

WORKING PAPER

Co-written by



MAINSTREAMING CLIMATE CHANGE IN THE FINANCIAL SECTOR AND ITS GOVERNANCE

Part II: Identifying Opportunity Windows

Summary

Addressing and responding to climate change is a step towards strengthening global financial stability, a mandate shared by institutions governing and regulating financial markets after the financial crisis. On the one hand, risk-adjusted returns on investment are affected by the climate-related losses aggravated by global climate change – as well as the climate and energy policies put into place to usher in a 2°C-coherent society. On the other hand, a paradigm shift consistent with limiting temperature warming to 2 degrees by the end of this century presents new opportunities of productive investments. These risks and opportunities are detailed in the companion paper (Morel et al. 2015). This paper reviews current practices addressing the risks and opportunities that arise from climate change among international financial governance and regulatory institutions (IFGRIs) and national entities. It also identifies potential entry points for consideration that reinforce these institutions' mandates and draw on their existing toolkits and processes. Finally, this paper offers a framework to structure the discussion of policy options and guidelines, focusing on the demand, supply and intermediary stages of low-carbon, climate-resilient investment. In each of these three categories, opportunities for financial governance and regulatory institutions to address climate-related issues and increase investment flows are discussed. Options include guidelines, surveillance and the provision of expertise on issues, as well as carbon pricing and fossil fuel subsidies, securitization, green bonds, accounting standards and risk assessment.

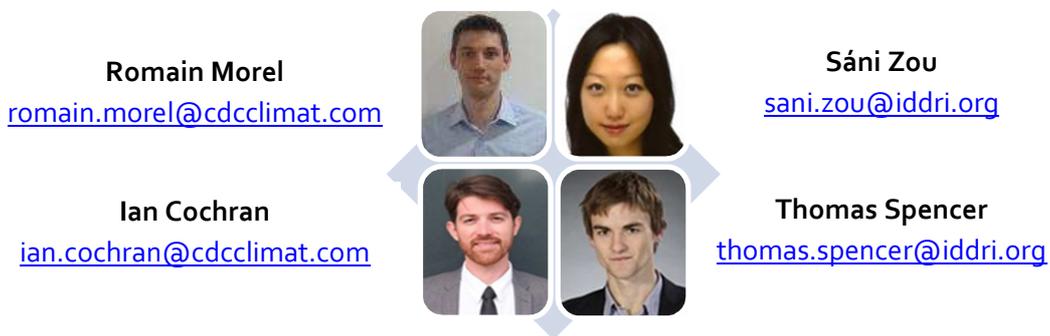
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This working paper forms a part of a series of studies on **Mainstreaming Climate Change in the Financial Sector and its Governance**. Papers in the series are:

- **Part I: A Necessary and Timely Evolution**
- **Part II: Identifying Opportunity Windows**

A policy brief **Financial Governance and Climate Change: A Pocket Guide to Linking the Agendas** will be published by the Centre for International Governance Innovation (CIGI).

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CDC Climat Research is a public research office dedicated to help public and private decision-makers to improve the way in which they understand, anticipate, and encourage the use of economic and financial resources aimed at promoting the transition to a low-carbon economy.

The Institute for Sustainable Development and International Relations (IDDRI) is a Paris based non-profit policy research institute. Its objective is to develop and share key knowledge and tools for analyzing and shedding light on the strategic issues of sustainable development from a global perspective.

IFGRIs' MANDATES, TOOLKITS AND PROCESSES: OPPORTUNITIES FOR ACTION ON CLIMATE CHANGE

1. Individual financial institutions may take voluntarily steps to integrate climate change for many reasons: forward-looking risk management; aware and engaged management; communication; business opportunities; and so on. However, in practice, concerns today about climate change and its financial impact is restricted to specific investors and a small share of the financial sector. For example, several hundred institutional investors have signed a declaration on climate change ahead of the UN Secretary-General Ban Ki-moon's Climate Summit at the United Nations in September 2014. These investors together represent USD 24 trillion assets, but account for only 10-15% of global financial assets (GISCC 2015). Even if this amount is not negligible, assets covered by a dedicated climate-aware investment or risk-management policy is much lower (Novethic 2015). Moreover, high-level statements are not always followed by action. Thus, expectations concerning voluntary action may be curbed without clear signals that climate change is an issue that all financial actors must take into consideration in the future. In doing so, linking the financial and climate governance agendas is a fundamental step.
2. Climate change poses a number of significant challenges – as well as opportunities – for the international financial sector. The objectives of climate policies in the past have been mainly environmental and social, but recent studies and weather-related events highlight the economic costs of climate change. On the one hand, climate change imposes immediate and long-term physical and policy-related risks on forecasted economic growth rates and the stability of the global financial system. On the other hand, a paradigm shift towards an economic model consistent with a 2 degrees pathway also presents new opportunities of productive investments. As the financial market is highly globalized, ensuring collective and coordinated action at the international level by mobilizing International Financial Governance and Regulatory Institutions (IFGRIs)¹ in linking the climate and financial sector governance debates appears increasingly necessary to ensure the efficiency and effectiveness of action.
3. Expecting institutions that have a key role in ensuring the well-functioning and stability of the financial system to integrate climate for any other reason than those linked to their principal mandates and core concerns may appear to be unrealistic at first. The companion paper to this note has presented the case as to why addressing the climate challenge is essential for the financial community. It has looked at the impacts of climate change on the stability of the financial system and risk-adjusted returns to investors. Three particular channels have been identified whereby climate change can affect the financial sector: the physical impact of climate change, the impact of climate policies on assets

¹ The organizations considered in this paper are the Bank for International Settlements (BIS), Basel Committee on Banking Supervision (BCBS), Group of Twenty (G-20), International Association of Insurance Supervisors (IAIS), International Monetary Fund (IMF), International Organization of Securities Commissions (IOSCO), and the Organization for Economic Co-operation and Development (OECD). At the national and jurisdictional level, it takes a look at the potential role that central banks and regulatory and supervisory authorities can play in piloting initiatives and influencing international processes bottom up, using the examples of the European Central Bank (ECB) and the US Securities and Exchange Commission (SEC) among others.

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valuation and the perspective of new financial opportunities created by the paradigm shift to a low-carbon, climate resilient economy. In doing so, the study has looked at how integrating these risks and opportunities can result in a more efficient financial system. Thus, “mainstreaming” of climate is a rational answer to the threat imposed by climate change and necessary climate policies on their respective mandates. Securing global financial and economic stability and scaling up climate investments are not conflicting, but rather mutually reinforcing objectives (Morel et al. 2015).

