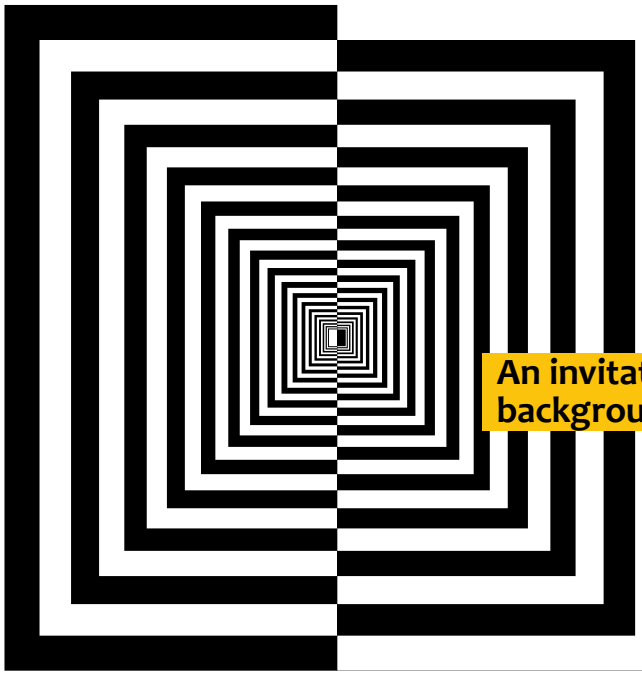
Inquiry: Design of a Sustainable Financial System

UNEP

ALIGNING

THE FINANCIAL SYSTEM WITH SUSTAINABLE DEVELOPMENT



An invitation & background briefing

JUNE 2014

This paper has been produced by the Inquiry's Secretariat as an invitation to engage in its activities.

It also provides a background briefing on the case for linking the development of the financial system with green and inclusive policy objectives, highlights emerging innovation across the world, and offers a set of questions and themes to frame inputs and feedback to the Inquiry's work.

This paper is based on an initial mapping of existing efforts to align the rules that govern the financial system with a green and inclusive economy, as well as inputs from the Inquiry's Advisory Council and dialogue with policymakers, financial institutions and civil society organisations.

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Acknowledgements

The Inquiry would like to acknowledge the contributions of the many individuals and organizations which have already contributed to its development, and to the framing and substance of its work set out in this paper. Advisory Council members have all contributed collectively and individually, as have numerous staff members of UNEP and in particular UNEPFI and the UN-supported Principles for Responsible Investment. Initial mapping by several research organizations provided important inputs, including the Frankfurt School of Finance and Management, the New Economics Foundation and the Smith School of Enterprise and Environment. Thanks also to our Special Advisors and Council Observers, and to our growing network of country partners, including the Central Bank of Bangladesh, China`s Development Research Centre of the State Council, the Federação Brasileira de Bancos, and the Global Green Growth Institute in South Africa.

Errors and omissions in this paper are the responsibility of the Inquiry.
Pages 2 and 44 (which are blank for print pagination) have been omitted from this pdf.

The Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance design options that would deliver a step change in the financial system's effectiveness in mobilizing capital towards a green and inclusive economy.

Established in January 2014, it will publish its final report in the second half of 2015.

More information on the Inquiry is at: http://www.unep.org/greeneconomy/financialinquiry or from:

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联合国环境规划署
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Getting the economics right is key to our collective effective stewardship of the environment. At UNEP, we have for many years engaged on these economics with governments and also business and wider civil society. Our ground-breaking report Towards a Green Economy, released in 2011, made the case for accelerating the transition to a green, inclusive economy, since when we have worked with many governments to translate potential into practice.

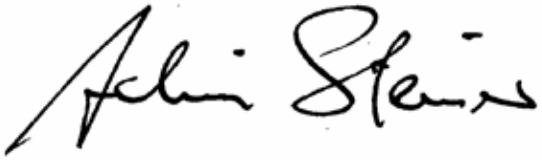
Financing remains one of the greatest challenges in advancing sustainable development. UNEP has long recognized the need to attract private capital to this challenge as well as mobilizing public finance. The UNEP Finance Initiative was established in 1992 as a means of engaging banks, institutional investors and insurance companies, and since then has contributed to progressing the incorporation of environmental, social and governance issues into their considerations.

Today, there has been much progress, but not enough to prevent growing local and global environmental stresses. Finance for the green economy remains inadequate, and the natural resource and carbon intensity of most private capital markets is still increasing. It is clear that individual investors, however large, can only do so much in bucking this trend. Crucially, the recent economic crisis has highlighted the importance of the overall functioning of the financial system in shaping what it does, and does not, invest in.

UNEP has therefore taken a next step in supporting the transition to a green economy. In January 2014, we established an Inquiry to explore and develop policy options for better aligning the financial system to the needs of sustainable development, focusing on financial and monetary policies, regulations, standards and norms and fiscal measures. This Inquiry will carry out its work over the next 18 months, submitting its reports in the second half of 2015.

The Inquiry`s approach is to focus on existing policy innovations, engaging widely at the country and international levels, as well as commissioning policy analysis and technical research. Over its life, it will widely solicit opinion and proposals, as well as making full use of a high-level Advisory Council established to guide its work. In this spirit, this initial publication is intended as an invitation to those with experience, knowledge, and interests, to come forward and engage with the Inquiry`s able Secretariat and open process in offering learning, insights and proposals.

It is a moment in time where ambition and focus is needed to advance the green economy to the next level of scale and relevance. At UNEP, we hope that the Inquiry can be one contribution to that end.



Achim Steiner
Under-Secretary-General
Executive Director, UNEP

Aligning the Financial System with Sustainable Development – Highlights

Considerable finance is needed to drive the transition to a green, inclusive economy. A "clean trillion" of additional investment is needed annually up to 2030 to enable new infrastructure to be made green. More broadly is the need to reshape the financial system to extend its time horizons, reduce its appetite to invest in natural resource and carbon intensive assets, and to make investments that create livelihoods and jobs for all.

Private capital is needed to finance this transition, complemented by public expenditure, but is currently being channelled into an unsustainable economy. Traded financial capital globally amounts to US$225 trillion, but little of this is being used to power the transition to a green and inclusive economy. Aligning the financial system to enable the long-term health of the real economy may require changes to its architecture, the 'rules' governing how it operates.

Never in modern times has there been so great a consensus that the financial system is not fit for purpose. The recent financial crisis, reinforced by the failure of today's global economy to deliver the jobs needed and steward the natural environment, has eroded trust in the financial system's capacity to serve its intended beneficiaries and the long-term interests of the real economy. Aligning the financial system to the needs of a green and inclusive economy is a pre-condition for achieving sustainable development, complementing policy and private action in the real economy.

UNEP has established the `Inquiry into the Design of a Sustainable Financial System` to address this high-potential policy arena. Building on UNEP's green economy initiative and two decades of work of the UNEP Finance Initiative, the Inquiry is being guided by a high-level Advisory Panel, and involves wide-reaching engagement and research at the national and international levels.

The Inquiry aims to accelerate and scale emergent policy innovations that better align the financial system to sustainable development. Growing numbers of central banks, financial regulators and private standards agencies, particularly from emerging economies, are advancing measures explicitly focused on green and equity goals. Broader policy debates, from concerns about short-termism and financial sector remuneration to housing finance have implications for aligning capital allocation to green and inclusive outcomes.

Success of the Inquiry would establish the centrality of creating a sustainable financial system as an enabler of the transition to a green and inclusive economy, and policy options for achieving it. Key is to place sustainability on the agenda of those who shape the financial system. This requires a portfolio of practical policy options, which might include new accounting standards, ways of addressing short-termism, integrating green factors into credit risk, new approaches to fiduciary responsibilities and more extensive mandates for central banks and financial regulators.

The Inquiry's approach to knowledge development is to draw on current practice, existing methods and analysis, leadership opinion, and forward-looking scenarios and policy proposals. Building on the initial mapping and associated analysis and reflections, the Inquiry proposes to advance three workstreams focused on country experience, cross-cutting aspects of the financial system, and an enabling framework of scenarios, principles and assessment methods.

The Inquiry will take an open approach that allows anyone to submit relevant learning, insights and ideas. This will be enabled through its engagement in a number of countries, expert and stakeholder convenings, joint research and publications. This paper in an open invitation for those with expertise, interests and insights to contribute to the Inquiry's work and outcomes.

Key Questions for the Inquiry

The Inquiry's work will be shaped by a series of questions about the financial system set out below: a summary set of questions are listed on page 43

Starting points

DEFINITIONS

- What are the critical elements that need clarification and communication to facilitate the convergence of the financial system and the green and inclusive economy?
- What are the incentives that currently enable or disable the effective participation of financial actors in the transition to a green and inclusive economy?
- How does financial market structure, including levels of concentration and ownership, impact environmental and social outcomes?
- What are the relative merits of deploying financial over "real economy" policies and regulations to address environmental and equity issues and outcomes?

