potent in the context of financial market stabilisation policies. A substantial part of the response of government to the crisis was fiscal guarantees and public-sector bailouts. In the case of Germany, the Special Financial Market Stabilization Funds (SoFFin) in 2008 included a specific conditionality related to SME-financing.⁸ While it is to be hoped that additional financial market stabilization measures will not be necessary on a global scale, individual countries, particularly some emerging economies, will likely be confronted with financial crises in the next years. Policy response at such a juncture can then integrate financing the energy transition into the conditionality of governments stabilization efforts. Such a tool could then serve the dual purpose of reinvigorating lending to the ‘real’ economy and putting the economy on a more sustainable growth path.

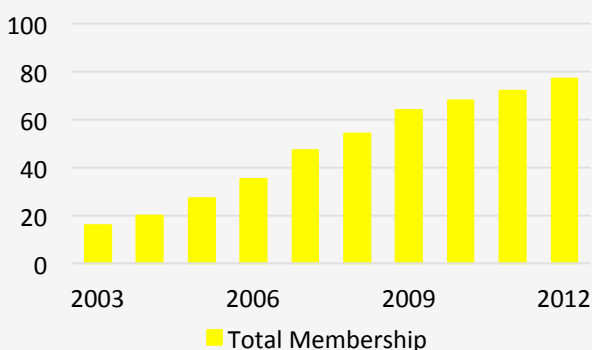
While mandates are generally not employed in developed economies, they are frequently prominent policy tools in developing economies. Although not necessarily official, China has ‘implicit’ lending mandates to its state-owned enterprises. In fact, these lending mandates may sometimes also act as barriers. Thus, as a result of growing fears of a bubble in the Chinese real estate market, Chinese regulators have set a cap on lending for real-estate projects and limited the list of eligible construction companies.⁷ Given that energy-efficient ‘green’ buildings are generally more costly up-front, this has the potential of dampening ‘green’ construction as banks try to maximize the projects under the cap. Currently, the only country employing a ‘green’ lending mandate is the island-state Fiji, which has a specific mandate for renewable energy assets, requiring that 2% of a banks portfolio be invested in renewable energy assets.⁹

It should be noted that lending mandates are very controversial. It is unlikely that they will appear as a relevant policy in developed economies, outside of a financial rescue package. A more likely scenario is lending restrictions to certain ‘very harmful’ industries. Our analysis suggests this approach may be possible in some countries in the short- to medium-term, notably China and India, where non-climate specific lending rules already exist.

EQUATOR PRINCIPLES

“The Equator Principles (EPs) is a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects and is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. Currently there are 78 Equator Principles Financial Institutions in 35 countries have officially adopted the EPs, covering over 70 percent of international Project Finance debt in emerging markets.”¹⁰

FIG.7. BANKS’ ADOPTION OF THE EQUATOR PRINCIPLES (SOURCE: EQUATOR PRINCIPLES 2013¹⁰)



2.5. Bond market. Reforming the rules of the bond market will be integral to scaling climate bonds (see box). One prominent avenue for reform is the covered bonds market, particularly attractive to investors due to its lower perceived risk (see box). The opportunity for reforming this market has been highlighted by the Climate Bonds Initiative.¹³ Covered bonds usually command lower interest rates and would thus be attractive financing tools for ‘green’ investment projects. Crucially they could address the challenge of high capital-reserve requirements for climate project finance under Solvency II (Fig. 8). Moreover, the lower risk of ‘green’ covered bonds would allow long-term investors (e.g. pensions funds) to gain access to climate finance without fundamentally altering portfolio guidelines. There is a substantial history of covered bonds legislation as stimulus for certain sectors. Germany incentivized covered bonds (‘Pfandbrief’) to finance infrastructure investment post-unification. Legislation on covered bonds has been introduced in almost forty countries.¹³

2.6. Mortgage market. Mortgage markets are generally the most regulated financial market in developed economies. In the US, current incentives for homeownership can be traced to the 1977 Community Reinvestment Act, which called for an evaluation of commercial banks in terms of their reinvestment in financially underserved areas. A more recent example is the UK ‘Help to Buy scheme’. All of these initiatives are controversial because they provide artificial incentives for home-ownership, leading some analysts to blame them for the ‘housing bubble’ in the US.¹⁴ Equally, green financial regulation in this context would not be focused on *incentivizing* home ownership, but providing the incentives for *climate-friendly* home ownership. Certain energy-efficiency standards could be a condition for public guarantees. These can also be justified from a risk perspective as research suggests that higher and more volatile utility costs increase the level of non-performing loans.¹⁵

2.7. Carbon markets. Key questions regarding carbon markets are not just limited to the volume and nature of certificate issuance, but also the actual rules of the market. The European Commission has now pushed to govern ETS under the EC Markets in Financial Instruments Directive (MiFID), ensuring increased transparency and limiting insider trading, thus likely improving the long-term viability and efficacy of these markets. On the other hand, the Chinese ETS pilot-schemes have limited carbon certificate trading (at least for now) to spot markets. While this may be good for financial stability, it may reduce the liquidity and forward transparency (through futures markets). As of yet, no best-practice model is in place on this question.

ADVANTAGES OF COVERED BONDS

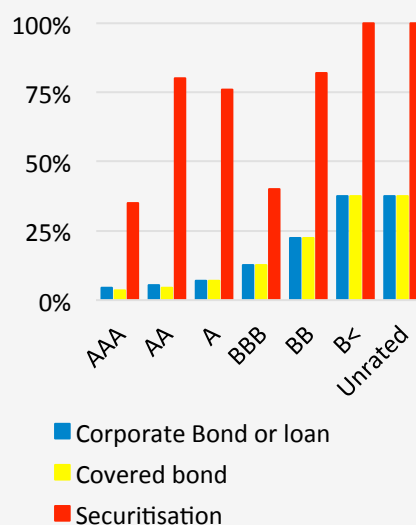
- Double recourse to issuer and cover pool
- Higher rating
- Lower risk weighting
- Favourable treatment under Solvency II (Fig. 8)
- Generally better liquidity through larger issue size
- Lower repo haircut at ECB
- Eligible as liquid assets under upcoming Basel III rules (with 15% haircut)
- Low risk of bailing-in

Source: *Financial Times* 2010¹¹

CLIMATE BONDS

Climate bonds are fixed-income instruments linked to investment in climate change solutions. Currently, climate bonds make up a fraction of the total bond market. Climate bonds are usually discussed in terms of developing new financial instruments for mobilising private-sector finance. They are thus technically not a regulation but a financial tool. Equally, the parameters of the bond market, both in terms of covered bonds, and in terms of the public issuance of climate bonds (p. 22) will be an important factor in driving climate bond innovation and adoption forward.