4. Building on the companion paper, this note identifies the opportunity windows where climate change can become part of IFGRIs’ mandate. While IFGRIs have similar mandates related to the stability of the global financial system, their means of intervention vary. The methods and tools at the disposal of IFGRIs to reduce risks and to increase efficiency of financial markets include common standards, principles and guidelines with various levels of legal force, as well as bilateral and multilateral surveillance and technical assistance (Annex 1). At first glance, these toolkits and processes can be seen as constraining. However, once the link between climate change and the mandates of IFGRIs is clearly understood, existing toolkits and processes can be opportunity windows to include climate-related risks and opportunities into their core operations.
5. One of the means of intervention available to IFGRIs is the setting of standards, guidelines and rules which can be either voluntary or binding. Similar to financial markets themselves, the governing standards and guidelines are interlinked across countries and regions. For example, in response to the recent financial crisis and as part of its continuous efforts to strengthen the banking regulatory framework, the Basel Committee on Banking Supervision (BCBS) has tightened liquidity and capital requirements through the Basel III framework. A similar set of rules have been issued for the insurance sector (e.g. Solvency II in Europe). While statements at the international level serve as a reference for consensus,² members are each responsible for the enforcement of legally binding standards in their own jurisdictions. Another example is the Objectives and Principles of Securities Regulation developed by the International Organization of Securities Commissions (IOSCO). This document forms part of a compendium of *12 Key Standards for Sound Financial Systems*.³ The standards are managed by the Financial Stability Board (FSB), and are used by the International Monetary Fund (IMF) and the World Bank in bilateral assessments.
6. In complement to setting standards and rules, IFGRIs assist member countries to implement standards and to monitor progress by providing technical assistance. This “surveillance” process consists of monitoring, assessing and consulting member countries on their economic and fiscal policy developments. Bilateral surveillance is conducted regularly under the IMF Article IV⁴ consultations, as well as the OECD country economic surveys. As a result of the Triennial Surveillance Review of the global financial system carried out by the IMF in 2011,

² Occasionally, both standards and statements have been termed as “principles”.

³ Under the three groups of Financial Regulation and Supervision, Macroeconomic Policy and Data Transparency, and Institutional and Market Infrastructure, developed by the IMF, the IAIS, BCBS, IOSCO, IADI, IAASB, CPMI, FATF, WB, OECD, IASB.

⁴ “Article IV” consultations, required by Article IV of the IMF’s Articles of Agreement, is the process of country surveillance under the IMF. During an Article IV consultation, an IMF team of economists visits a country to assess economic and financial developments and discuss the country’s economic and financial policies with government and central bank officials.

the legal framework for surveillance has been modified through the Integrated Surveillance Decision (2012) to address additional risks identified following the 2008 financial crisis. The Decision expands Article IV country consultations to include multilateral “spillover” analysis,⁵ to identify potential spillover effects of national policies and regulations across country borders. By doing so, it encourages discussions among member countries on the systemic impacts of national policies on global economic and financial stability. Furthermore, staff research on priority policy issues at the IMF, OECD, BIS and IOSCO support agenda-setting, policymaking and coordination among member countries at the technical level.

7. Finally, in some instances IFGRIs can provide financial assistance if deemed necessary to ensure system stability. For example, the IMF can also provide member countries with Special Drawing Rights⁶ to solve balance of payment problems in times of financial crisis and instability.
8. These mandates and processes result from international agreements that are at times difficult to reopen, and are not structured in a way to clearly integrate climate-related concerns. Thus, finding entry points to tackle climate change within the given framework of IFGRIs’ mandates and means of intervention is a key means of facilitating ways for these institutions to start considering the risks and opportunities associated with climate change.
9. To better identify these opportunity windows, this paper first introduces a conceptual framework linking the challenges and opportunities with which the financial system is confronted (see below). This framework combining three elements: 1) policies and actions to influence the “demand” of capital, or the creation of low-carbon investment opportunities; 2) policies and actions to influence the “supply” of capital, by either raising finance from new sources or by reorienting exiting flows away from carbon-intensive investments; and 3) innovations in financial instruments and investment practices of the financial community to “match” demand and supply corresponding to investor needs. The second half of this paper looks at each of the three elements in turn, and identifies the role the IFGRIs could play in facilitating short- and medium-term actions.

A CONCEPTUAL FRAMEWORK: MATCHING LOW-CARBON, CLIMATE-RESILIENT SUPPLY AND DEMAND

10. Responding to the risks and opportunities to the financial sectors that arise from climate change require reorienting investment flows. As seen in previous studies (OECD Forthcoming; Morel et al. 2015), climate change is an economy-wide challenge. Therefore integrating climate-related issues across sectors and coordination among sectoral policies is instrumental to efficiently allocate finance consistently with globally agreed climate change mitigation and adaptation objectives. Thus, policies in climate-relevant sectors (e.g. energy,

⁵ Although it does not change the scope of member countries’ obligations which are outlined in the Articles of Agreement

⁶ Special Drawing Rights (SDR) is an international reserve asset in the form of a potential claim on the freely usable currencies of IMF members, to supplement its member countries’ official reserves.

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agriculture, transport and environment) – but also broader domestic fiscal and macroeconomic policy framework (e.g. innovation, trade and competition, employment) – need to be considered and aligned with the transition to a low-carbon, climate resilient development pathway consistent with the objective to limit the increase in global average temperature to 2°C.

11. In complement to research on policy alignment that positions the inter-linkages in a sector-based framework (see OECD 2013a), this paper presents a framework that groups barriers that pertain to scaling up climate finance – often resulting for a lack of integration of climate change’s stakes – along the financial supply chain:

- a. **Low-carbon demand-side policies:**

Downstream or “demand-side” policies are those that influence the “demand” for finance for low-carbon investments. These policies affect the structure of relevant sectors and risk-adjusted returns from investments and assets associated with a low-carbon transition. There is currently a lack of a pipeline of “investment-grade”⁷ projects with competitive risk-adjusted returns compared to high-carbon investment opportunities, partly because of the presence of fossil fuel subsidies, and subsequently the lack of a level playing field among investments in clean and brown technologies.