Innovation dimension	Empirical questions	Analysis of Implications	Consideration of policy design options
Tomorrow's financial system	▶ What are the emerging dynamics in the real economy which could be important for progress towards or away from a sustainable financial system? ▶ What are the key disruptive factors that could shape the prospects for a sustainable financial system to 2020 and beyond?	▶ How might these emerging dynamics effect options for interventions in pursuit of a sustainable financial system? ▶ How could technology and institutional innovations in the financial sector impact social and environmental outcomes?	▶ How do existing financial rules and regulations need to evolve in order not to hold back necessary green financial innovation? ▶ What new financial frameworks are needed to encourage specifically green financial innovation, for example, in investing in ecosystem services? ▶ How could different parts of government work together establish a coherent policy that could deliver a sustainable financial system?
Systems horizons	▶ What is the relationship between long-term investment horizons and sustainability outcomes? ▶ What is the impact of short-termism, short-term trading activity and intra-sector trading on environmental and equity outcomes?	▶ What steps are needed to fully integrate the sustainability dimension into the long-term investment agenda? ▶ How can the scope of financial risk management effectively incorporate environmental and social factors at the system level?	▶ How can the short- and long-term dynamics of the financial system be reconciled with a green and inclusive green economy? ▶ What are the policy and regulatory levers that can effectively reconcile the short- and long-term dynamics of the financial system with a green and inclusive economy?
Systems governance	▶ How do international finance governance institutions and processes take environmental and social issues into account? ▶ How does analysis of systemic risk under macro-prudential regulation take environmental and social matters into account?	▶ What is the case for (and against) and practice of central banks and financial regulators directly and indirectly pursuing environmental and social objectives? ▶ What are the key features of an assessment framework to evaluate financial policy measures for green economy impacts?	▶ How could the mandates for rule setters be updated to take account of the systemic risks associated with the financial system`s impact on green and inclusivity outcomes, and vice versa? ▶ What are the essential principles that should guide policy options for a sustainable financial system?

INNOVATION DIMENSION	EMPIRICAL QUESTIONS	ANALYSIS OF IMPLICATIONS	CONSIDERATION OF POLICY DESIGN OPTIONS
	▶ Do different configurations of financial policy and regulatory authorities impact their capacity to address environmental and social objectives?	▶ What are the leading experiences – and potential innovations – in the ways that different parts of government can work together to deliver a sustainable financial system? ▶ What are the factors and mechanisms necessary to ensure accountability for the sustainability performance of the financial system to its ultimate beneficiaries?	▶ How could the 'soft law' principles that shape financial architecture best incorporate the green economy imperative?
RESPONSIBILITY, INFORMATION AND INCENTIVES	▶ How do investor governance and associated public policies take environmental and social matters into account? ▶ What is the experience of extended goals and risk-assessment frameworks on performance, in both private and public financial institutions? ▶ What is the level of fiscal support to the financial sector and its impacts on environmental and social outcomes? ▶ What is the impact of differing forms of, and policy approaches to credit creation on environmental and social outcomes? ▶ What impacts do existing private incentives (such as remuneration) have for the alignment of capital to a green, inclusive economy? ▶ What are the market conditions under which information on green and inclusive outcomes becomes material to financial decision-makers?=	▶ How important is the perceived gap between fundamental financial responsibilities (such as fiduciary duty) and sustainability factors? ▶ How can the benchmarks and ratings that drive capital allocation become better aligned with the green economy? ▶ How can the practice of disclosure by corporations, financial institutions and regulators evolve to strengthen market discipline for a sustainable financial system? ▶ What is case for (and against) and practice of different approaches to policy-incentivized lending in addressing environmental and social objectives?	▶ What are the business models and governance arrangements that could best embed environmental, social and governance factors into the operations of financial institutions? ▶ What are the most effective market and policy mechanisms to achieve alignment? ▶ How could policy mechanisms and fiscal incentives for credit creation, savings, investment and pensions support the long-term transition to a green, inclusive economy?

CHANGE PATHWAYS

- How best can financial policy and regulatory aimed at environmental and social outcomes be sequenced and how can trade-offs be understood?
- How can decision-making structures at the national and international levels evolve to deliver joined up governance which aligns the financial system and the green economy?
- How will moves towards a sustainable financial system impact upon the competitiveness of nations and development of the world's financial centres?
- What is the role of citizens as consumers, investors, employees and/or as social movements in effecting the financial system`s impact on environmental and social outcomes?

1 HARNESSING THE FINANCIAL SYSTEM – THE INQUIRY'S RATIONALE & SCOPE

"We also reaffirm the need to achieve sustainable development by: promoting sustained, inclusive and equitable economic growth, creating greater opportunities for all, reducing inequalities, raising basic standards of living; fostering equitable social development and inclusion; and promoting integrated and sustainable management of natural resources and ecosystems that supports inter alia economic, social and human development while facilitating ecosystem conservation, regeneration and restoration and resilience in the face of new and emerging challenges."

UN, The Future We Want, 2012

1.1 The nexus of financial reform and the green, inclusive economy

Considerable finance is needed to drive the transition to a green, inclusive economy. Estimates indicate that around US$1 trillion of additional investment is needed annually to 2030 to green new infrastructure in energy, transport, buildings and industry.[1] Such an amount, reasonably modest at roughly 1.5% of today's global GDP, sits alongside the need to mobilize US$5 trillion a year for the underlying investment. Further finance is needed for the "softer" investments in health and education, and to overcome the challenges to vulnerable communities from climate change, to ensure that all citizens can participate fully and benefit from tomorrow's economy.[2]

Governments will play a critical role in ensuring that such investments are made. Public expenditure will play a crucial role, as it has historically in ensuring long-term investment to build today's developed nations. Privately-held financial capital, equally, will need to be a major part of the solution, requiring that the investment logic of this capital can be aligned to the needs of the real economy.[3]

The financial system is the means by which we can channel society's collective financial assets to productive use. Financially traded assets are valued at US$225 trillion with further non-traded assets, such as real estate and businesses that are owned by individuals, communities and nations influenced by the financial system[4]. This capital, whilst largely privately owned, represents societies` overall resource for investing in long-term development and well-being. It is now clear that the long-term health of the economy depends on underlying social and environmental systems, while the economy's 'footprint' on these areas is in turn shaped by the dynamics of the financial system.[5]

Much of this capital is today invested in delivering the US$70 trillion annual output from a global economy which is resource, carbon and pollution-intensive. *Clean energy investment in 2012 was about US$250 billion, up four-fold since 2004,*[6] but barely one third of the US$674 billion invested in fossil fuel exploitation. The carbon intensity of the world`s leading stock exchanges continues to increase, for London and New York stock exchanges by 7 and 37 per cent respectively over the last 2 years.[7]

Individuals and financial institutions face an array of possible opportunities to allocate capital - and prefer to buy assets that they understand, and that they can sell easily. Long-term infrastructure investments, particularly where it involves new technology or is located in places perceived to have policy or other instabilities, exemplify what investors tend to be cautious about. A key role of financial institutions and financial instruments such as bonds and equities is to transform the maturity of such long-term investment to make them an investable proposition. However,

misaligned incentives can drive investment to pursue short-term market movements rather than long-term value creation. [8]

In response to the financial crisis in 2007, the finance ministers and central bankers of the major economies committed to fundamental reform of the global financial system '*to correct the fault lines that led to the global crisis and to build safer, more resilient sources of finance to serve better the needs of the real economy*'. [9] More recently, the chair of the Financial Stability Board – established in the wake of the global financial crisis – reaffirmed the goal to '*build a system that can evolve with the global economy to support strong, sustainable and balanced growth*'.[10] For the G20, this includes:

- *Inclusivity and convergence – closing gaps in output and employment, and convergence to high standards of living across countries in the long run.*
- *Efficiency - increasing potential output growth, through utilising competitive market forces for more productive use of available resources.*
- *Stability - based on strong public finances and price and financial stability, resilient to economic and financial shocks and not generating persistent and destabilizing internal or external imbalances.*
- *Consistency - with social and environmental policy goals.*[11]

Driving forward the transition to a green and inclusive economy requires profound changes in the real economy. Major shifts are needed in policy, institutional and governance frameworks, and market and individual behaviour to accomplish the changes needed in everything from energy and transport systems to agricultural practices and consumption patterns, as UNEP highlighted in its path-making *Towards a Green Economy* report in 2011 and has since operationalized with governments in over 30 countries[12].

Actions to build a green and inclusive economy are growing across the world, but these have generally not included changes to the rules governing the financial system.[13] Such rules include financial and monetary policies, financial regulations, standards and norms, and also fiscal measures that influence the allocation of capital. These rules profoundly shape risk-return analysis. Capital requirements for banks established under Basel III, for example, could limit the appetite for long-term infrastructure.[14] Likewise, fossil fuel intensive benchmarks disincentivize investors from moving towards carbon-light portfolios.[15]

THE INQUIRY`S THREEFOLD FOCUS

Why, and under what circumstances, should rules governing the financial system be deployed in pursuit of green and inclusive outcome ?

What rules governing the financial system have been, and might be deployed as effective instruments for achieving green and inclusivity outcome ?

How rules that could deliver green and inclusive economy outcomes can be deployed given the complexities and competitiveness concerns of financial actors and nations ?

1.2 The Inquiry: aims and approach

The Inquiry into the Design of a Sustainable Financial System aims to advance policy options that would deliver a step change in the financial system's effectiveness in mobilizing capital towards a green and inclusive economy. Launched in January 2014, the two-year Inquiry is guided by a high-level Advisory Council comprised of financial policy makers and regulators, private standard setters and executives of leading financial institutions. Its philosophy and practical approach is to consult widely with those involved in, as well

as those impacted by the financial system, including civil society, financial institutions, governments, and international organizations, as well as learning from and contributing to key UN initiatives and agencies.