FIG. 8: PROJECTED CAPITAL REQUIREMENTS UNDER SOLVENCY II (SOURCE: FITCH RATINGS 2012¹²)



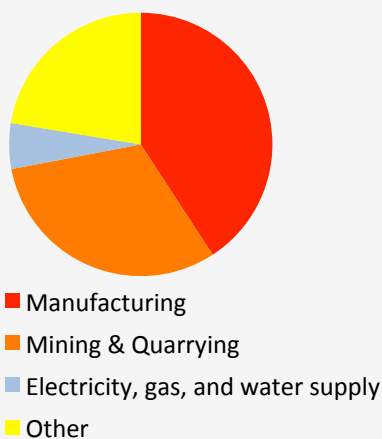
2.8. Benchmark investing

Benchmark indices can be seen as the ‘lighthouse’ of finance. Indices may function as a baseline, which fund managers are asked to beat (active management) or track (index funds). They are usually designed to mirror a stock exchange or global equity markets, while narrowing the universe to an ‘investible’ list: from +45,000 securities to 100-3,000, including assets with sufficient liquidity and limited transaction and research costs. The nature of current benchmark investing provides disincentives for green assets (cf. 2°ii forthcoming study on benchmark investing). The FTSE100 is a case point. Capital expenditure of FTSE100 shows a substantial bias for mining and fossil-fuel related expenditure.¹⁶ A comparison with the real economy suggest that these indices are even more ‘carbon-heavy’ than the real economy as a whole (Fig. 9). Measures from 2007 suggest that even accounting for gross-fixed capital formation, this disconnect persists, although these types of comparisons suffer from notorious volatility (Fig. 10). A 2°regulatory framework could require providers of stock and bond indices to assess and disclose the gap between the index allocation and the allocation aligned with long-term investment needs over the next 10-20 years. The information document could require a specific focus on climate scenarios based on qualitative analysis in the short-term and quantitative data with the development of 2°investing metrics. New regulation of commodity and interest rate indices, such as the LIBOR rate, as argued for in the EC Green Paper on long-term financing, can be expanded to include sustainability considerations in equity indices.¹⁷

2.9. Stock exchange listing

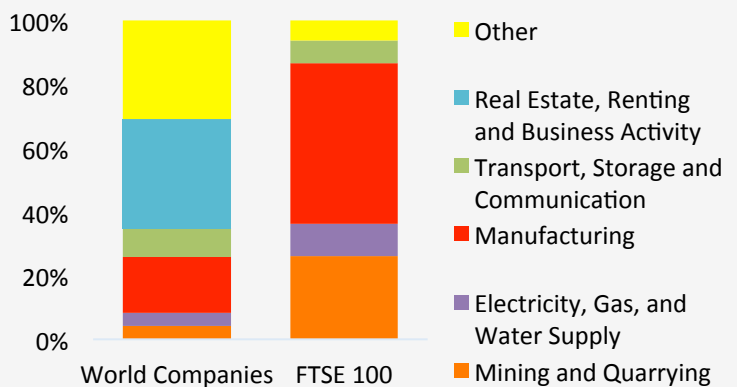
The rules regarding stock exchange listing are on the one hand set by regulators stipulating criteria and the stock exchanges themselves ‘selecting’ stocks. Regulation thus usually doesn’t intervene on a case-by-case basis but instead sets broad ‘rules of the game’. Examples for this include disclosure requirements of publicly-listed companies, governance rules for shareholders, and alignment with international law and regulation. Thus, the Dodd-Frank Act in the United States substantially expanded the disclosure requirement regarding resource-related commercial activity in foreign countries. The Financial Conduct Authority (FCA) in the United Kingdom sets transparency and corporate governance rules. NGOs have called for an expansion of these rules, notably the London Mining Network, which calls for expanded powers for the FCA to block or delist companies that violate environmental/social norms or face legal issues.¹⁸

FIG.9. FTSE100 SHARE OF CAPEX BY SECTOR* (SOURCE: 2°ii, FTSE100)[&]



*78% of manufacturing represented by Oil & gas companies

FIG.10. GROSS-FIXED CAPITAL FORMATION OF WORLD COMPANIES AND FTSE100 2007* (SOURCE: 2°ii, FTSE100)[&]



* 2007 last year of available data for world companies; 78% of manufacturing in FTSE 100 in oil & gas sector



In 2011, the Carbon Disclosure Project published a general roadmap for making stock exchanges more sustainable. This roadmap called for “*targets for the phased improvement in the disclosure of key climate change metrics, an increasing rigour and granularity of guidelines, capacity-building with companies and investors to raise awareness of emergent risks, and assist the interpretation of disclosed data, and increasing rigour around index construction and entry criteria.*”¹⁹ While not all of these measures directly relate to regulation, they provide a rough idea of the road forward for possible policy tools to make stock exchanges more sustainable.

2.10. Banking regulation

The re-regulation of banks following the financial crisis has focused both on the stability of financial institutions and the extent of their ‘speculative activity. Thus, the Volcker Rule integrated in the Dodd-Frank Act largely prohibits proprietary trading by commercial banks. While these reforms emphasize the importance of lending to the ‘real’ economy, their role in driving low-carbon finance has largely been ignored. Responder in a study on banking reform highlights the need to emphasize banking diversity.²⁰ In addition, a revision of fiduciary duty rules may provide an opportunity to ruder short-termism in the financial sector (p. 18)

2.11. Credit ratings agencies

Both the United States and Europe have pushed ahead on strengthening the regulatory oversight of credit rating agencies, given their prominent role in the financial system. New rules requiring an integration of ‘carbon risks’ into credit rating agencies may be one step into the overall aim of levelling the playing field of low-carbon asset in risk-return analysis and will make it easier to balance new capital reserve requirements with low-carbon investment targets. Credit rating agencies reform could include mandating sustainability ratings.

SUSTAINABLE STOCK EXCHANGES

“The Sustainable Stock Exchanges is an initiative aimed at exploring how exchanges can work together with investors, regulators, and companies to enhance corporate transparency, and ultimately performance, on ESG (environmental, social and corporate governance) issues and encourage responsible long-term approaches to investment.