The development of low-carbon projects depends on the translation of ambitious climate and energy objectives into demand-side policies that structure their competitiveness within the broader economy. Removing barriers such as fossil-fuel subsidy reforms and reducing factors that could negatively impact the yield-to-risk ratio of low-carbon projects is a first and necessary condition to increase the demand for financing low-carbon investments. Climate-friendly demand-side market-based policies, regulations and standards – such as carbon taxes, emission trading schemes, feed-in-tariffs, power purchasing agreements, emission standards, as well as technology and efficiency regulations and standards – can place low-carbon projects on “equal” financial footing. Climate policies to date focus here.

- b. **Financial supply-side policies:** Upstream or financial supply-side policies affect the incentive structures faced by capital providers (e.g. commercial banks), intermediaries (e.g. investment banks) and financial asset holders (e.g. institutional investors) to allocate assets to low-carbon projects and infrastructure and to better integrate climate change-related risks and opportunities into their allocation decisions. In theory, investors will invest in green infrastructure as soon as they are financially attractive. In practice, however, even when the right downstream policies are in place, non-alignment between rules and regulations in the financial sector and climate

⁷ For example, a bond is considered investment grade or IG if its credit rating is BBB- or higher by Standard & Poor's or Baa3 or higher by Moody's.

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objectives may impose additional market, regulatory and information barriers to scaling up the supply of finance to climate investments.

The allocation of finance to low-emission, climate resilient investments depends on the perceived risk-return ratio for projects. Placing low-carbon projects on an equal footing within the process requires that the full range of risks related to investments that support a GHG-intensive economic model are taken into consideration – including risks of becoming “stranded” assets, such as in the case of fossil fuel energy supply. Furthermore, capital and liquidity adequacy rules were introduced following the financial crisis, aimed at increasing financial market stability. However, one unintended side effect may be a reduction in lenders’ capacity to issue long-term, illiquid loans and therefore, by association, to finance low-carbon, climate-resilient infrastructure (Spencer and Stevenson 2013). Mainstreaming climate change considerations into financial supply-side policies – notably in the banking and the insurance sector – is an emerging field of policy-oriented research, as well as practice at the national level.⁸

- c. **Matching instruments and tools:** The financial sector is highly intermediated (Cetorelli, Mandel, and Mollineaux 2012; Shin 2010), and probably growing more so as financial and technological innovation increase the fragmentation of the financial value chain. Scaling up investments by creating liquid, standardized financial assets, attractive to investors at each stage of the financial value chain is a mainstream challenge for the financial sector. A large part of visible climate finance to date is investments in large-scale energy and transport infrastructure. These project developers often have sufficient capacity to access global capital markets to access needed debt and equity. Yet, climate-themed investment needs also encompass the diffuse and often small-scale investment decisions of households and SMEs for the purchase of energy-intensive goods and equipment. The nature of these investments raises the question of how physical assets can be transformed into the kind of liquid, standardized financial assets such as bonds or equities which are favored by investors. Issues to be addressed include the size and maturity of investments, re-financing as well as hedging and portfolio management strategies of investors.

To make portfolio allocation more coherent with low-carbon transition challenges, appropriate instruments must be developed to “translate” low-carbon projects into financial assets that match investor’s needs (FTF 2015; OECD Forthcoming). A market for green debt securities has evolved in the past few years attracting interest from investment banks, energy utility companies and other corporations. However, the market remains relatively small, non-regulated and reliant on voluntary initiatives without standardized definitions or practices. Third party verification and credit rating for green bonds are under development and have been deployed to different extents in Europe, the US and other parts of the world.

12. Mainstreaming climate considerations into a single part of the financial supply chain does not appear sufficient to address the impacts of climate change faced by the financial sector – nor increase climate investment and associated flows to

⁸ See <http://www.unepfi.org/publications/> for recent UNEP Financial Initiative publications in this area or <http://www.unep.org/greeneconomy/financialinquiry/> for recent UNEP Inquiry publications focusing on “Aligning the financial system with sustainable development”.

the scale of action needed. To date, policies targeting climate change have focused principally on financial demand-side policies, and occasionally targeted provisions of subsidized capital to low-carbon projects on the supply-side. However, reforming structural policies on the supply side of the capital chain as well as instruments to match the supply and demand for climate investments will also be needed. The impact of supply and matching public interventions on climate change objectives have not been given sufficient emphasis by policymakers and regulators to date.

13. The following sections look in detail at each policy area, identifying the main issues that are currently debated and identifying the opportunity windows for IFGRIs.

DEMAND-SIDE: FOSTERING INTERNATIONAL COOPERATION ON CLIMATE FISCAL POLICY

14. Demand-side policies targeting climate mitigation or adaptation appear to be principally nationally or regionally driven. However, IFGRIs can play a role in facilitating international policy co-ordination, particularly on “climate fiscal policies” such as fossil fuel subsidy reform or carbon pricing. Implementing climate-related fiscal policy can be challenging as they can negatively affect in the short term the competitiveness of domestic fossil fuel producers by raising the cost of production or increase domestic cost for consumers. Furthermore, domestic climate-related fiscal policies can also have cross-border economic spillover effects. For example, national carbon taxes and fossil fuel subsidy reforms in large exporting countries, *ceteris paribus*, can drive prices of fossil fuels on the global commodity markets (IEA 2014b; IEA 2011). At the national level, climate fiscal policies face political economy barriers. Policies that are potentially revenue positive and place clean energy investments on an equal footing to fossil fuels may be perceived to increase inequality and therefore run into strong political opposition (Box 1). A coordinated approach among countries therefore appears to be needed to take into the account the multilateral spillover effects of climate fiscal policies. Simultaneously implementing reforms by countries with similar fossil fuel endowments may also be less detrimental to competitiveness than unilateral reforms.

Recent international co-operation on climate fiscal policies among IFGRIs

15. The influence of IFGRIs over a broad range of actors places them in a unique position to facilitate and promote international co-operation on climate fiscal policies. IFGRIs bring together ministries of finance that are responsible for fiscal policy reforms in their jurisdictions. For example, the G-20 and the OECD jointly issued high-level statements of principles to promote the phasing out of fossil fuel subsidies at the 2013 G-20 Saint Petersburg summit which was a reaffirmation of the G-20’s agreement at the Pittsburgh summit in 2009 to collectively “rationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption”. High-level statements such as this and the OECD High Level Statement on Climate Change⁹ provide a mandate for mainstreaming climate change into the analytical work and

⁹ <http://www.oecd.org/mcm/MCM-2014-Statement-Climate-Change.pdf>

surveillance of IFGRIs, as well as for climate fiscal policy reforms at the national level.