FIGURE 1 ADVISORY COUNCIL

KUANDYK BISHIMBAYEV
DEPUTY MINISTER ECONOMIC DEVELOPMENT & TRADE, GOVERNMENT OF KAZAKHSTAN

NAINA KIDWAI
GROUP GENERAL MANAGER & COUNTRY HEAD, HSBC INDIA

MARIA KIWANUKA
MINISTER OF FINANCE,GOVERNMENT OF UGANDA

RACHEL KYTE
GROUP VICE PRESIDENT, WORLD BANK

JEAN-PIERRE LANDAU
FORMER DEPUTY GOVERNOR, BANQUE DE FRANCE

JOHN LIPSKY
FORMER DEPUTY MANAGING DIRECTOR, IMF

MURILO PORTUGAL
PRESIDENT, BRAZILIAN BANKERS FEDERATION

NICKY NEWTON-KING
CHIEF EXECUTIVE, JOHANNESBURG STOCK EXCHANGE

DAVID PITT-WATSON
CO-CHAIR UNEPFI

BRUNO OBERLE
STATE SECRETARY AND DIRECTOR OF SWISS FEDERAL OFFICE FOR THE ENVIRONMENT

ATIUR RAHMAN
GOVERNOR, CENTRAL BANK OF BANGLADESH

NEERAJ SAHAI
PRESIDENT, S&P RATING SERVICES

RICK SAMANS
MANAGING DIRECTOR, WORLD ECONOMIC FORUM

ANDREW SHENG
PRESIDENT, FUNG GLOBAL INSTITUTE

ANNE STAUSBOLL
CEO CALPERS

LORD ADAIR TURNER
FORMER CHAIR, FINANCIAL SERVICES AUTHORITY, UK

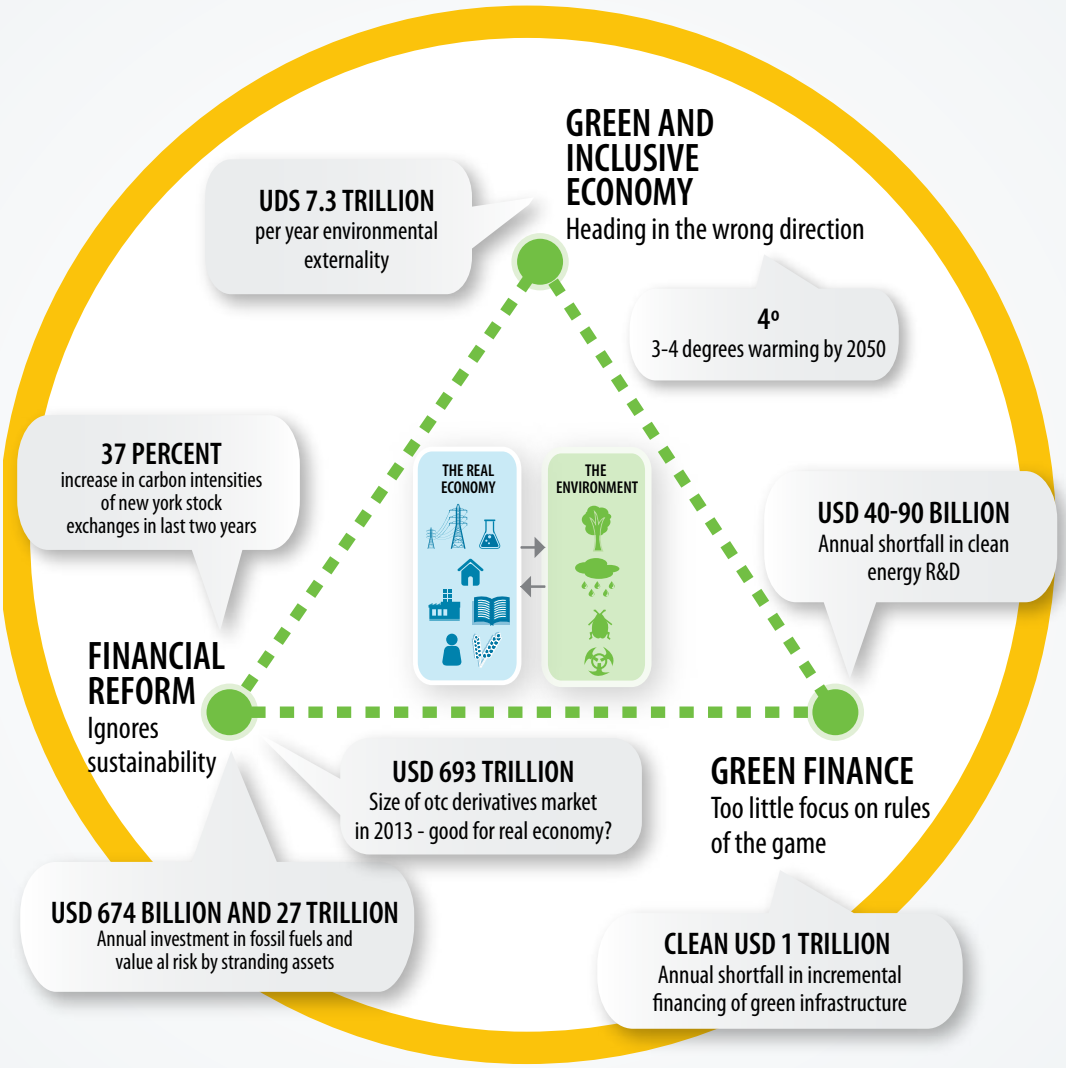
The Inquiry is working at the nexus of three hitherto largely disconnected agendas: the growing environmental and equity imperative, the financing needs of the inclusive, green economy, and the financial market development agenda.

1. Environmental and social stresses are increasing by almost any measure, with broader estimates of negative environmental externalities of over US$7 trillion annually, and increasing inequalities and social discontent.[16]

2. Green finance has accelerated over the last decade, particularly in non-OECD countries, yet remains far below what is needed.[17]

3. Post-crisis financial market reform efforts have focused on restoring stability and integrity, but have not incorporated green and equity issues as underlying drivers of long-term stability or as policy goals in their own right.[18]

FIGURE 2 A MOMENT IN TIME



The purpose of the financial system is to invest in the long-term health of the real economy. As Christine Lagarde, Managing Director, International Monetary Fund recently argued,

> "We can identify the true purpose of finance. Its goal is to put resources to productive use, to transform maturity, thereby contributing to the good of economic stability and full employment—and ultimately, to the wellbeing of people. In other words—to enrich society".[19]

Never in modern times has there been so great a consensus that the financial system needs a major overhaul, that it is no longer fit to serve its purpose.

FINANCIAL SYSTEM: NEED FOR CHANGE TO MEET PURPOSE

"We must question the prevailing logic of …a financial system that essentially rewards unemployment and consolidates a notion of jobless growth… that rewards rampant over-consumption rather than grappling with the more complex challenge of sustainable development."

Kumi Naidoo, Executive Director, Greenpeace International[23]

"The Bank of England's mission `to promote the good of the people of the UK by maintaining monetary and financial stability" suggests that central banks have an important role to play in supporting social welfare."

Mark Carney, Governor, Bank of England[24]

"Financial regulators need to lead. Sooner rather than later, they must address the systemic risk associated with carbon-intensive activities in their economies."

Jim Kim, President of the World Bank[15]

"What is needed is not just money. What is really needed is the political will to correct market failure by rethinking parts of the financial system…the metrics, institutions, and policies that govern how financiers and investors evaluate economic activities."

Mark Burrows, Managing Director, Credit Suisse, Asia Pacific[22]

"In this age of diminished trust, it is the financial sector that takes last place in opinion surveys…(because its behaviour)…has not changed fundamentally in a number of dimensions since the crisis…The industry still prizes short-term profit over long-term prudence, today's bonus over tomorrow's relationship".

Christine Lagarde, Managing Director, IMF[20]

Now, emerging from the financial and economic crisis, is a moment in time when change is possible. Before the crisis, the need was less apparent, and throughout the crisis there was rightly a focus on re-stabilizing the financial system to avoid further immediate damage to the real economy.[25] Now, on the other hand, is a time in history when it is clear to all that the financial system is not fulfilling its core purpose, and that there is popular and policy appetite, as well as the voice of leadership from the financial markets, for deeper reflection and change.

Emerging economies are increasingly influential over the future of the global financial system, and have an opportunity to lead in aligning it to its underlying purpose. Emerging economies will have greater influence over the next generation of rules governing the financial system, both given the increase in the scale and depth of their domestic financial markets and their increasing role in key international processes, platforms and institutions. Experiments in using monetary policies and macroprudential financial regulation to achieve green growth aims seem especially feasible in emerging economies, where central banks have a wider range of instruments and objectives. [26]

The Inquiry's aim is to be complementary to international initiatives working at the intersection of finance and sustainable development, including those advanced through the UN. These include UNEP's 20-year partnership with the financial sector – the UNEP Finance Initiative – which brings together 200 leading financial institutions, including banks, insurance companies and investors. Other relevant UN initiatives include the Intergovernmental Committee of Experts on Sustainable Development Financing, which is feeding into the wider post-2015 development agenda [27], as well as the UN Secretary General's Climate Leadership Summit, aiming to galvanise political ambition for the conclusion of UNFCCC climate negotiations in Paris 2015[28]. The Inquiry also aims to build on national level strategies for financing the green economy enacted by governments and others, as well as leading sustainability practices from the financial community, business and trade unions along with innovations from civil society and academia.

The Inquiry's approach to knowledge development is to draw on current practice, understand country experience and commission new analysis to fill identified gaps. This network approach will involve a focus on country-level engagement, supported by international outreach, thematic research and the Inquiry's internally generated analysis. The Inquiry will produce a series of outputs during its two-year lifespan and a final report containing policy options in the second half 2015. Publications will include briefings, working papers and country reports to contribute to a dynamic conversation.