Currently, eight exchanges have become partner exchanges to the SSE initiative, including NYSE Euronext, NASDAQ OMX, BSE Ltd., the Borsa Istanbul Stock Exchange, BM&FBOVESPA, the Johannesburg Stock Exchange (JSE), the Egyptian Exchange (EGX) and the Nigerian Stock Exchange.

The SSE is co-organized by the United Nations Global Compact Office, the United Nations Conference on Trade and Development, the United Nations-supported Principles for Responsible Investment and the United Nations Environment Programme Finance Initiative.”

Source: Sustainability Stock Exchange Initiative²¹



SEVEN STEPS TO MAKE BANKS SUSTAINABLE

STEP 1: Add sustainability to the quality of capital reserves.

STEP 2: Ensure banks assess the sustainability risks of their counterparts in derivatives.

STEP 3: Establish specific capital requirements to avoid sustainability hazards

STEP 4: Improve sustainable liquidity management

STEP 5: Strengthen countercyclical measures with sustainable preventative measures

STEP 6: Amend discretion for sustainability criteria to the single rule book in banking

STEP 7: Enact a sustainability impact assessment of CRD (capital reserve directives) proposals

Source: Friends of the Earth/CRD 2011²²

FOCUS. FIDUCIARY DUTY FOR LONG-TERM INVESTORS

Fiduciary duty as a barrier to divestment

For about two years, a fossil-fuel divestment movement has been growing, based on the argument that 60-80% of existing coal, oil and gas reserves are ‘unburnable’ if the world is to have a chance of not exceeding global warming of 2°C and that therefore investors holding these assets are exposed to a “carbon bubble”. Regulators and mainstream investors have responded to this movement by arguing that divesting from fossil-fuels, and thus straying from the sole pursuit of maximizing financial performance, constitutes a breach of fiduciary duty. In October 2013, Harvard’s president Drew Faust rejected divestment on the grounds that “*significantly constraining investment options risks significantly constraining investment returns.*”²³

This argument is indeed consistent with the US definition of fiduciary duty, which is based on the ‘*prudent investor rule*’ and implies a ‘*broad diversification*’ of investments. It is also in line with the *Cowan vs Scargill* case in the UK, where labor unions’ call to exclude the foreign coal sector from the investment universe of their pension fund to avoid fueling competition was judged as a potential breach of fiduciary duty.²⁴

Sustainability considerations and fiduciary duty

As a result, *Responder* calls for an integration of sustainability considerations into fiduciary duty iterations.²⁰ Expanding the scope of fiduciary duty in this way may be one way of mobilizing the concept in the service of low-carbon finance.

Equally, the current fiduciary definitions may already provide grounds to reduce investment in high-carbon assets (cf. 2°ii note on fiduciary duty). When scanning the investment process of most institutional investors however, one comes up with a series of questionable practices that seem fundamentally inconsistent with the pursuit of the best financial interest of beneficiaries and ultimate asset-owners. Such an analysis suggests that the current level of fossil-fuel investment by institutional investors may in fact be a breach of fiduciary duty.

Short-termism

The ‘artificial shortening’ of investment horizons is the most prominent issue. Most so-called “long-term investors” with long-term liabilities have much shorter investment horizons than what their own investment theory would require in order to optimize risk-adjusted returns. The World Economic Forum found that long-term investors only invest 9% of their portfolio on illiquid asset-classes.²⁵ In 2010, an analysis of the investment horizon of a panel of 822 funds showed 63% of long-only equity managers have shorter investment horizons than what they declare to their clients.²⁶ Short investment horizons mean that long-term risks associated with fossil-fuel assets, risks relevant to a household saving for its pension or a life insurer, get taken off the radar.

Lack of diversification

A standard equity fund is invested at 10 to 15% in ‘fossil-fuel assets’ and less than 1-2% in renewable energy.²⁷ Based on this weighting, a raw estimate of capital expenditures of the related companies suggest that they invest each year more than \$10 in new fossil-fuel assets for each dollar invested in renewable assets. This 10:1 ratio is misaligned with both current global investment trends (4:1) and investment roadmaps to 2013-2030 based on international climate goals (~1:1).²⁸ As a result, most equity investors are significantly over-exposed to future cash flows from fossil-fuels assets and under exposed to renewables, compared to what ‘the prudent investor rule’ would require, an over-exposure potentially in breach of duty of care.



Exploratory paper on fiduciary duty and cap-weighted index investing available upon request

3. PUBLIC INCENTIVES

Currently, public incentives for climate finance are largely limited to industrial policies (e.g. feed-in tariffs, manufacturing subsidies, R&D, etc.). The financial sector incentives that do exist are largely limited to the role of public banks. Private sector capital in this regard is largely ignored. As a result, the German public bank KfW for example plays a huge indirect and direct role in the domestic climate finance landscape (Fig. 11). Given the backlash against the costs of industrial policies and the under-utilization of public incentives tools in the financial sector, our analysis suggests that fiscal incentives may provide much more ‘bang for the buck’ than industrial policies. While industrial policies will (and should) remain at the heart of public action on climate change, there is a substantial cost-effective avenue of public policy untapped. These policies relate to tax incentives for the financial sector, the role of public initiatives in overcoming principal-agent problems (e.g. PACE bonds), and the continued support of public bank lending.

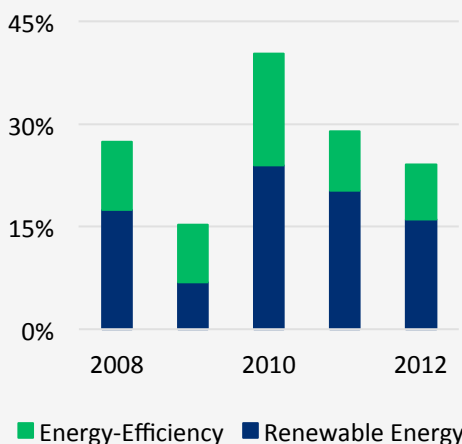
Mechanisms:

3.1. Tax incentives.

Tax incentives for low-carbon investment can appear in the form of taxation on savings interest, the corporate tax code, and their potential role in the context of a financial transaction tax. The importance of these incentives is highlighted by the EC Green Paper on long-term finance.¹⁷ Different tax regimes have different important in driving investments in different countries. Arguably, at least for the European case, the most important tax incentive in this regard is the taxation on savings interest and pension benefits (p. 20). In addition to these tax incentives on savings, there are a number of additional fiscal incentives that may potentially be relevant for the 2° regulatory framework. Thus, in China, the Clean Development Mechanism (CDM) Fund is exempted from corporate income tax on interest income derived from capital deposit or national bonds.²⁹ A similar corporate tax credit can be extended to other funds or, for example, income derived from climate bonds.