16. Given the toolkit available to IFGRIs, they can also facilitate information sharing, for example to enhance the harmonization of carbon prices and fossil fuel production subsidies across countries, where lessons from corporate taxation can be learned. An initiative on fighting tax Base Erosion and Profit Shifting (BEPS) has been launched by the OECD and the G-20, prescribing the development of a new set of standards to prevent double non-taxation, and requiring closer international co-operation and greater transparency on data and reporting requirements. Suggestions by the OECD will be taken to the finance ministers of the G-20 and then the leaders of the G-20. A similar approach to BEPS could be promoted for fossil fuel subsidy and carbon pricing reforms by IFGRIs, notably the OECD, the G-20 and the IMF. The OECD has collected data across member countries on fossil fuel subsidies (OECD 2013b), as did the IMF (IMF, 2013). Furthermore, international standards and mechanisms for transparency on fossil fuel subsidy reform and carbon pricing could also be developed. More broadly, the alignment of policies – and therefore the mainstreaming of climate change across sectorial policies – is also a research area for the OECD (OECD Forthcoming).

Box 1 : Climate change and fiscal and subsidy reform

According to the IEA, consumption subsidies to fossil fuels worldwide amounted to \$548 billion in 2013 (IEA 2014a). The UNFCCC Standing Committee of Finance reported that oil and gas subsidies and investments in fossil fuel power generation are almost double of the amount targeted towards addressing climate change (UNFCCC 2014). The IMF calculated that when the negative externalities from energy consumption are also included, fossil fuel subsidies are much higher, \$1.9 trillion a year globally. This is equivalent to 2.5% of global GDP, or to 8% of total government revenues.

There are negative economic spillovers of subsidies to brown technology investments, which are additional costs beyond the fiscal burden per se. Fossil fuel subsidies and investments are counterproductive to the objectives of climate finance, distorting the market towards fossil fuel energy production and consumption which may lead to sub-efficiently high levels of GHG emissions and local pollution and low demand for climate finance by a lack of investment grade renewable energy and energy efficiency projects developed. In contrast, pricing carbon and phasing out harmful fossil fuel subsidies increase the competitiveness of low-carbon projects. Also, the large fiscal weight of energy subsidies can threaten the stability of the economy by facilitating further investments in areas that risk to be “stranded” or impaired assets in a low-carbon development model.

Climate fiscal policies have been identified by governments and businesses among the most efficient policies to mobilize climate investments. However, even though removing energy subsidies and imposing carbon taxes is revenue positive, countries imposing climate fiscal policy face political economy challenges domestically. Although removing fossil fuel subsidies can have fiscal and climate gains, they may have also social consequences of income reallocation that have fuelled political opposition by fossil fuel lobby groups as well as the poorest segments of societies.

Implementing fossil fuel subsidy reforms as part of a broader tax reform

program while simultaneously reducing labor taxes or other taxes on goods and services could increase the feasibility of such reforms (IISD 2013; OECD 2014). Falling oil prices also reduce the cost of utilities for consumers that are targeted by fossil fuel subsidies such as low-income households, thus reducing the need for fuel subsidies (World Bank 2015). Indeed, oil prices dropped sharply in the second half of 2014, opening up a window of opportunity for governments to reduce subsidies to fossil fuel production and consumption.

Strengthening climate fiscal policies through surveillance and technical assistance

17. Technical analysis on climate fiscal policy has been conducted by IFGRIs, albeit on an ad-hoc basis (e.g. OECD 2013b; IMF 2013). In particular, the IMF and the OECD have conducted analytical work on the role of fiscal policy in mitigating GHG emissions, scaling up climate finance and fiscal consolidation (Parry, Veung, and Heine 2014; Bredenkamp and Pattillo 2010). IMF country studies on environmental tax systems and reforms were conducted for Chile and Mauritius in 2011 and for Germany, Sweden, Turkey and Vietnam in 2012. The IMF has also integrated climate change as part of its multilateral surveillance review of major economic trends and developments. For instance, Chapter 4 of the IMF's World Economic Outlook in 2008 focused on "Climate Change and the Global Economy" (IMF 2008). The IMF was also tasked in 2011 by the G-20 to prepare a paper on "Mobilizing Sources of Climate Finance" in which it highlighted the use of domestic fiscal instruments in the recommendations (IMF 2011b). In line with the long-term and persistent nature of the challenge, climate change could be included in the technical analysis of the IMF and other IFGRIs in a more systematic and regular manner.
18. To implement the results of the technical analysis, the IMF could provide expertise on low-carbon fiscal policy to its member countries as part of its surveillance activities. Among these are, for example, the Article IV consultations for bilateral surveillance, and the abovementioned World Economic Outlook (WEO) as well as the Global Financial Stability Report (GFSR) and Fiscal Monitor for multilateral surveillance. The extent to which the IMF can do so depends on the legal and substantive mandate for these processes. It was noted that the terms of reference for the IMF's surveillance activities were adjusted in 2012 according to the Integrated Surveillance Decision, as part of the Triennial Surveillance Review. The documents of the 2014 Triennial Surveillance Review note that climate change has become a part of the G-20's agenda since 2008-09 (Knight and Ortiz, 2014), but do not mention it as a priority area where bilateral and multilateral surveillance could be strengthened.
19. Climate change has been mainstreamed into the OECD Economic Surveys in 2014. Drawing a parallel between IMF Article IV consultations and the OECD Economic Surveys shows that climate change has been mainstreamed into the operations of international economic institutions to different extents. Knowledge on climate change within and across IFGRIs needs to be reinforced before climate change policy considerations can be included more strongly in the surveillance activities of these organizations. The abovementioned paper on mobilizing climate finance prepared jointly by the IMF, the World Bank Group, the OECD and Regional Development Banks (IMF 2011b) is a good example for

cooperation on climate change within the financial market governance community.