1.3 Concepts & Definitions

Four key concepts frame the Inquiry's focus: the *financial system; the green and inclusive economy; policy innovations; and the long-term health of the real economy.*

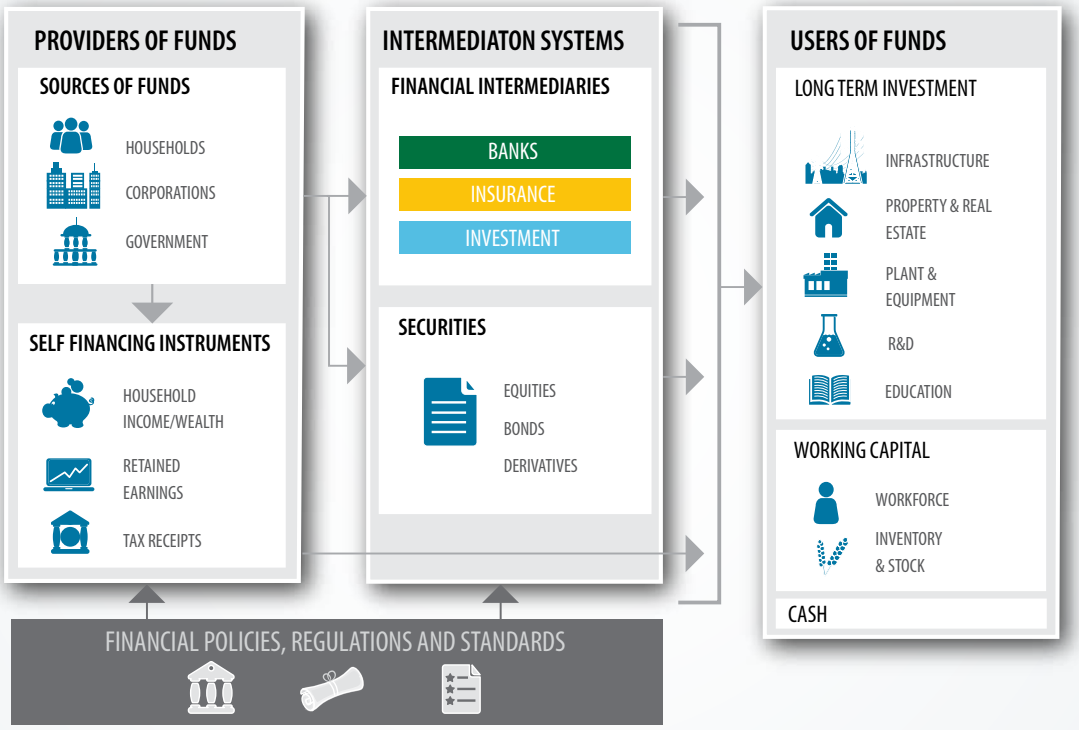
The Financial System

The Inquiry has taken as a starting point the International Monetary Fund's description of the financial system as including:

> "...BANKS, SECURITIES MARKETS, PENSION AND MUTUAL FUNDS, INSURERS, MARKET INFRASTRUCTURES, CENTRAL BANK, AS WELL AS REGULATORY AND SUPERVISORY AUTHORITIES."[29]

This definition makes clear that the financial system is more than the sum of its market actors, and includes the institutions specialised in making and overseeing the rules governing the system, including those at the global level such as the Financial Stability Board (FSB) and the IMF itself. The graphic below illustrates in simple form the key flows of financial capital in the system, and the scope of rules governing it.[30]

FIGURE 3 THE FINANCIAL SYSTEM A BASIC VIEW



The key purpose of financial instruments and intermediaries is to enable providers and users of funds to achieve their goals through saving, investment and risk mitigation. But the system as a whole delivers a broader utility to society; enhancing information about firms, mobilizing savings, allocating capital efficiently, ensuring sound corporate governance and enabling risk taking, which enables productivity gains across the economy.

Building on this, the scope of the inquiry would incorporate the following four areas.

1. **Providers of funds:** whether households, governments or corporations as they engage in capital allocation, lending and risk transfer through financial intermediaries or securities. Added to this would be commercial banks in their credit creation capacity.

2. **Financial intermediaries:** to include:

    a. **Banks,** shadow banks and non-traditional platforms such as peer-to-peer lending, microcredit and informal lending.

    b. **Insurance companies including micro-insurance,** reinsurance business, and insurance and reinsurance intermediaries (e.g. agents and brokers).

    c. **Institutional asset managers including pension and mutual funds,** alternative investment funds including private equity and other specialist investment vehicles.

    d. **State-owned or policy directed investors including sovereign wealth funds and other state-owned or policy directed investment vehicles,** such as development banks and export credit agencies.

3. **Securities:** to include infrastructures and trading through established securities markets, notably equities, bonds, derivatives and other asset classes (such as foreign exchange and commodities). In addition, we include market intermediaries concerned with sound information and analysis for these markets, including equity and credit analysts, investment consultants, legal and other professional services, such as auditors. Finally, we consider the ways in which financial markets intersect with real assets, notably real estate and property, a powerful factor in market cycles.

4. **Policies, regulations and standards: to include**

    a. **Mandatory regulations and state guidelines concerning the conduct of the above.**

    b. **Non-public rule setting,** which would cover for example accounting, auditing and reporting bodies and private credit rating agencies, and their activities and associated rules. This would also include professional bodies and industry initiatives that shape the practices of financial institutions in banking, insurance and investment.

    c. **International public and public interest institutions and platforms,** such as the G20, the Financial Stability Board and the Bank of International Settlements.

    d. **Fiscal measures directed at influencing the financial system,** for example, incentives for savings, investment, pensions and housing, as well as taxes on transactions

    e. **Monetary policy and the role of central banks.**

The different components of the system do not operate in isolation and are strongly interconnected between themselves and the real economy. Thus, shareholders are legally 'members' of the corporations they part-own. Banks issue bonds on behalf of governments and corporations to fund real economy projects, and these bonds are held by asset managers on behalf of insurers, pension funds and individuals.

The financial system also needs to be conceived as a complex adaptive system, with features that are distinct from conventional 20th century understandings of financial markets[31]. Financial systems do not necessarily tend towards equilibrium as traditionally thought, and are both robust yet fragile, with increasing complexity and homogeneity potentially contributing to instability.[32] A systems' approach also suggests that a diversity of business models among financial institutions as well as diversity of size – to avoid the 'too big to fail' issue – are critical structural features of a financial system that is open to the innovation that the green and inclusive economy requires. All this suggests a way of approaching the financial system that is "forming from a constantly developing set of technological innovations, institutions, and arrangements that draw forth further innovations, institutions and arrangements" and which is characterized by "contingency, indeterminacy, sense-making, and openness to change."[33]

The financial system itself is in a state of constant change, in fact the system is particularly characterized by rapid and often disruptive innovation. Looking forward to the shape of tomorrow`s financial system is therefore of particular importance, not only from the perspective of desired changes in pursuit of sustainability aligned outcomes, but to ensure that design options are relevant to the future, not just to past challenges and opportunities embedded in the system`s characteristics.

Such a broad definition of the financial system does not of course require that the Inquiry deals with every aspect of the system. The focus for the Inquiry is on the identification of both the leverage points and the levers that offer the potential for system innovation for the green economy.

The green and inclusive economy

For UNEP, a green economy is one that results in *"improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. In its simplest expression, a green economy can be thought of as one which is low carbon, resource efficient and socially inclusive".*

The green economy strategy combines ends and means. As a recent World Economic Forum report by Nobel economist Michael Spence makes clear: *"inclusive, sustainable prosperity is the **purpose** of economic growth."* [34] Likewise, as UNEP points out in the opening pages of its path-breaking *Towards a Green Economy* report in 2011:

> "(THE GREEN ECONOMY IS NOT)...A REPLACEMENT FOR SUSTAINABLE DEVELOPMENT. RATHER, IT IS A WAY OF REALIZING THAT DEVELOPMENT AT THE NATIONAL, REGIONAL AND GLOBAL LEVELS..."[35]

For the Inquiry, the focus is on how the key elements of the financial system described above intersect to enable (or disable) this green economy dynamic. One major constraint for both policymakers and practitioners at present is the lack of commonly accepted definitions of 'green' or 'climate' finance, an issue that has become a live issue within global bond markets.

Inclusion lies at the heart of the vision of a green economy. The poor suffer most from resource mismanagement and environmental degradation, whether in terms of air pollution, water, soil or biodiversity[36]. The continuing decline in natural assets guarantees the perpetuation of poverty.[37] In addition, it is critical to ensure that strategies to deliver the green economy are not only socially sensitive, but leave low-income groups better off. Clearly, the structure and operation of the financial system has profound implications for social outcomes, underpinning the long-standing policy agenda around access to finance and inclusion[38]. For the Inquiry, the focus is on policy and market innovations that link the often separate agendas of green finance and social inclusion, including informal financial systems geared to the needs of low-income groups, the most vulnerable to environmental shocks.

Financial policy innovations: rules, regulations, standards

For the Inquiry, policy measures incorporate the suite of tools that can be deployed to promote the public interest to ensure the accountability of the financial system to its beneficiaries and those impacted by its operations. These range from voluntary codes through public-private partnerships to soft and hard law and regulations. These can be steered towards a different performance model through smart, strategic interventions using selected policy instruments. In its focus on delivering a sustainable financial system, the Inquiry is focusing on six broad categories of financial policy innovation:

1. **Financial policy,** mainly set by Ministries of Finance or equivalent.
2. **Financial regulation,** deployed mainly by financial regulators and supervisory bodies.
3. **Monetary policy** by Central Banks to manage credit creation and price stability.
4. **Fiscal policy**, which influences financial market behaviour, such as subsidies for savings and investment.
5. **Private standards,** including accounting and reporting, stock exchange listing requirements, credit ratings, and industry accords.