Another possible avenue in terms of ‘green’ tax incentives is the financial transaction, or ‘Tobin’, tax. While there is much controversy surrounding this measure, if a financial transaction tax will get implemented, lowering the tax rate for green assets will likely provide a substantial boost to the liquidity of these assets. Moreover, revenue generated from this tax could be earmarked for ‘industrial’ low-carbon investment.

FIG. 11: CLIMATE FINANCE IN KFW PORTFOLIO (SOURCE: KFW 2013³⁰)



PUBLIC INVESTMENT IN CLIMATE FINANCE

“Based on a range of differing budget years in the period 2010-2012, CPEIR studies estimate that the governments of Bangladesh, Indonesia, Nepal, and Thailand, jointly channeled around USD 4 billion, through government budgets toward climate activities. CPEIR data are indicative rather than statistically accurate estimates owing to difficulties involved in defining and tracking climate finance. The European Commission (2013) plans to spend USD 23.2 billion (13%) out of a total budget of around USD 182 billion on climate-related activities in 2014, and aims to reach a climate budget share of 20% over the period 2014-2020. A CPI study estimates that in 2010, the German Government’s domestic climate budget was around USD 1.6 billion, of which USD 1 billion was channeled through domestic public banks such as KfW.”

Source: Climate Policy Initiative 2013³¹

FOCUS. GREENING TAXATION ON SAVINGS INTEREST



Taxation on savings' interest

One of the key avenues for 'greening' taxes in the financial sector is the taxation on savings' interest. At global level, household savings represent the bulk of the roughly \$200 trillion global financial assets outstanding. In most countries, tax incentives on savings interests (and tax relief on pension funds benefits) is the main policy tool to channel these private savings and influence asset managers' allocation strategies. From a public accounting perspective, these incentives are considered as subsidies to foster savings and investments in the real economy. They represent tens of billions of Euros in countries like France or the UK. These tax schemes are designed at country level and usually reviewed on a yearly basis. Incentives related to the financing of the economy (e.g. bonus for long-term savings and investment in equities) are in most cases indirectly linked with specific investment vehicles (e.g. tax-free accounts, UCITS, etc.).

EC Green Paper

The EC Paper on long-term financing in 2013 has explicitly recognized the role of taxation on savings' interest: *"Many Member States have already put in place a number of incentives to increase (long-term) savings, notably with respect to pension-related savings. In addition, many Member States apply dual income tax systems, where capital income is generally taxed separately at a lower rate than other sources of income; Tax incentives are often considered as instruments to encourage certain types of investment; a tax subsidy might be justified when the social return to an investment is higher than the private return of the investor and therefore investment levels are below the social optimum (e.g. R&D and environmental concerns)."*¹⁷

Aligning tax incentives with 2°C climate targets

In this context, the 2° Investing Initiative recommends that policy makers assess, in each country, the impact of tax incentives on long-term finance and the energy transition, using the best-available techniques, and study the alignment of these incentives with the investment roadmaps of 2°scenarios (cf. 2°ii study on taxation on savings' interest in France). A mechanism for this would for instance include the modulation of the tax scale applied to all savings products (fund, account, life-insurance contract, etc.) based on the contribution of the underlying asset portfolio to the financing of the energy transition. This scheme would first act as a carbon tax on investments, resulting in lower capital costs for green investments (green bonds, funds, loans, clean techs companies, etc.) and higher capital costs for industries and projects not aligned with the goals of the energy transition (e.g. coal mining or the construction of coal-fired plants). It would therefore encourage investors to design 'green' investment vehicles and companies to raise capital for green capital expenditures and R&D projects. The second effect would be to increase the flows of investments in the real economy and thus improve potential growth.

Developing specific incentives

The Green Alliance in the UK has developed a set of specific recommendations for 'greening' tax incentives in the UK.³² These include developing a favourable tax treatment of pensions contributions that require proof of responsible investment and asset management that genuinely reflects the long-term interest of the savers. In addition, banks and building societies would need to prove responsible lending practices and high levels of transparency to be allowed to offer tax-free ISA savings accounts. The Green Alliance also calls for granting an extra £3,000 ISA allowance for individuals to save in green or social stocks and shares ISAs, including the extension of the ISA eligibility to include corporate green bonds.



Forthcoming study on the impact of tax incentives on savings interests in France on the climate-friendliness of investments and long-term financing in partnership with ADEME (environmental agency) & CGSP (Prime Minister Center for policy reforms). Information available upon request.

3.2. Public initiatives

Public initiatives is a rather diffuse term for the role of the public sector in overcoming the principal-agent problem. One example for this is in the landlord-tenant context, where neither party has a prominent incentive for investments in energy efficiency. Part of this conundrum can be overcome by changing the financing structure of these investments.

One potential role of the public is the issuance of PACE (Property Assessed Clean Energy) bonds. Legislation for this US financing model currently exists in 31 states in the United States.³³ PACE bonds are municipal bonds offered to investors. The funds raised from these bonds is then invested in retrofit projects for households and businesses. Households and businesses repay the municipalities via a specific premium on the property tax, usually over an extended period (10-20 years), which is then used to pay the bonds. Although these initiatives also may be associated with industrial policies, they specifically address the issue of retrofit *financing* and thus have to be considered in the broader regulatory and financial policy framework.

3.3. Public bank lending

National Development banks and bilateral finance institutions accounted for about 69% of total climate finance (~\$84 bn).³⁰ In Germany almost half of all private sector investment was supported in some way by public banks concessional loans. Energy-efficiency and renewable energy investments take up a substantial part of the KfW portfolio, at its peak 40% in 2010.²⁹ This is not even accounting the additional investment by the government. The growth of climate finance has contributed to making the German public bank KfW the second-largest bank in Germany.

While this analysis suggests that public lending is already doing 'its share', issues remain. Thus, in the German case, according to the Climate Policy Initiative, climate finance is not systematically and comprehensively tracked. Nor there is a comprehensive assessment of its effectiveness. Analysis by the Inter-American Development Bank suggests public banks enjoy a significant leverage factor (Fig. 12). An overview of the tools available for public banks can be found on the next page (Fig. 13).