Co-operation across global financial and climate governance is not new

20. In conducting multilateral surveillances, the IMF regularly draws on its exchanges with other institutions responsible for international financial market governance such as the G-20 and the Financial Stability Board (FSB). Recognizing the need to address a broader audience institutionalized means of information exchange could be established between IFGRIs and the international community governing climate finance under the UNFCCC. Given that analysis has already been conducted by the IMF on subsidies to fossil fuels, and that negotiators to the UNFCCC on finance have called upon the consideration of fossil fuel subsidies alongside subsidies to low-carbon energy, information sharing between these bodies seems to be a low hanging fruit, and an efficient way to achieve the mandates of both.
21. The analysis of different IFGRIs on climate fiscal policy could be communicated to the negotiators under the UNFCCC from the ministries of environment and foreign affairs, to support the negotiations on finance under the UNFCCC. Previously, the IMF has voluntarily informed the UNFCCC during its seventeenth session of the Conference of the Parties (COP) by issuing a note on the IMF's Work on Fiscal Policy and Climate Change (IMF 2011a). Similarly, the OECD has provided voluntary submissions to the UNFCCC Standing Committee on Finance on tracking climate finance in 2014, building on the Development Assistance Committee (DAC) Rio markers methodology to track development finance with climate objectives, as well as methodologies developed by the Research Collaborative to improve the tracking of private climate finance. The modality of voluntary submissions could be applied by the IMF, the OECD and other institutions to communicate and to coordinate on respective work on environmental fiscal policy with the Standing Committee on Finance (SCF) and other related mechanisms of the UNFCCC under the agreement to be signed at the COP21 in December 2015 in Paris.

SUPPLY-SIDE: UNLOCKING FINANCE AND IMPROVING THE ASSESSMENT OF CLIMATE AND CARBON RISKS

22. Improving the assessment of both climate and carbon risks – especially in mainstream economic policies – can provide incentives guiding household and company savings and other financial resources towards investments putting the economy and broader society on a pathway to a low-carbon growth path. In that perspective, there may be need to address timing-related issues. Indeed, the recognition by IFGRIs of the medium- and long-term effects of policies can enable the integration of climate-related factors into policymaking affecting the financial sector.

Climate collateral: climate change as a business-as-usual central bank monetary policy

23. The classical mandate of central banks is an aggregation of price stability – including insuring the settlements of transactions – and supervision of the banking system. The first mandate has historically been addressed through the

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management of the central bank's reserve and therefore the monetary base. In its day-to-day operations, central banks lend money to commercial banks and indirectly to other financial actors by making capital available to these actors. Central banks mitigate their risk by taking collateral when lending.

24. Only collaterals with specific characteristic – notably in terms of counterparty, maturity, liquidity, risk, etc. – can be accepted by central banks and each central bank sets its own criteria. Doing so, central banks send a signal to the market that these eligible assets are risk-free because i) the Central Bank involves its reputation as considering them as so and ii) the refinancing of the assets is insured by the Central Bank.
25. As climate change and climate policies are a source of risk for specific assets, including the assessment of climate-related risk in the selection process of collateral is an opportunity for central banks to have a better alignment of short- and long-term policies. Any move from a central bank whose impact is either to favor low-carbon or resilient assets or discriminate – compared with current framework – climate-incompatible assets would send a strong signal to financial actors in the way they consider these assets. Central banks that do not rely on market neutrality policies could also set a floor of green/climate collateral in their reserves. The direct impact for project developers is lower interest rates and lower barriers to access credit. The direct impact for financial intermediaries such as commercial banks is a better leverage and a lower cost of capital. It is indirectly a way to bypass barriers introduced by prudential regulations for capital-intensive long-term lending by lowering the amount of risk-weighted assets and thus the capital requirements (see below).
26. An alternative way to proceed would be for a government – or a group of governments – to create financial institutions or structures dedicated to low-carbon and climate-resilient activities with the ability to issue bonds on international capital markets. These “green” bonds – through the implicit or explicit guarantee of these states – would be eligible as collateral for central banks. This kind of architecture could support existing public financial institutions – such as the Green Climate Fund internationally. A similar approach in the current EU context could be integrated into the € 315 billion investment plan established by EU Commission President Juncker, to promote targeted private investments in the real economy in the EU over 2015-2017. Using a public financial institution as an intermediary can allow green investments to benefit from low interest rates and low capital requirements relative to what would be available at market rates. However, it does not enable central banks to send signals to the broader markets.

Unconventional monetary policies should take into consideration climate change objectives

27. In the last years, these business-as-usual operations have been accompanied by specific purchase programs such as quantitative easing. These unconventional monetary policies have their own eligibility criteria for asset purchase; for example, the T-LTRO – *Targeted Long Term Refinancing Operations* – of the European Central Bank that targeted SMEs financing.
28. Such a targeting of assets and, more broadly, the idea of money creation following the financial crisis has been seen as an opportunity to implement Smart Unconventional MOnetary (SUMO) policies to finance clean

infrastructure. These SUMO policies can be divided in three groups including green Quantitative Easing, the use of IMF's Special Drawing Rights (SDRs) and the creation of a new monetary asset – carbon certificates – which value emission reductions.¹⁰ Irrespective of their form, the implementation of any the SUMO policies will require actions to create the necessary institutional arrangements and implement a operationally-feasible Monitoring, Reporting and Verifying (MRV) procedures to ensure the environmental integrity of flows. A key piece of an MRV system to ensure that capital is allocated to the appropriate projects and sectors is dependent on developing operational definitions for screening tools to identify what is low-carbon or green. This is similar to the challenge posed to green bond markets and is discussed below. On the proposals based on SDRs, a reform of the IFM could be needed depending the targeted leverage.

29. Of the above-listed options, SDRs and monetary carbon certificate creation seem to be the less technically and politically easy to implement. Indeed, they would require a degree of international coordination on MRV and political agreements that seems highly unlikely in the coming years.
30. On the other hand, it is both technically and politically feasible¹¹ to restrict an existing quantitative easing program to low-carbon – or at “energy transition coherent”– projects and sectors. In many instances, it may be more feasible to “green” QE programs that have been created for other macroeconomic reasons than to create new programs only to stimulate the provision of finance for green sectors and activities. In an era of low interest rates, quantitative easing is a favored monetary policy instrument: the European Central Bank has begun the implementation of an announced \$1.3 trillion asset purchase program by buying government bonds. In that perspective, it is very close to the kind of sectoral or asset restrictions that can be already implemented by some central banks. If green quantitative easing cannot be seen as a long-term solution, it may, in the short run be used as a lever to give an impetus to green investment. Green quantitative easing could be implemented at the level of any monetary jurisdiction and may require a similar kind of MRV to that for green bonds. The challenges of developing such a system are discussed further below. Compared with classical carbon pricing policies, such instruments only affect future flows of investment and not directly the existing assets. Thus, potential political opposition can be avoided as existing assets will not immediately be subjected to direct negative economic impacts with the focus principally on new investment.