6. **Policy-directed financial institutions,** such as Sovereign Wealth Funds and development banks, including the new generation of 'green investment banks'.

The long-term health of the real economy

The financial sector's classic role, defined through the lens of its core functions, is to allocate capital, mobilize savings, transform maturity, exert governance, manage risk and facilitate exchange, all at the lowest possible transaction costs. Yet as the financial crisis has reminded us, integrity and stability are also critical features – the system needs to be ***sound***. In the wake of the financial crisis, a clear policy consensus has emerged that the purpose of the financial system to serve the real economy, described by the Financial Times as *"the part of the economy that is concerned with actually producing goods and services, as opposed to the part of the economy that is concerned with buying and selling on the financial markets".*[39] The financial system therefore also needs to be ***supportive*** of the real economy.

For the Inquiry, the focus is on how the financial system can help deliver the long-term health of the real economy – and therefore becomes ***sustainable***. This involves a process of optimization across a basket of objectives into the future. One way of expressing this is by understanding the multiple 'capitals' that underpin a healthy economy, an effective financial system and successful economic institutions. Capital can be seen as "stores of value that can be built up or run down over time, but which must be maintained if they are to continue to produce a flow of benefits in the future". For the International Integrated Reporting Council, there are six capital stocks which provide flows that are critical for value creation at the organisational level: financial capital; manufactured capital; intellectual capital; social and relationship capital; human capital; and natural capital[40].

This approach could also be applied at the level of the financial system. The continuing tension between short-termism and the long-term is examined below. But the challenge of the green economy forces us to go one step further – and suggests that a sustainable financial system is one that shapes a real economy that can operate safely over time within local and planetary boundaries and deliver improved financial inclusion and social equity. Critical here is the need to steer the deployment of long-lived infrastructures – such as energy and transport - that can lock-in high environmental impacts over decades. Following the financial crisis, considerable attention has been given to closing the global infrastructure funding gap. Yet, a focus solely on delivering long-term financing does not necessarily deliver infrastructure that is sustainable over the lifetime of the asset.

Ultimately, a working definition of a sustainable financial system would be one that is aligned to the long-term health of the real economy, one that is green and inclusive.

2 THE CASE FOR INTERVENTION IN THE FINANCIAL SYSTEM

2.1 A structural challenge

Transitioning to an inclusive, green economy is the only viable option for achieving sustainable development. Local and planetary boundaries are being overstepped and natural capital depleted at an unsustainable pace.[41] Economic strategies are, however, being implemented in response. "*Green growth*", coined first by South Korea, is "a path of economic growth which uses natural resources in a sustainable manner".[42] There is now growing experience in delivering green growth and low-carbon economic development across a range of countries at the national and sub-national levels at very different stages of development such as Brazil, Cambodia, Ethiopia, Germany, Japan, Kenya, Mexico and the USA[43]. China, meanwhile, has offered up the term "*ecological civilization*", encompassing equity as well as environmental security, but also evoking a broader shift in values.

Equally, there is widespread agreement that failure to transition rapidly to an inclusive, green economy carries significant risks to people and economy. Outdoor air pollution alone, for example, was responsible for the deaths of some 3.7 million people under the age of 60 in 2012, according to the WHO, and only 12% of the people in the world's 1,600 cities major cities enjoy air quality that complies with WHO air quality guideline levels. About half of the urban population being monitored is exposed to air pollution that is at least 2.5 times higher than the levels WHO recommends - putting those people at additional risk of serious, long-term health problems[44]. Extensive public health and economic effects of air pollution have become apparent, particularly in China. Resource stress is also a growing economic constraint. Since the beginning of the century, a wide range of agricultural and energy commodities have been impacted by both price inflation and volatility – often following episodes of extreme weather events - pointing to the unsustainable management of critical stocks of natural capital, including biodiversity, soils and water. Without new policies, continued erosion of natural capital is expected, "with the risk of irreversible changes that could endanger two centuries of rising living standards", according to the OECD.[45]

Natural disasters are already a structural threat to economic and financial stability in a growing number of countries. To date, it is the scale of uninsured losses that drives the subsequent macroeconomic cost and financial system impacts[46]. In the USA, for example, it is estimated that unfunded federal disaster assistance costs over the next 75 years range between US$1 tirillion and US$5.7 trillion (in 2008), while unfunded social security benefits are estimated at cUS$4.7 trillion; unfunded state-level disaster costs are a further US$3 trillion[47]. Around 88% of natural catastrophes are linked to the climate, and thus at risk of exacerbation through global warming. This year, the IPCC will complete its Fifth Assessment Review, and has already reported that climate change impacts are widespread and consequential. Importantly, many human systems are vulnerable to the climate-related extremes shocks, with inadequate investment in the measures needed to ensure resilience[48]. Notably, the impact of warming on global agriculture has been and will continue to be negative. Average global yields of key crops such as maize and wheat have been reduced and are projected to fall further at a time when food demand is rising strongly. Economic losses will increase in a non-linear fashion with further warming.

A key task for both policymakers and practitioners is to understand the scale, risk profile and potential crystallisation of environmental and climate stresses on the financial system. This is not helped by the recognised limitations of traditional metrics such as GDP as a measure of human welfare and well-being.[49] In addition, mainstream tools for evaluating the cost of climate and environmental damage have significant weaknesses, which "grossly underestimate the risk".[50] . Many critical features of climate change are currently excluded from economic assessment models (such as extreme events and water stress) so that policymakers and market participants are likely to be surprised on the downside. The drivers of environmental risk are multiple – and involve not just environmental change but also evolving social and legal norms.[51]

FIGURE 4 DRIVERS OF ENVIRONMENT-RELATED RISKS

DRIVER	COMPONENTS
ENVIRONMENTAL CHANGE	CLIMATE CHANGE, NATURAL CAPITAL DEGRADATION, BIODIVERSITY LOSS, HABITAT LOSS AND WATER AVAILABILITY.
RESOURCE LANDSCAPES	PRICE AND AVAILABILITY OF DIFFERENT NON-RENEWABLE RESOURCES, SUCH AS OIL, GAS, COAL AND OTHER MINERALS AND METALS. E.G. PEAK OIL AND THE SHALE GAS REVOLUTION.
GOVERNMENT REGULATIONS	CARBON PRICING (VIA TAXES AND TRADING SCHEMES), SUBSIDY REGIMES (E.G. FOR FOSSIL FUELS AND RENEWABLES), AIR POLLUTION REGULATION, DISCLOSURE REQUIREMENTS, THE 'CARBON BUBBLE' AND INTERNATIONAL CLIMATE POLICY.
TECHNOLOGICAL CHANGE	FALLING CLEAN TECHNOLOGY COSTS (E.G. SOLAR PV, ONSHORE WIND), DISRUPTIVE TECHNOLOGIES, GMO, ELECTRIC VEHICLES
SOCIAL NORMS AND CONSUMER BEHAVIOUR	FOSSIL FUEL DIVESTMENT CAMPAIGN, PRODUCT LABELLING AND CERTIFICATION SCHEMES, CONSUMER PREFERENCES.
LITIGATION AND STATUTORY INTERPRETATIONS	CARBON LIABILITY, DAMAGES, CHANGES IN THE WAY EXISTING LAWS ARE APPLIED OR INTERPRETED.

Source: Smith School of Enterprise and the Environment, 2014

Policy responses to previously under-managed environmental challenges, create feedback effects on the economy and specifically on the financial system. This is illustrated by the stranding of iron and steel and coal assets in China as the government moves to manage air pollution, and the carbon intensive, energy utility assets stranded in Germany as a result of its ambitious renewables programme. What this highlights is the complexity of the transition, the fact that there are winners and losers, as in every transition throughout history, and the need to mobilize all possible policy instruments to make the transition as smooth and effective as possible.

Overall, environment-related risks can have a diverse range of impacts on the financial system, through a number of pathways, including:

- **Bottom-up contagion:** The rapid devaluation of assets as a result of previously mispriced natural capital becoming re-priced could be of sufficient size, scale and speed that it affects financial stability of key markets.

- **Capital flight:** Negative capital flows could be motivated by either natural capital degradation or increasing option value on future natural capital stocks in different geographies.

- **Hazard globalisation:** Natural capital degradation may influence global markets and trade flows through either price-based shifts or regulatory actions. Such processes have been cited as evidence of the complex relationships between climate change, natural capital assets, and trade that have motivated significant regional social and political unrest in recent years, including the Arab Spring.[52]

Critical issues remain in the way of understanding the full implications of these drivers. Natural capital accounting involves both epistemological and ontological uncertainties regarding the quantification and measurement of the stocks and flows of capital assets and services. By omitting or underestimating key environmental factors including tipping points and feedback loops in climatic and biophysical geographic systems, policymakers risk underestimating the fat tail downside costs of climate change and natural capital degradation for the financial system.