FIG. 12: COMPARISON OF MULTI-NATIONAL DEVELOPMENT BANKS AND NATIONAL DEVELOPMENT BANKS LEVERAGE FACTOR (Source: IDB 2013³⁴)

Categories of instruments		MDB theoretical leverage factor	NDB theoretical leverage factor
Tier 1	Non-concessional debt	2-5x	2-5x
	Debt financed via grants	8-10x	8-10x
Tier 2	Non-concessional debt	N/A	1x
	Debt financed via grants	N/A	4-8x
Tier 1	Direct equity	8-10x	12-15x
	Equity financed via grants	20x	20x
Tier 2	Direct equity	N/A	12-15x
	Equity financed via grants		N/A
	Guarantee at non-concessional rates	N/A	4-8x
	Guarantees financed via grants	20x	25x

FIG.14. PUBLIC BANKS TOOLS FOR DRIVING DECARBONISATION



Improving & road-testing metrics:

- Road-test new metrics.
- Invest in improving & developing new metrics



Green Investment Bank:

- Setting-up green investment banks linking project developers with investors and relevant government agencies (Ex. UK, Australia, and US) and financing



Climate Bonds:

- Issuing climate bonds
- Signing purchase contracts that allow companies to issue corporate bonds
- Setting climate bond standards



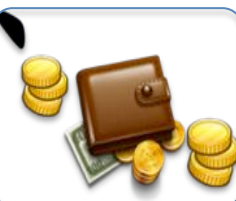
Public Guarantees:

- Issue credit lines or loan guarantee instruments.
- Partial guarantee of private bond issuance (Ex. EU €230 million pilot scheme, of which €10 million earmarked for energy projects)



Public-Private Partnerships:

- Public-private partnerships in large public climate-friendly infrastructure investment
- Including environmental performance criteria in PPP



Lending and investment portfolios:

- Operating as a cornerstone shareholder in a large renewable energy generation projects
- Divesting from high-carbon assets.

4. ACCOUNTING & DISCLOSURE

In addition to reforming the external signals coming from financial regulation, 2° regulation also has to address the internal rules governing the activity of a financial institution. These rules need to address three key questions:

- First, what is the quality and significance of the data on environmental impact, both in terms of being comprehensive and relevant for measuring climate performance and carbon risk?
- Second, what is the scope of mandatory reporting?
- Third, to what extent is carbon-related information internalized in capital allocation decisions and regulatory rules?

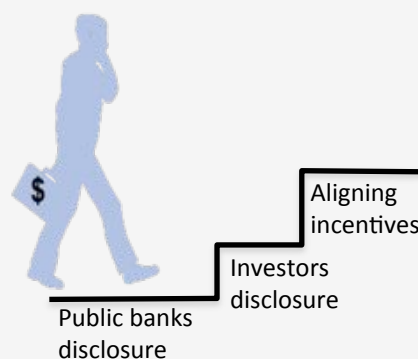
If reform is to address this question, policy makers need to provide support for developing new metrics and making reporting more meaningful in terms of benchmarking investing vis-à-vis 2° climate and investment scenarios. In addition, reform needs to address the reporting of both financial and non-financial companies, and the role of public banks in ‘paving the way’ in this regard. Finally, reporting needs to be a clear element of the other pillars of the regulatory framework, notably in the context of stress-tests, lending guidelines, and tax incentives. The information contained in the accounting and disclosure framework in terms of environmental impact need to ultimately be a key aspect of capital-allocation decisions.

Mechanisms:

4.1. Developing new metrics

In order for disclosure and reporting to provide meaningful information, metrics need to be developed that measure impact in a meaningful way. More generally, regulators and investors that care about climate performance and carbon risk will increasingly look to have more sophisticated measures than basic non-forward looking carbon footprinting. Currently, the conceptual framework used by policy makers to develop incentives is based on best available technologies and emission reduction projects, leading to a support of technologies that are ‘low-carbon’ compared to a baseline scenario, but not necessarily aligned with a +2°C scenario. Having a relevant metric that would measure the alignment with ‘green goals’ could overcome the difficulty of defining ‘green asset classes. Implementing a 2° regulatory framework will thus require investing in R&D of new financed emissions methodologies and 2° investing metrics. Our previous research suggests that the cost of implementation for the financial sector would be marginal.

2° INVESTING DISCLOSURE STEP-BY-STEP



NON-CARBON DIMENSION OF ACCOUNTING

One of the main reasons behind developing more sophisticated carbon metrics from an investors perspective is to allow for a measurement informative enough to be able to inform investment decisions based on carbon risk and climate-friendliness. Equally, the non-carbon dimension of accounting also plays an important role for low-carbon investments.

Current accounting practices such as mark-to-market accounting and limited timeframes for stress-testing asset value, both may understate the risk-return profile of long-term low-carbon assets. This discussion moreover is also pertinent for a general review of financial stability, as these practices contributed to both underestimating the tail risks during the financial crisis and exacerbating the shock to asset value during the crisis.



State-of-the-art review of carbon metrics for investors available on 2°ii's website

FOCUS: 2°INVESTING METRICS

Measuring climate performance

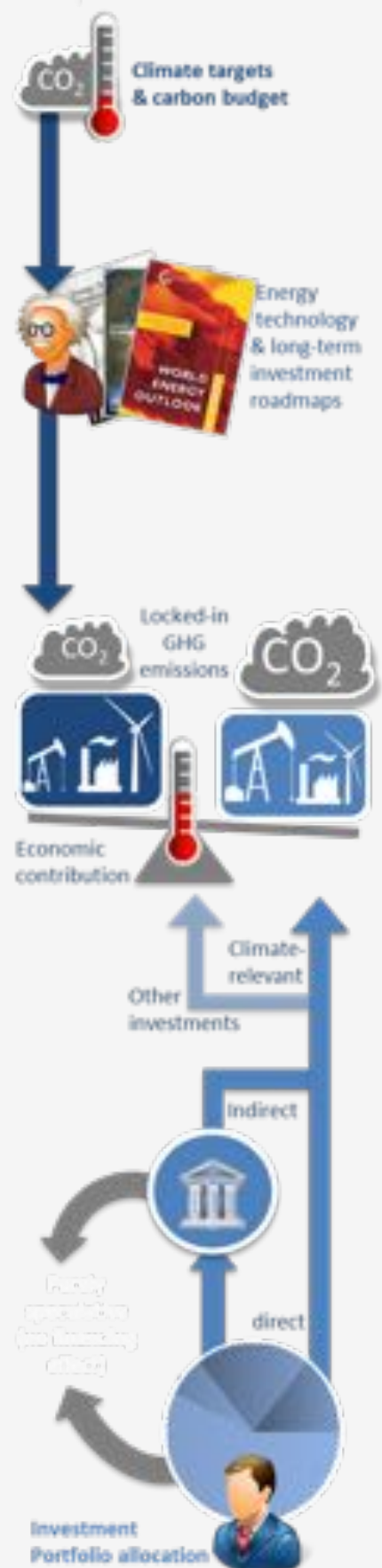
One of the main challenges to developing appropriate regulatory incentives relates to the measuring of the environmental impact of the lending and investment activity of financial institutions. Current carbon footprinting tools do not allow regulators to benchmark the performance of a bank or a portfolio relative to 2° investment climate scenarios. This also makes it difficult for governments to understand the degree to which the economy is meeting the 2°C investment challenge as a whole. Crucially, methodologies need to move away from simply carbon footprinting tools (however standardized or more developed they will become over the next years) to cross-asset, impact-based metrics that provide an accurate measure of carbon risk exposure and climate-friendliness (cf. 2°ii study on financed emissions methodologies for the financial sector).