Macro prudential policies and weighting rules to foster long-term investment

31. Firstly, climate change can also be integrated by central banks through their regulatory/supervision mandate and macro-prudential policies. Until now, the impact of prudential policies has been estimated to be negative as policies following the financial crisis – such as Basel III and Solvency II – negatively weight long-term investment (FTF 2015; Kaminker et al. 2013; UCISL and UNEP-FI 2014; Spencer and Stevenson 2013). By requesting banks and insurance companies to hold more capital and liquidity on reserve, these policies decrease

¹⁰ For a complete overview of different proposals, see (Ferron and Morel 2014).

¹¹ For example, the recognition of Michael Carney, Governor of the Bank of England, of interest of implementing green-focused quantitative easing. <http://www.ft.com/intl/cms/s/0/812f3388-aeaf-11e3-8e41-00144feab7de.html>

the flow of supply for long-term infrastructure investments, including many climate-positive investments. Conversely, a prudential policy that would favor low-carbon infrastructure investment would be equivalent to creating new private money for these sectors (Campiglio 2014). On the project side, “long-term friendly” macro prudential policies would result in less expensive long-term capital. Different actors could be involved in such a shift of regulation: the BCBS, the IAIS at the international level, as well as central banks – as national regulators of the financial system. International regulators can also set “standardized” risk weights across countries assigning a lower risk weight to assets that are made compatible with climate change, for example by including a climate risk assessment. Adjusting the “risk-weighted assets” (RWAs), the yardstick against which banks measure their capital adequacy, by the amount of climate-related risk encompassed by assets can reduce the relative cost of lending to productive low-carbon, climate-resilient investments compared with fossil fuel-intensive investments. However, without other regulatory changes or incentives, it would not reduce the increasing regulatory-related preference for short-term liquid assets.

32. Secondly, FGRIs can issue guidelines and rules on supply-side policies supporting climate investments. Recently, IFGRIs have issued principles which are targeted to scale up climate investments and promote economic growth. For example, the G-20 and the OECD jointly issued high-level statements of principles to promote long-term investment at the G-20 meeting in Brisbane in 2014, with green growth being one of the objectives. While most of these principles are yet to be translated at the operational level, they send a strong and concerted political signal of finance ministers’ priority and willingness to increase lending to long-term climate investments. This in turn gives rise to hopes of an adjustment of the new regulatory framework of financial markets imposed by macro-prudential policies of Basel III and Solvency II in favor of these assets.
33. Finally, despite growing research on the topic, identifying green investment’s promotion as a way to promote stability – even in the long run – is not yet a mainstream idea. Therefore, side-stepping the initial aim of prudential regulation – the stability of the banking/insurance system – to promote green investment appears to be far from being politically acceptable today. Moreover, the impact of promoting green investment through prudential rules needs to be better evaluated, and the barriers related today to concerns of picking “sectoral winners” need to be addressed before these policies can be implemented. Reducing the negative impacts of macro prudential rules on long-term investment (whether green or otherwise) relies on the policy makers’ ability to address and endorse the positive and negative impacts of such policies. However, prudential rules’ impacts on climate-related investment can also be overcome by accepting related assets as collateral (see above). Indeed, they would be considered as almost risk-free by investors given the potential that they would be repurchased by central banks.

Better integrating climate-related risk to mitigate volatility risks

34. Extreme, volatile and changing weather conditions can have severe long-term consequences and impose short term shocks on economic stability and development, and can directly impact asset values. This risk can be observed both at the macro and the micro/company level. In a similar way, climate policies and the phasing out of fossil fuel subsidies will likely reduce returns on fossil fuel

investments. The shift to a low-carbon economy poses additional risks to the stability of the global financial system, notably illustrated through stranded assets.¹² Although stranded asset risks of fossil fuel investments are often viewed from the perspective of investors and investor-owned companies, it is governments that bear the highest risk of value loss from the energy transition (NCE 2014). Both physical risk of climate and regulatory risk of climate policies are climate-related risks.¹³

35. On one hand, climate-related risks have yet to be sufficiently integrated within the existing framework of prudential rules (UCISL and UNEP-FI 2014). On the other hand, as shown by the recent inquiry of the Bank of England on the integration of climate risks by insurers, central banks can take leadership in increasing climate due diligence.¹⁴ Requirements to integrate climate-relevant risks by insurance companies could be scaled up and replicated internationally and especially in countries most vulnerable to climate change, and included as an International Association of Insurance Supervisors (IAIS) standard for due diligence. The potential of this approach seems higher for capital intensive, illiquid assets such as infrastructure investments, where the costs of excluding climate risks are potentially more significant.

Adjusting accounting rules both to address climate change and account for long-term risks

36. Rules at the firm level affect investment decisions between short-term and long-term lending have an impact of allocation to climate assets. Mark-to-market (or fair value) accounting rules favor low-risk liquid assets based on historical cost accounting, and indirectly promote short time horizons. Fiduciary duties of companies to their stakeholders – or of institutional investors to their beneficiaries – place a disproportionate focus on short-term performance and issues with a short-term impact. Capital market transactions typically have durations between 3-9 months (SFA 2013), and investors tend to evaluate companies and their assets' due diligence accordingly and to ignore, for example, implications of environmental and social performance on long-term returns. Governance models and compensation schemes within firms that focus on quarterly or one-year returns further support this short-term bias. Given that climate-related infrastructure tend to be long-term investments, accounting rules thus limit allocation by default.
37. This short termism pushes companies and investors to systematically omit long-term and systemic risks (e.g. those related to climate change) which can bias the efficient balance between short term and long-term risk-adjusted returns (PRI 2013). In times of technological innovations such as electronic trading systems and uncertain growth forecasts, risk-averse investors are popularizing passive investing, or investments based on tracking – historically-oriented – market indices. Passive investment constitutes 15%-36% of investments, varying depending on investor and fund type (Revesz 2013; Market Watch 2014). Basing incentives and decisions on changes in stock value fluctuations and other market

¹² The “stranded assets” concept and the idea of “unburnable carbon” is typically used to illustrate the risks that the fossil fuel extraction sector is exposed to if already known reserves are not exploitable under current and credible future climate policies, not to mention those being identified through significant current and future investment (CTI 2013).

¹³ See the companion paper (Morel et al. 2015) for more information.

¹⁴ <http://www.ft.com/intl/cms/s/o/deddd1954-5bad-11e4-a674-00144feab7de.html>

indices reinforce short term horizons. In a nutshell, the market structure on the capital supply side locks in short-term thinking. Shifting to climate investments is not an objective of accounting rules at the firm level, gradually moving towards longer-term accounting can reduce investor behavior bias. This bias reacts to short term market volatilities detached from the real economy. Thus, accounting rules can promote investments in productive assets such as those contributing to long-term climate change objectives.