2.2 Quantifying the Financial Challenge

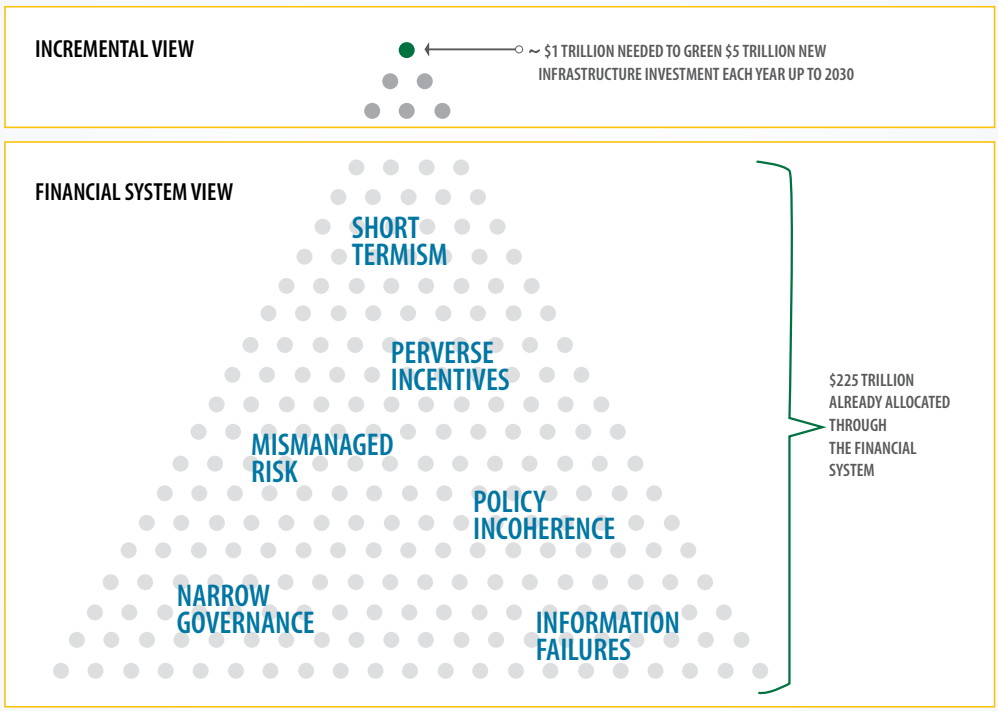
Financing sustainable development has often been expressed in terms of billions of dollars – for example the US$100 billion per annum by 2020 that rich countries have committed to mobilise for climate change adaptation and mitigation in developing countries, or the US$190 billion a year that was estimated as needed to reach the Millennium Development Goals.

Yet *the real scale of the transition is increasingly recognised as involving trillions of dollars of new investment annually, and the reallocation of many tens of trillions of dollars of existing assets that underpin today`s unsustainable economy.* The World Economic Forum, drawing on the work of the International Energy Agency, the OECD and many others, estimates that up to US$6 trillion of investment is needed each year, through to 2030, to build new transport, energy and buildings infrastructure which is cleaner and more resilient. Of this, US$0.7 trillion are the incremental costs of 'greening' the investment, particularly because green technologies are characterized by high capital intensity (and less expensive to run).[53] This has subsequently been referred to as the 'clean trillion'.[54]

These numbers, although considerable, still under-estimate the scale of the overall financial transition, as they are focused exclusively on climate-related aspects, and exclude many costs, for example those to ensure universal access to clean, modern electricity and energy supplies[55]. Such an incremental analysis also ignores the need to re-direct a major part of the US$225 trillion of financial assets that currently continues to flow into and support unsustainable economic activities[56]. Over the past two years, for example, the carbon intensities of the main London and New York stock exchanges increased by 7 per cent and 37 per cent respectively. Spending on exploration and development of new fossil fuel reserves by the 200 largest listed fossil fuel companies totalled US$674 billion in 2012, three times the global investment in clean technology.[57] Such investments perpetuate an approach to the economy that is today externalizing (not counting) estimated costs of US$7.3 trillion a year through natural capital degradation and negative environmental externalities[58].

The financial benefits flowing from today`s financial assets in fact depend in large part on these externalities - that is on the undervaluing of biodiversity, carbon, soils and water as well as underestimating the risks from environmental catastrophes and shifts. The same can be said about the considerable, un-financialised assets currently not included in the US$225 trillion, including uncounted and untraded assets such as state-owned assets, family farms without formal tenure, and hundreds of millions of micro-enterprises that remain under the radar of the formal economy. Without action, the benefits accruing to these mainstream assets could decline as externalities become impactful and economically material through biophysical change and policy. Some of these assets could become stranded as policy and market signals lower the economic value of natural resource and carbon intensive investments. Managing this process in an orderly fashion is an important aspect of any serious reallocation of financial capital in favour of sustainable development.

FIGURE 5 BEYOND AN INCREMENTAL APPROACH



Data Sources: WEF and McKinsey

The financial system is rooted in its core asset base, but it both transacts a far higher volume and extends into a much larger market in derivatives. According to the latest data from the Bank of International Settlements, in April 2013, trading in foreign exchange markets averaged US$5.3 trillion per day, with a further US$2.3 trillion in OTC derivatives trading. Beyond this, the total notional amount outstanding in the global OTC derivatives market reached $693trn in June 2013, up from US$507 trillion in June 2007.[59] The extent to which these trading volumes and derivatives markets contribute to serving the real economy is hotly contested. For the Inquiry, the questions here are two-fold: first, how does short-term trading distract capital from the long-term investment requirements involved in the transition to a green economy; and second, how does the operation of global derivatives markets intersect with the green economy imperative?[60] To be sustainable, the financial system will not only need to be cleaner, but also extend its time horizons.

Taking this approach, the financial challenge in enabling a rapid transition towards an inclusive, green economy therefore concerns the workings of the entire financial system, not only that part that is focused on long-term investment, green or otherwise. That is, **safeguarding today's assets is a generational challenge to redirect them towards sustainable value creation opportunities in the interests of their owners and intended beneficiaries,** including savers and pension and insurance policy holders.

2.3 A triple rationale: fixing systematic failings; bringing coherence; real economy effectiveness

Governments, acting in the wider public interest, have historically intervened in the financial system. Periodically, indeed, as recent decades demonstrate, governments have reshaped core aspects of the system, whether to enable private gains or in pursuit of the public interest, such as in response to major crises. The US Federal Reserve, for example, has a dual mandate with a clear goal to stimulate domestic employment, just as other central banks and regulators have pursued goals as diverse as ensuring financial services for low income communities and small businesses, promoting home ownership and black economic empowerment.

Not every green economy problem or opportunity where finance is involved, can or should be addressed through interventions in the financial system. More stringent and effectively enforced building standards for example, are a priority to confront the continuing under-investment in energy efficient buildings. Likewise, effective carbon pricing in the real economy and eradicating perverse fossil fuel subsidises, are both critical steps to channel capital into low-carbon assets[61]. But these may not be sufficient alone. The question for the Inquiry is to what extent and when are innovations in the financial rules needed to complement traditional policy and market levers.

Three main circumstances may justify interventions in the financial system to complement classic policy options to drive capital reallocation for the green economy: resolving systematic biases, achieving policy coherence and harnessing opportunities for steering capital for green economy goals. Research and early discussions with the Inquiry's Advisory Council members (see 'Council Viewpoints' box below) revealed the strong dynamic that exists between the need to improve the fundamental efficiency of the financial system and the transition to a green economy. [62]

1. **Resolving Systematic Biases in Risk Assessment:** market imperfections and inefficiencies through asymmetric information, misaligned incentives, short-termism and insufficient responsibilities can create systematic biases that result in the under-estimation of environmental and social risks. These market failures in the financial system itself may lead to investors and financial intermediaries not responding as expected to regulatory and price signals.[63] Furthermore this can compound the barriers to capital reallocation that flow from market failures in the real economy (such as mispricing for natural capital assets such as carbon, soil and water). The result is a misallocation of capital, including over-investment in unsustainable assets that could be at risk from unexpected downward adjustment in asset values, the stranded asset argument[64]. A failure to address the root causes of these financial inefficiencies can also result in disorderly markets, characterized by instability and rising litigation.

2. **Achieving policy coherence to remove unintended effects of regulation:** failing to consider long-term environmental and social factors in policy design can and does lead financial regulation to have unintended negative consequences for the allocation of capital to the green economy[65]. For example, there has been widespread concern, particularly in Europe, that Basel III and Solvency II have unintentionally dampened investor enthusiasm for long-term infrastructure financing, including renewables[66]. Under current prudential rules green and low carbon investment strategies are often evaluated as carrying higher risks and lower returns in the short-term and therefore incur higher costs for institutions than resource-intensive strategies[67]. Delivering policy coherence is a pragmatic task – as illustrated by the case of trade finance – and also needs to be applied to the finance-sustainability dynamic (see Box).

3. **Harnessing financial policy opportunities to realise green and inclusive outcomes in the real economy:** Policymakers may be missing opportunities for 'win-win' measures that deliver positive financial and environmental outcomes in the real economy. Green financial policies can help to complement traditional environmental policies to reduce pollution, for example, through green credit guidelines. Equally, the incorporation of environmental factors can help to strengthen traditional approaches to financial analysis, for example, by integrating energy costs into loan appraisal; this could equally be applied at the system level. In reality, given that traditional policy approaches to the green economy are unlikely to be sufficient to achieve the desired goals, exploring options in the financial domain makes sense particularly where there is policy delay and/or weaknesses in effective execution. The financial system can potentially deliver a particular form of 'market discipline' to drive the green economy as part of a wider strategy of policy optimisation.

As with all policy measures, green economy interventions in the financial system need to be proportionate and recognise potential downsides.

All policies carry a cost – and these costs need to be identified, minimised and are outweighed by specific and societal benefits. Three specific concerns need to be factored into policy design.