The 2°investing metrics research programme

The 2°Investing Initiative is currently pursuing a three-year research programme to develop these 2°investing metrics (see graphic on left). The approach builds upon the initiative by IEA, Greenpeace and other institutions to translate climate targets and carbon budgets into energy technology and long-term investment roadmaps. These roadmaps can in turn be used to identify the necessary economic contribution of an individual portfolio or a financial institution to financing the transition to a low-carbon economy, taking into account direct and indirect capital flows and purely speculative activity with no financing effect. Such an approach will allow for the development of a tool that will benchmark a portfolio relative to an optimal investment portfolio (under a specific climate scenario).

Informing regulation and investment processes

Beyond informing the public, current carbon footprinting tools have minimal use in informing investment decisions by mainstream investors. Moreover, they are not granular enough to allow for fine-tuning regulation. 2°investing metrics in turn would allow regulators to accurately assess carbon risk exposure and targeted climate-friendliness of the finance sector. Investors in turn will be able to actively integrate these measures into their investment processes to inform their own risk-return assessment.



2°ii flagship research project.
Information available upon request. Get involved!

4.2. Disclosure for non-financial companies

While issues surrounding disclosure and reporting requirements for non-financial companies may not be immediately linked to financial regulation, the current lack of reporting severely impairs the vision of both investors and regulators in terms of the actual climate performance and carbon risk in the financial sector. One example for this is the availability of reported carbon data in major indices (Fig. 14). This reflects the limited overall level of carbon disclosure. The trend however does suggest that mandatory reporting frameworks and public pressure is leading to increased disclosure (Fig. 15 and Fig. 16).

Those countries that do report often don't provide appropriate data granularity. Thus, companies should report on the breakdown of their fixed assets, capital, and R&D expenditure by type of energy-technology and type innovation (business as usual, incremental innovation, radical innovation) in the context of climate scenarios. To avoid releasing confidential information as to their strategy, the companies can report aggregated data by category and compare them to investments required in climate scenarios. Moreover, it is particularly important that this data is forward-looking. Naturally, it does not suffice to simply track the right kind of data. This data needs to be appropriately reported and accounted for in the company reporting to shareholders and the public. Currently, disclosure standards are very weak. Policy makers can modify existing reporting requirements on risk factors in 10k reports and equivalent, or the emerging requirements regarding ESG performance and GHG-emissions. In many countries, this evolution does not require a new law, but merely a strengthening of market authorities' guidelines.

FIG. 14: AVAILABILITY OF REPORTED CARBON DATA (Source: BofAML³⁵)

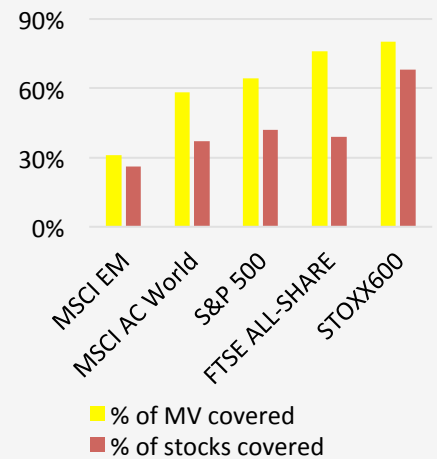
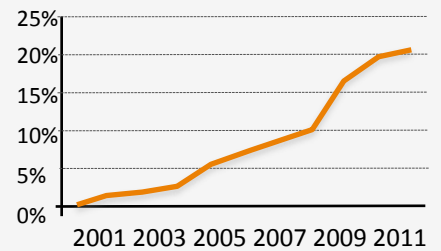


FIG. 15: EVOLUTION OF CARBON DISCLOSURE (2002-2011) BY LISTED COMPANIES (SOURCE: DATASTREAM /ASSET4 MODIFIED FROM BofAML³⁵)



Note: Sample of 7028 listed global companies (low level on first years might be due to lack of collecting instead of lack of disclosing)

FROM CARBON FOOTPRINTING TO CARBON RISK ASSESSMENT

Following the release of the Carbon Tracker Initiative 'Unburnable Carbon' report,³⁷ a group of 70 investors, managing more than \$3 trillion of assets, sent an open letter to the world's 45 top oil and gas, coal, and electric power companies to assess financial 'carbon risks'. The initiative, coordinated by CERES/CTI, is noteworthy as it goes beyond the traditional calls for disclosure on GHG-emissions, but explicitly links these emissions with risks and highlights the need to expand the scope of carbon disclosure and reporting. To date, ExxonMobil is the most prominent company that has responded.

FIG. 16: INTERNATIONAL MANDATORY REPORTING FRAMEWORKS (Source: UNEP-Fi 2013³⁶)

Australia (National Greenhouse and Energy Reporting Act 2007)
Canada (GHG Emissions Reporting Program 2004)
France (Grenelle II Bill 2011)
Japan (GHG Reporting Scheme 2006)
New Zealand (Emissions Trading Scheme 2008)
United Kingdom (Mandatory reporting on GHG emissions, from 2013 onwards.)
USA (EPA GHG Reporting 2009)
EU (ETS 2005)

CORPORATE DISCLOSURE

“The 2010 Global Investor Survey on Climate Change finds that only 10% of surveyed asset owners utilize carbon footprinting analysis to track the integration of climate change factors into investment management.³⁸

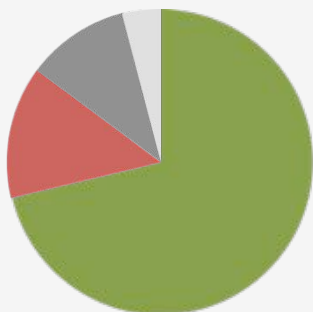
However, our workshops suggest that even that number may be overstated in terms of actual footprinting informing investment decisions.