MATCHING SUPPLY AND DEMAND: GREEN SECURITIZATION AND STANDARDIZATION

38. Improving the quality of green finance demand and the integration of climate in the supply of finance does not guarantee a perfect match between the two. As discussed above, the demand of green finance cannot always be fully adapted to match with investors' needs and vice-versa. Access to finance for climate investments may face same barriers as long-term infrastructure investments and financing of small and medium enterprises. Additionally, informational barriers may prevent the match between compatible and existing demand and supply of finance for clean projects. Tackling this "mismatch" is the main purpose of green bonds: their principal role is to channel financing to low-carbon or climate-resilient projects, as well as educate market actors. Providing climate investments packaged into standardized, easily identifiable financial assets aligned with their investment needs appears necessary to fit with institutional investors' expectations.
39. While their market is today oversubscribed, green bonds are a niche market largely limited to issuances by large non-finance sector corporates such as utility companies (e.g. EDF, GDF Suez) and to public supra-national financing institutes and national development banks (and to a lesser extent, municipalities and cities) (CBI 2014). There is nevertheless much potential in middle-income countries where financial markets are rapidly developing. China, for example, is developing the domestic green bonds market as part of its strategy to orient domestic saving – currently invested in under-regulated property accumulation – into a green investments market to strengthen the real economy.¹⁵ Further development of this market appears to require international coordination on two topics: standardization and securitization.

Standardization and transparency of green bond market to make it trustable and sustainable

40. Improving the transparency through standardization and common definitions of bonds that can be classified as "green" is key to developing the market from niche to mainstream. To date, international actions have focused on processes for certification and third party verification. These are of key importance to the transparency and integrity of the green bonds market.

¹⁵ To foster this development, China is providing government guarantees, tax and interest rate incentives for covered bonds to create market seeding and demonstrate their financial viability, with an outlook that issuance can then shift to asset-backed securities in the medium term. China has also set up a FDI window for green bonds to attract foreign investors, especially institutional investors into the secondary market. (Kidney and Oliver, n.d.)

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41. Currently, the Green Bonds Principles¹⁶ developed by a consortium of investment banks provide guidelines on areas such as the use of proceeds, project evaluation and selection, management of proceeds and reporting. However, they do not define whether a bond is green or not. International green bond standards such as the sectoral level Climate Bond Standards – for solar, wind, green buildings and transport so far – are being developed to be used by a list of approved certifiers to provide information to investors about the environmental integrity of climate bonds.
42. Green bond indexes have been launched by financial intermediaries and credit rating agencies such as Bank of America Merrill Lynch, Barclays/MSCI and Standard & Poor, and a separate list of green bonds has been announced to be set up by the Oslo Stock Exchange. Until now, labelling of green bonds is rather an auto-certification process – eventually supported by external reviews – than an organized process. A role could be foreseen here for the IOSCO to centralize voluntary initiatives on green bonds and to develop standards for harmonization across jurisdictions.
43. To date, two different strategies coexist to identify investments as green or climate. The first one is inherited from the Clean Development Mechanism and is a bottom-up approach. It consists in comparing the impact of a given project compared with a business-as-usual baseline without the project. On the other hand, the financial sector – including most public development institutions – use a top-down approach by identifying typologies of sectors or projects that can be qualified as green or climate. Different approaches have their pros and cons, especially dealing with cost of implementation and accuracy.
44. In order to tackle the systemic, economy-wide aspect of the needed transformation, it could appear better to have a procedural approach valuating the “transition potential” rather than the greenness. It could result in a simpler process than counting ton per ton and a more accurate process than thinking on a sectorial basis. The existing work undertaken by the OECD to characterize climate finance shows that part of IFGRIs may play a role in this green definition process.

Securitization of green bonds, a way to channel finance from institutional investors to small-scale projects

45. Financial characteristics of projects can also induce mismatch: size, maturity, etc. are not always compatible with targeted investors’ needs. To reach the characteristics needed – for example for institutional investors – a financial structure such as a fund or bank could be used as an “interface” to pool projects and provide aggregation of projects with adequate financial characteristics. Once small-scale renewable energy and energy efficiency projects are “packaged” as securities, institutional investors – among other financial market actors – could play the role of “refinancers”. This operation would thus make banks free to finance new projects by lightening their balance sheet. This is the principle of securitization. The uncertainty about the climate impact of such tool

¹⁶ The Green Bonds Principles were developed in 2014 by a consortium of investment banks underwriting green bonds, to bolster investor confidence in the market by increasing transparency and integrity. JPMorgan Chase in collaboration with Bank of America, Merrill Lynch, Citi and Crédit Agricole Corporate and Investment Bank. <http://www.ceres.org/resources/reports/green-bond-principles-2014-voluntary-process-guidelines-for-issuing-green-bonds/view>

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relies on the assurance that the bank or other financial institution will invest the freed financing in climate-related projects.

46. As demonstrated by the “toxic assets” at the heart of the 2008 financial crisis, transparency and assurances concerning the quality of underlying assets is key to the future use of securitization. Properly regulated, this tool can help small projects access large pools of capital through the standardization and aggregation. Securitization tackles different sources of mismatch such as long term/short term perspectives and the financing of small or medium entities or projects. Thus, it is very close to the work supported by the OECD on the financing of infrastructure by institutional investors (DellaCroce, Kaminker, and Stewart 2011; Kaminker et al. 2014; Kaminker et al. 2013; Kaminker and Stewart 2012). Finally, a way to tackle mismatch and increase the flows to green sectors is to provide a strong securitization market. The development of such a market would not probably be the result of any climate-related policy. Nevertheless, it would necessarily be an interesting opportunity window to enhance the channel of green finance towards small or medium-scales projects.