- **Disproportionate impacts:** regulation can be a particular burden for smaller financial institutions and potentially stifle desired market diversity and innovation for the green economy.
- **Unintended consequences:** green financial policy innovation itself could have unintended consequences on, for example, on loan quality.
- **Impact avoidance:** the system's dynamism and complexity means that vested interests can avoid the intended impact of intervention, including through regulatory arbitrage.

Looking ahead, the emerging role of green financial policy innovation is to create an enabling environment for the mobilisation of capital for the green and inclusive economy – for example, ruling out unacceptable practices and setting minimum requirements. It is important to recognise that incentives to circumvent policy and regulation are always present and may become unmanageable if policy tries to regulate against price. Using the phrase of Dutch pension fund APG's chief investment officer, Angelien Kemna, perhaps the goal is a regime of 'controlled simplicity' – one that does not necessarily result in more regulation, but steers capital intelligently towards long-term sustainability[68].

Adjusting Capital Requirements to Account for Real Economy Objectives: Trade Finance

As the new Basel III banking rules were being drawn up there was concern at the potential unintended consequences on the availability of trade finance, in particular for low-income countries. Consultation between the World Bank, the World Trade Organisation and the Basel Committee for Banking Supervision eventually resulted in reductions to the capital requirements for trade finance, a positive outcome for North-South and South-South trade. This example also highlights how financial regulation needs to be placed within the wider context of the development needs of the real economy. In 2014, the Basel Committee also amended its guidelines around the newly created leverage ratio on trade finance to cut the effective 'leverage tax' on letters of credit and similar instruments..

In summary, three conclusions can be drawn from this examination of the case for considering interventions in the financial system to advance the transition to an inclusive, green economy:

- Minimally, there is no *a priori* reason for not considering such interventions.
- Evidentially, there are strong reasons for addressing those features of the financial system that are preventing or slowing the transition.
- Urgency, suggests the need to consider extending intervention mandates to include objectives linked to the green and inclusive economy.

It is important to stress that the Inquiry's focus on policy innovation in the financial system is not as a substitute for real economy interventions to deliver a green and inclusive economy – indeed, green financial policy could prove to be catalytic of wider policy progress. In addition, it is also a relevant approach for financial systems at different stages of development, making policy sequencing an important theme for the Inquiry, including how green and inclusive factors are mainstreamed into core financial development strategies.

The question is not whether, but what and how – and the next section profiles the emerging generation of policy innovation in this area.

Case for Action in the Financial System – Council Viewpoints

Many Council members highlighted that the barriers to green investment are part of a wider systemic problem of short-termism and instability in the financial system:

"Fundamentally the financial system is biased towards the short-term: real estate and too much debt. We need to fix that to prevent these cycles of boom and bust."

Others articulated this as a fundamental mismatch between the financial system's current operation and its purpose in serving the real economy:

"Financial regulation is not even making the financial sector serve the real sector. It regulated in the name of free, fair, transparent markets. But fast trading accounts for 60% of turnover. Stock markets are only supporting large players. SMEs can't get capital. Everything moves to the banking system. Banks are over regulated so it moves to the shadow banking. So we have systemic risk. The policy outcomes are directly opposite to the intention.

"At no stage do we ask 'is this fit for purpose' - credit ratings agencies, accounting standards, disappearance of fiduciary duty between pension funds manager, reporting of information, governance duties, how brokers are paid. Almost every actor you will see in the financial system has not been thought about in terms of purpose. "

Council members highlighted three different elements of the case for financial system intervention in relation to green and inclusive investment; (i) systemic problems in risk assessment, (ii) existing financial rules creating unintended effects, and (iii) missed opportunities to use financial policies and regulations to actively pursue real economy objectives.

"Climate change and natural resource constraints are not front of mind in financial decisions. Everyone is working off a model. The models don't incorporate those factors, but just extrapolate out from the past. "

"As a central bank we are working to engrain socially responsible investing into the financing structure itself. It is explicit. We give incentives for bankers to go green. Our mandate is to support the growth objectives of the government. The governments goals are pro-environment and inclusive."

"None of the reforms such as Basel III have considered the nature of environmental risk for the sustainability of the system. Instead it prices out investment for long-term infrastructure. Solvency II makes it more difficult for pensions and insurance to invest in long term debt financial products"

However many also highlighted reasons for caution in extending the mandate of financial regulation to advance the green economy:

"My faith in regulation is tempered by the incentive for circumvention. If you try to regulate against prices, that incentive is almost unmanageable."

"We need a new vision of the financial system. Should central banks be involved? Yes. Should this mean that their mandate extends to 'green'? I am not sure. Central bankers are not gods. They need a limited mandate."

Source: Council interviews

3 MAPPING EMERGING PRACTICE AND IMPERATIVES

3.1 A new generation of financial policy innovation

Across the world, the Inquiry has identified an emerging generation of financial policy innovation, which is explicitly seeking to pursue green economy objectives. This innovation comes from within the financial sector as well as from financial regulators and citizens. This innovation is still relatively new and in most cases is focused on specific sectors such as banking or investment, rather than system-wide.

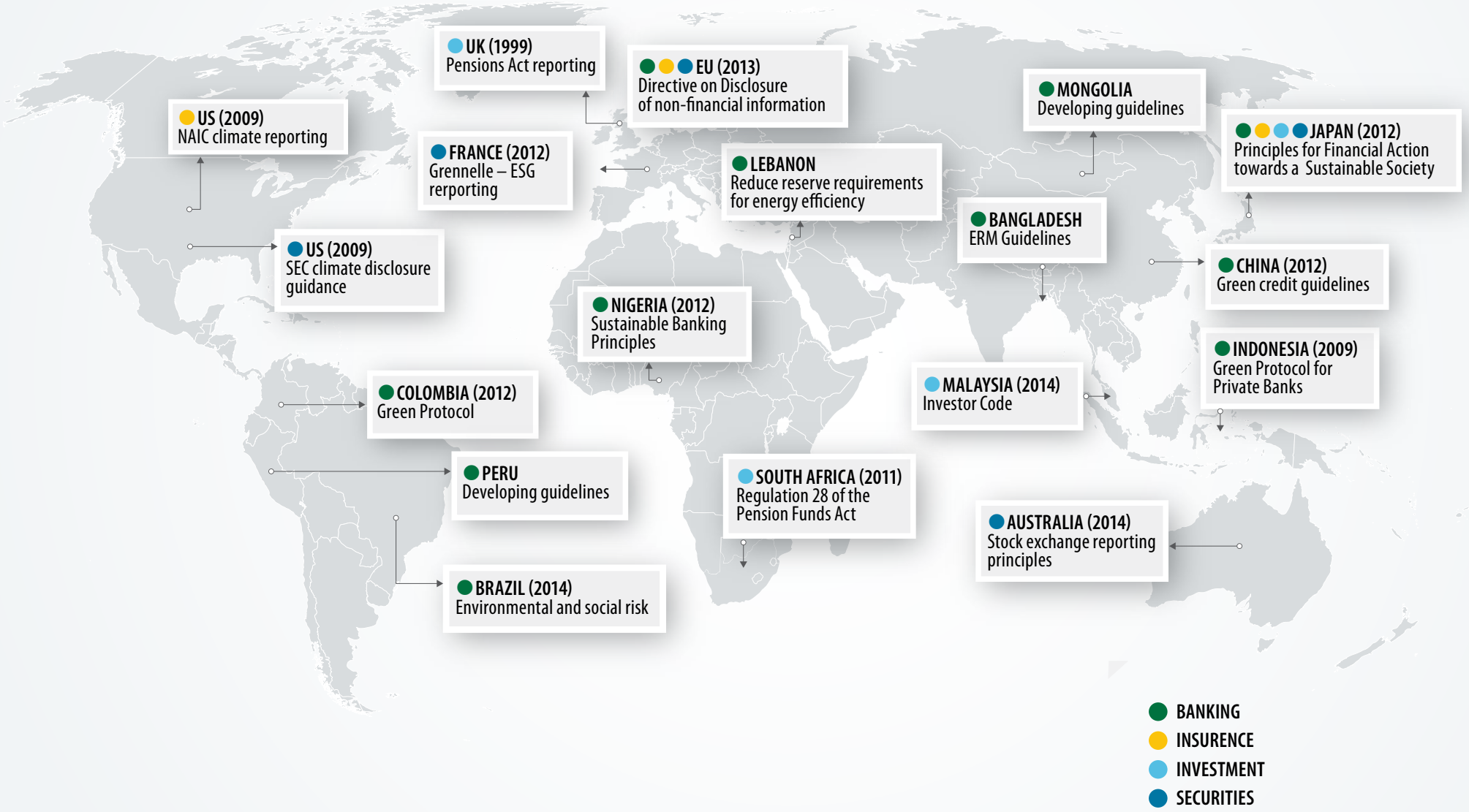
FINANCING THE ECOLOGICAL TRANSITION: FRANCE

France has commenced a strategic policy reflection on 'financing the ecological transition', with a consultative white paper jointly issued by the Treasury and the office for sustainable development. This paper sets out a series of proposals to better leverage private capital with public funds, as well as reinforce the integration of environmental, social and governance (ESG) factors into private financial decision-making [69].