However, the advantages of reporting are increasingly becoming apparent.

UNEP-FI highlights five reasons in particular: improving client reporting, realizing efficiency gains (e.g. more energy-efficient housing), strengthening risk management, monitoring managers and providing public accounting.”

Source: 2°ij³⁹

FIG. 17: IS THERE A NEED FOR STANDARDIZED METHODOLOGIES/GUIDANCE FOR MEASURING FINANCED EMISSIONS? (Source: UNEP-FI⁴⁰)



- Yes
- No
- Not Sure
- Other

4.3. Rules governing Key Information Documents

In Europe alone, the market for packaged investment products was €9 trillion in 2009.¹⁷ Up to now, mandatory disclosure on the activities financed by financial products in KIDs is usually limited to the investment universe (asset class, stock index, etc.) and in the best case the integration of ESG criteria in management processes. At European level, the related regulation (PRIIPS) will be implemented from 2014 onwards. Reform of the regulation could include disclosing 2° investment metrics and reporting them in the form of standardized labels as part of simplified KIDs. This change would require a minor amendment to the EC's proposal on PRIIPS, complemented by the setting of relevant guidelines by the European Security & Markets Authority. In addition, information on financial risks in KIDs is usually based on past performance and a short-term investment horizon (1 to 3 years), reflecting a huge gap vis-à-vis many asset-owners' average horizons (5 to 15 years). One additional proposal in this regard is by Finance Watch, which argues for the inclusion of scenario analysis in KID reporting, including an adverse economic scenario analysis.

4.4. Disclosure for financial companies

There is currently almost no reporting by institutional investors and banks as to the actual 'economic activity' financed through their investment, as opposed to 'non-productive (in terms of producing goods), speculative activity. The disclosure that does take place is, in the best case, limited to risk exposure in specific sectors (in line with capital reserve directives e.g. Basel II, Pillar III disclosure requirements).

Regulation can strengthen disclosure standards by requiring institutions to report on the breakdown of their assets and 'financed investments' by sector and industry group. This can also, where relevant, extend to energy technology. Disclosure should also inform on the maturity or the investment horizon (e.g. portfolio turnover) and the country allocation, which is already partly covered in the 'Large Exposures' regulation.

Since 2002, several countries including Australia, Denmark, Belgium, Germany, Great Britain and recently France introduced mandatory disclosure of ESG criteria for pension funds and investment products. A similar obligation is currently debated in the Commission in the context of PRIIPS regulation. Mandatory disclosure regarding carbon risks can also pave the way for the evolution of accounting standards, especially regarding rules for calculating impairments. Once again, in several countries these new requirements only require a modification of existing guidelines on GHG emissions and/or ESG performance.

4.5. Disclosure to regulators

One of the challenges around disclosure requirements is the question of confidentiality. The public reporting of information based on sophisticated methodologies may shed light on some controversial facts. The confidentiality issue is identified as one of the key concerns by the GHG-Protocol/UNEP-FI investor survey. While this challenge may limit the scope of reporting to the public, sophisticated and material reporting to regulators remains imperative however, both to guide regulation and monitor carbon risk. The Chinese Banking and Regulatory Commission (CBRC) is moving ahead in this regard (see box).

4.6. Public banks reporting

The majority of public financial institutions have integrated in their mandate the objective to finance the long-term needs of the economy. This often explicitly includes financing the energy transition. Equally, the reporting quality lags in terms of reporting on the extent to which these public banks meet their objectives. Thus, no public banks currently report on the alignment of their investment strategy with climate (and investment) scenarios in a quantitative way. In most cases, banks report on the progress of their investments in 'green' assets and projects and in the best-case on the implementation of sector policies for carbon-intensive sectors. As outlined in the 2^oii study on 'financed emissions methodologies',³⁹ this type of reporting however does not comprehensively inform on the climate-friendliness of a portfolio. Investing in developing these metrics and mandating more sophisticated reporting by public banks over the next years will be an important part of a 2^o policy framework that continues to situate public banks in a prominent role.

4.7. Stock exchanges reporting

As outlined in the section on stock exchanges (p. 16), stock exchanges carry a high level of carbon-heavy assets. Despite this, very few exchanges have reporting requirements on environmental and social issues, instead largely limiting this reporting to questions of 'governance'.⁴¹ Generally, responsibility regarding reporting requirements can rest with the exchange or the regulatory. However, given the slow adoption of these requirements, more stringent standards and intervention by regulators may be needed in the future.

THE CASE OF CBRC

The Chinese Banking and Regulatory Comissions (CBRC) is currently testing and applying new reporting requirements for the largest commercial and state-owned financial institutions in China. There are two key new reporting rules in the process of being implemented. These reporting rules are each associated with an Excel-spreadsheet that the Chinese regulator distributes to banks.

The first requires banks to report on their environmental and social legal risk exposure in China. In addition, this reporting also includes questions on investment volumes in certain 'green' industries' and the associated coal savings and savings of GHG-emissions. This reporting is required twice a year.

The second reporting is adjunct to the development of the Chinese 'Green Credit Guidelines'. This requires banks to report on KPIs associated with these green credit guidelines. This reporting does not involve any data however, but focuses on the implementation of certain 'green' investment processes and appropriate monitoring systems in investment, as outlined by the Green Credit Guidelines policy.



Forthcoming 2^oii China country-report climate & financial regulatory regime. Get involved!