Developing standardization of both securitization and green bonds at the same time

47. The lack of transparency and standardization is a fundamental issue for securities that goes beyond green bonds. Regulatory and supervisory authorities in the EU, the US, Japan, Canada and other jurisdictions are taking steps to provide securitization products and markets with higher standards of transparency and more stringent disclosure requirements. A basic component of this process is clear definitions. For example, the US Securities and Exchange Commission (SEC) proposed new requirements to increase transparency in the private asset-backed securities (ABS) market and its level of standardization. There are also a number of industry-led initiatives to encourage standardization of documents and structures. Furthermore, the Association of Financial Markets in Europe (AFME) worked together with the European Central Bank and the Bank of England to mandatorily enhance reporting standards for their respective repo programs¹⁷ in Europe (Joint Forum 2011).
48. These voluntary national and regional initiatives for standardization by the private sector could be complemented by guidance by IFGRIs to increase the credibility of green bond issuances. The International Organization of Securities Commissions (IOSCO) has been considering measures aimed at enhancing transparency and standardization, to harmonize securitization market across jurisdictions.¹⁸ Furthermore, the Task Force on Unregulated Markets and Products (TFUMP) was formed in November 2008 in support of G-20 calls for a review of unregulated financial markets and products concerning the US, EU and other jurisdictions. A review of securitization markets found that standardization and transparency have not been widely applied in OECD country securitization markets, and that there is an over-reliance on credit rating agencies for risk assessment. Subsequently, the TFUMP has recommended that the Board of the IOSCO encourage industries to develop principles to harmonize approaches among jurisdictions and standard disclosure templates to facilitate investors’

¹⁷ Among different tools for their monetary policies, central banks can provide collateralized loans to banks through repo programs. It is a “sale and repurchase (repo) agreement”.

¹⁸ The European Commission and the US Securities and Exchange Commission (SEC) have conducted a comparison of securitization rules in the EU and US.

due diligence and improve their analysis of asset risks and performance.¹⁹ Independent reviews of green labelled bonds have been somewhat applied in Europe (e.g. CICERO, Vigeo) but not yet in the US. The IOSCO could invite voluntary initiatives from green bond underwriters and third party verifiers to work on the harmonization of green bonds across jurisdictions. Principles on the disclosure of green securitization standards could be included in the disclosure templates, to serve as a benchmark of green securities across jurisdictions.

CONCLUSION

49. Ensuring the stability of the global climate as well as the stability of the global financial sector requires that the governance agendas of these two very different systems take each other into consideration. Today, while climate change is not considered as the most urgent issue by most IFGRIs, their policies and operations may have significant impact on the mobilization of low-carbon and resilient finance. Respectively, the physical impacts of unchecked climate change as well as the widespread and rapid structural changes needed in the global economy to reach the 2°C objective have the potential to lead to significant value destruction and instability for the financial sector if not properly prepared for. Through their core mandates to ensure stability, IFGRIs have several opportunities to “mainstream” climate change and both improve the functioning of the financial sector and the mobilization of finance to fund low-carbon and resilient actions.
50. IFGRIs could thus integrate climate change in their supervision – of public policies and financial institutions – and monetary mandates. This would send two main signals to governments and private financial actors: first, climate change is a systemic issue for which everyone has to act consistently and second, low-carbon and climate-resilient assets are valuable and source of opportunity and profitability in the low-carbon future. Some private financial actors already integrated the opportunity to better assess climate issues and voluntarily took actions. Any move from any IFGRI would be interpreted as broader and more serious.
51. Currently analysis of financial market indicates that there is a large amount of relatively low-priced capital looking for interesting investment opportunities. Although tenor, size, geographic location, technology and project type will have an impact on the accessibility of this capital, many investors have indicated that a lack of investment opportunities corresponding to their risk-return expectations – rather than a lack of liquidity – is stalling investment. Thus, it appears that further demand-side policies are necessary to create more climate investment opportunities and place them on equal “financial return” footing as carbon-intensive assets.

¹⁹ See IOSCO 2012: This study has also found that current disclosure rules of asset risks and credit enhancement exist and are similar across jurisdictions, but are under different regulations. For example, in the US regulation AB imposes disclosure requirements for ABS offering, while the SEC rules require the disclosure of the flow of funds for a transaction, including payment allocations, priority and credit enhancement to facilitate timely payment to security holders. In Europe, the EU Transparency Directive obliges securities, non-balance sheet and non-liquid assets, to comply with regulatory requirements applicable to public offerings or listed products, and the CRD imposes obligations on bank investors to ensure that they receive disclosure irrespective of whether the transaction is public or private.

52. However, supply and matching policies cannot be forgotten. Indeed, the excess of capital is not meant to last forever, does not apply to all sorts of finance needs and does not prevent from systemic biases discriminating climate assets. By also acting on supply-side and matching policies, the financial sector could gain in efficiency and stability. By being a leader and taking climate change as serious as it must be to avoid significant negative consequences, the financial sector would also send a message that would stimulate the demand for green finance.
53. As explored in this paper, opportunities to address these three issues are available and within the scope of the mandate of IFGRIs. However action relies on increasing the awareness of these institutions that climate change is a tangible threat for their mandate. Some institutions - such as the IMF, the OECD and some central banks – have started to engage in the debates surrounding financing of the fight against climate change. Nevertheless, this progress has not translated into mainstream practice and financial-sector policies integrating climate issues strong enough to send the necessary signals. There, as well, is a mutually reinforcing process: the more the awareness on climate changes issues will spread around institutions and translated into actions, the more others institutions will do so.

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ANNEX 1 : EXAMPLES OF IFGRI INSTRUMENTS

	Technical assistance	High-level statement of principles	Standards and rules
Bank for International Settlements (BIS) (1930) / Basel Committee on Banking Supervision (BCBS) (1974)	Implementation of Basel Standards (2014); Impacts of the Basel framework for emerging market, developing and small economies (2014)		Basel I, II, and III international regulatory frameworks for banks
Group of Twenty (G-20) (1999)		Agreement to phase out inefficient fossil fuel subsidies (2013, 2009)	
International Association of Insurance Supervisors (IAIS) (1994)			Insurance Core Principles; Solvency II; Basic Capital Requirements (BCR) for Global Systemically Important Insurers (G-SIIs)
International Monetary Fund (IMF) (1944)	Article IV Consultations, Triennial Surveillance Review, World Economic Outlook (WEO)	Managing Director's Global Policy Agenda	Code of Good Practices on Fiscal Transparency; Monitoring implementation of the FSB's <i>Key Standards for Sound Financial Systems</i> in the Reports on the Observance of Standards and Codes (ROSCs)
International Organization of Securities Commissions (IOSCO) (1983)	Market-based long-term financing solutions for SMEs and infrastructure (2014)		Objectives and Principles of Securities Regulation (2010)
Organization for Economic Co-operation and Development (OECD) (1948)	Economic Surveys; Investment Policy Reviews; Joint report with IEA, OPEC and World Bank on energy subsidies (2011)	G-20-OECD High-level Principles of Long-term Investment (2014); Ministerial Council Statement	OECD-G-20 Standard for Automatic Exchange of Financial Account Information (2014)

Sources: authors based on available institutional information