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PART 2. THE 2ⁱⁱ INVESTING POLICY LANDSCAPE

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ANNEX - DEFINING A 2° INVESTING POLICY FRAMEWORK

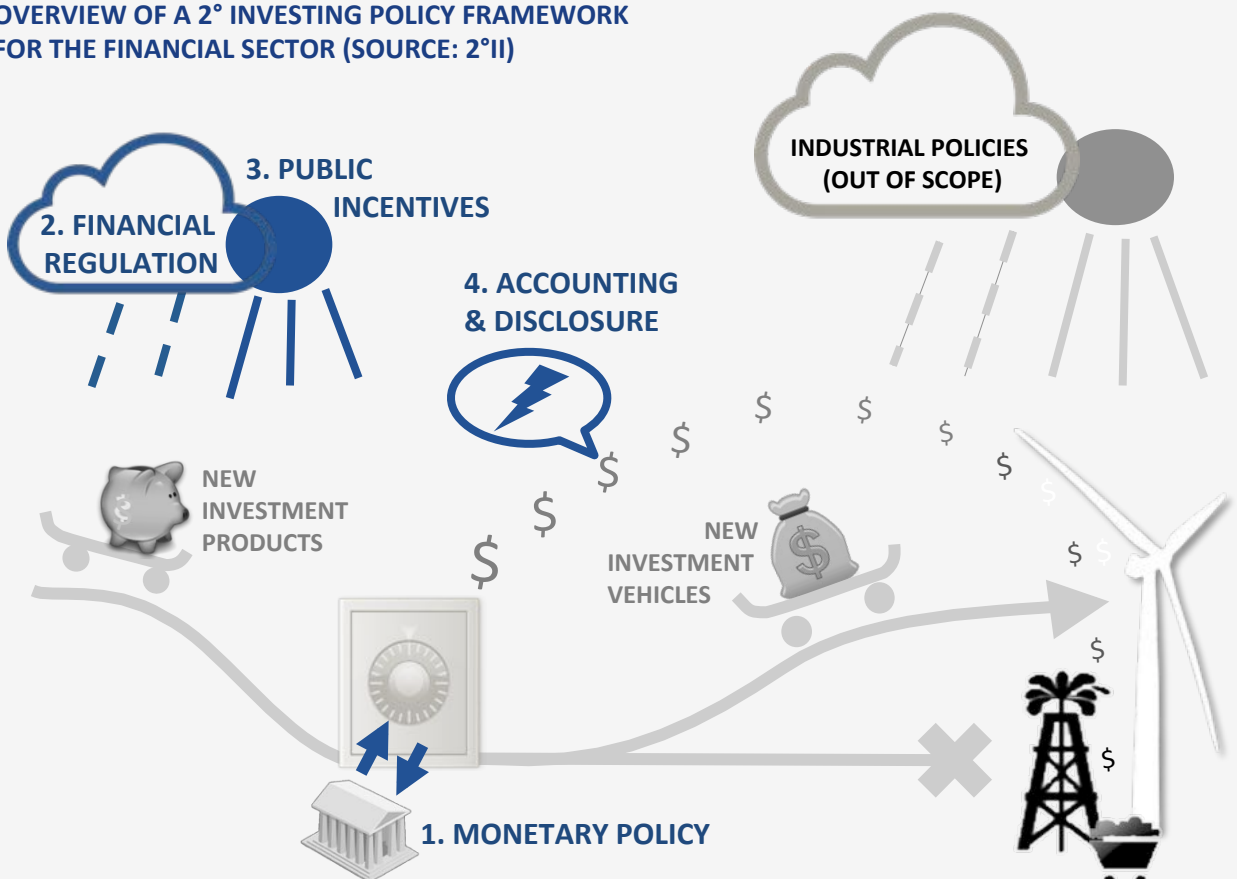
Defining categories. The 2° Investing Policy Framework addresses four key areas of policy:

1. Monetary policy,
2. Financial regulation,
3. Public incentives,
4. Accounting & disclosure.

Policies are grouped according to the way they are implemented. Alternate ways to categorize tools would be by policy agent or goal. However, given that many regulatory tools may have both a stability and lending stimulus component and may be administered by different agencies in different countries, the categorization developed below focuses on the 'implementation process' as opposed to questions regarding policy 'origination' or 'target'.

Scope. Thus, monetary policy tools cover the interaction between the monetary authority of a country and financial institutions. Financial regulation instruments include both macroprudential regulation geared at ensuring systemic stability and the broader regulation of financial markets and institutions. Public incentives address incentives linked to the public purse. Finally, accounting & disclosure describes the rules that govern the communication between financial institutions and the public (including regulators) and companies and investors, both in terms of the type of information accounted and the way this information is communicated.

OVERVIEW OF A 2° INVESTING POLICY FRAMEWORK FOR THE FINANCIAL SECTOR (SOURCE: 2°II)



2° INVESTING INITIATIVE'S PUBLICATIONS

Connecting the dots between climate goals, portfolio allocation and financial regulation (December 2012)

Assessment of investment portfolios climate performance (Summary Report – July 2013, Full version – December 2013)

PUBLISHED (Available for free on our website)

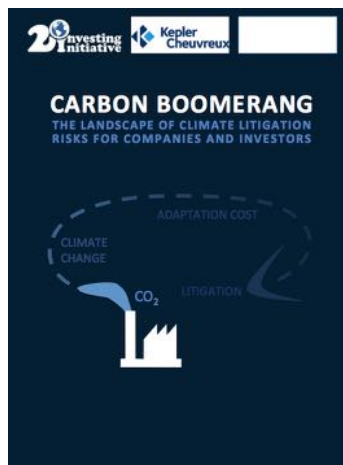


FORTHCOMING (Working papers available upon request)

The role of tax incentives on savings interests (France)



The materiality of climate litigation risks for investors



Implications for using benchmarks for Long-term & climate financing



IN THE PIPELINE (concept notes available)

- The future of carbon metrics for investors
- Mobilizing private capital to finance the transition to a low-carbon economy: the role of financial regulatory regimes
- Integrating carbon constraints in prudential frameworks



The 2° Investing Initiative (2°ii) is a multi-stakeholder think tank bringing together financial institutions, policy makers, research institutes, experts and environmental NGOs. Dedicated to research and awareness raising to promote the integration of climate goals in financial institutions' investment strategies and financial regulation, 2°ii organizes sharing and diffusion of knowledge, and coordinates research projects.

The 2° Investing Initiative has been created in 2012. Its 2013-14 work programme is funded by the Caisse des Dépôts, the French Prime Minister's policy reforms Center, the AFD, the French Ministry of Ecology and Energy, the ADEME (French Agency for the Environment and Energy Management), HSBC and Allianz. Technical partners include CDP, MorningStar, Kepler-Cheuvreux, Oddo Securities and Natixis AM. The members include 100 organizations and professionals from the financial sector from 12 countries. Our team is based in Paris and Beijing.

The name of the initiative relates to the objective of connecting the dots between the +2°C climate goal, risk and performance assessment of investment portfolios, and financial regulatory frameworks.

CONTACT:

<http://www.2degrees-investing.org>

contact@2degrees-investing.org

@2degreesinvest

Paris: +33 1 4281 1997

Beijing: +86 131 4148 4516