The Inquiry has carried out an initial mapping of this emerging practice across the world and has identified a growing number of cases that respond to the triple rationale for system innovation. This mapping has highlighted a powerful dynamic where private standards often provide the basis for broadening good practice across the market, and link with formal regulation. Our focus has been across five interlocking areas – banking, capital markets, investment, insurance and monetary policy - and draws on the Inquiry's own analysis as well as a series of technical papers commissioned by the Inquiry.[70]

- **Banking:** here the focus has been on extending risk assessment to incorporate environmental and social factors, notably in developing countries and also understanding the green economy impacts of measures such as Basel III.
- **Capital markets:** considerable efforts have been undertaken to improve environmental and social disclosure in global equity markets, while more recently bond markets have become the focus for extended risk assessment and mobilising capital for green investment.
- **Investment:** a range of different tools are also being deployed to strengthen the responsibilities of institutional investors for environmental and social outcomes, including work on fiduciary duty, pensions law and stewardship codes.
- **Insurance:** climate change is starting to prompt a rethinking of insurance policy frameworks, at a time when the sector is facing a set post-crisis regulatory measures impacting on long-term investment strategies.
- **Monetary:** monetary policy is a novel area for sustainable development policy, with growing attention directed to the impacts of resource disruption, the effects of quantitative easing and the potential for alternative currency instruments.

FIGURE 6 EXAMPLES OF EMERGING POLICY INNOVATIONS



3.2 Banking

To date, growing market pressures and rising societal expectations have played a key role in encouraging banks to integrate sustainable development factors into their operations. In the area of project finance, 79 banking institutions accounting for 70% of the market have committed to the Equator Principles, which aim to improve environmental and social risk management practices.[71]

Currently, in terms of formal environmental regulation in the banking sector, this tends to be focused on **risk management and due diligence in relation to legal requirements.** Examples include the *German KreditwesenGesetz* (KWG) requirements. In a growing number of emerging economies, the banking authorities have gone further and set requirements for **environmental risk assessment**. The ***Central Bank of Bangladesh*** has issued Environmental Risk Management Guidelines which were made mandatory for the financial sector in 2011, and is publishing regular reports on the volume of green finance and progress with environmental risk management.[72] The ***China Banking Regulatory Commission's*** *Green Credit Guidelines* encourage banks to integrate ESG reviews into their organization, credit, and disclosure processes (see Box). Banking regulators in *Bangladesh, Brazil, China, Indonesia, Lao PDR, Mongolia, Nigeria, Peru, Vietnam and Thailand are involved* in developing and strengthening standards, policies and guidelines for environmental and social best practices in their banking sectors. Most recently in April 2014, the ***Central Bank of Brazil*** *finalised its new regulation requiring the banks it regulates to implement environmental and social policies. By 2015, banks in Brazil must put in place strategic actions and governance structures for the management of environmental and social risk as a core component of managing overall risk exposure.* ***Bank Indonesia*** is currently developing a green banking policy, which will address both compliance and due diligence and positive strategies towards financing renewable energy, energy efficiency, sustainable agriculture, green building, eco-tourism. Bank Indonesia's regulations already state that the Bank should consider environmental protection in assessing asset quality and should increase loans to SMEs. These countries are also members of the informal *Sustainable Banking Network convened by the IFC.*[73]**.**

Banking policies are occasionally used to **actively encourage, or restrict investment in particular sectors or activities.** As well as focusing on environmental risk, China's Green Credit Guidelines also encourage loans for energy efficiency. I**n** *Lebanon, the Central Bank has enabled commercial* banks to use part of their mandatory reserves to make low-cost, medium to long-maturity loans for renewable energy and energy efficiency[74]. In *India, priority sector lending portfolio requirements mandates a minimum exposure to the agricultural and the SME sector, and has spurred lending to microfinance. There are currently no particular environmental aspects, although there have been discussions on extending the priority sector scope to include renewables.*[75] The *US Community Reinvestment Act of 1977 assesses commercial banks in terms of their reinvestment in financially-underserviced areas. Currently, the only country employing a specific 'green' lending mandate is Fiji, which mandates that 2% of bank's portfolios be invested in renewable energy assets.*

Financial policies and regulations designed for stability through the banking sector may have unintended consequences on long-term investment for the green economy. For example, the post-crisis Basel III rules are aimed at strengthening the global banking sector. However, there has been concern, particularly in Europe, that new rules could result in reduced readiness from banks to provide long-term project and corporate loans, including green economy investments (such as renewable energy projects).[76]

At present, international banking regulations do not directly encourage or require banks to take account of environmental and social risk factors. As these risks are poorly priced - if at all - in the market, banks have no regulatory incentive to assess and incorporate these factors into credit decisions. Concerns about the possible negative implications of new capital and liquidity requirements under Basel III

for low-carbon infrastructure has prompted reflection by academics, practitioners and policymakers on how positive synergies could be achieved between the goals of financial stability and sustainable development. This involves not just the implications of specific rules for bank capital and liquidity, but also for corporate governance, risk management and market transparency in the banking sector[78]. The University of Cambridge Institute for Sustainability Leadership, which supports the Banking Environment Initiative, and the UNEP Finance Initiative will shortly publish a comprehensive assessment of the dynamics between Basel rules and environmental risk.[79]

Drawing on emerging global practice, there appears to be considerable potential to link bottom-up green credit initiatives with top-down international banking frameworks. As part of this, two specific innovations warrant further attention:

A PROPOSAL FOR IMPLEMENTING A GREEN RESERVE RATIO

One proposal has been for central banks to establish differentiated reserve ratios for loans for green investments. Firms interested in investing in low-carbon activities –such as renewable energy would present the details of the project to an independent monitoring unit –which could be an agency of the Ministry of Environment. The agency would calculate the amount of emission abatement effect of the project and issues a corresponding amount of certificates. The firm thenapplies for a loan and, if the loan application is accepted, it hands the certificates to the bank. Finally, the bank can then use the certificates at the central bank as part of its reserve requirement[77].

- **Energy efficient mortgages:** One example of a positive dynamic between environmental factors and financial regulation is green buildings. Energy efficient housing has lower costs and therefore is likely to be a better credit risk for banks when providing mortgages. A recent study in the USA concluded that default risks are on average 32 percent lower in energy-efficient homes, controlling for other loan determinants. Regulators could incentivise the take-up of 'green mortgages' by assigning a lower capital charge for efficient buildings[80].

- **Environmental stress tests:** Stress tests are used by regulators to assess the resilience of financial institutions in the face of 'unlikely but plausible' scenarios. This approach could be extended to environmental risks to encourage banks to take a precautionary approach to climate, energy, water and other resource factors. For example, a carbon stress test could involve assessing the impact on portfolios of the rapid introduction of the effective carbon pricing[81]. Importantly, the price of carbon could be set at the full external damage cost rather than the current market price, where this exists, to incentivise anticipatory action. This approach could also be extended to other institutions, such as institutional investors.

3.3 Capital markets: equities, bonds

Transparency and clear market standards are essential for the efficient operation of capital markets and are no less important to mobilise equity and bond markets for the green economy.

Improving the transparency of sustainability factors in equity and bond markets has been a high-profile agenda for more than a decade. Many global initiatives are currently underway to provide frameworks for **corporate disclosure of sustainability policies and performance** to aid stakeholders make fully informed decisions. Importantly, investors are now a major stakeholder arguing for improved corporate disclosure through initiatives such as the Global Reporting Initiative, the CDP, the Corporate Sustainability Reporting Coalition, the International Integrated Reporting Council and the Sustainability Accounting Standards Board in the USA.

Greening Financial Policy: key examples in the banking sector

Green Credit Guidelines issued by the China Banking Regulatory Commission (CBRC) mandate that all public and private banks, credit unions and other financial institutions implement ESG due diligence as part of their lending procedures . The Guidelines are a high profile initiative with Central Government backing. Initial experience has been that while large banks find it comparatively easy to adopt procedural aspects, there is not clear evidence of a change in lending practices. Smaller and provincial banks have struggled with basic implementation through lack of information, systems and capacity. The Guidelines also encourage lending for energy efficiency projects, but given prevailing energy prices, energy efficiency is not an immediate priority for many clients. Therefore in some cases local authorities also offer financial incentives to banks to make green loans. The CBRC is working to strengthen implementation, drafting key performance indicators (KPIs) for all banks to report on implementation of the guidelines, and for the largest ones to report on their environmental and social legal risk exposure, investment volumes in certain 'green' industries' and the associated savings in GHG emissions.

The **Nigerian Sustainable Banking Principles** were initiated by the banking sector itself. The Principles guide how eligible Banks must conduct their activities in line with environmental and social (E&S) performance. They apply to all corporate lending, project and structured finance, equity and debt capital market activities, and advisory services. Specific guidelines have been developed for Power, Agriculture and Oil and Gas sectors. Each Bank must establish a *Sustainable Banking Approach*, which will incorporate relevant international E&S standards and industry best practice. The Principles require all clients to comply with local laws, IFC Performance Standards, the Equator Principles, the World Bank Group Environmental, Health and Safety Guidelines for lending or strategies for sustainable financing developed by UNEP FI. The Principles also include a financial inclusion policy that seeks to provide financial services to individuals and communities that traditionally have had limited or no access to the formal financial sector.

Bangladesh has developed an Environmental Risk Management Policy and Strategy Framework, which the central bank made mandatory for the financial sector in 2011, and is now working on its implementation.

In Mongolia, The Trade and Development Bank, the Bank of Mongolia, the Ministry of Environment and Green Development, and international and local partners are working together to implement internationally recognized sustainable financing practices and standards throughout the Mongolian banking sector

Bank Indonesia is currently developing a green banking policy. The green banking policy will address both compliance and due diligence and positive strategies towards financing renewable energy, energy efficiency, sustainable agriculture, green building, eco-tourism Bank Indonesia's regulations already state that the Bank should consider environment protection in assessing asset quality and should increase loans to SMEs.

The State Bank of Vietnam is working with the IFC to develop and implement Environmental & Social Risk Management Guidelines expected in 2014.

Source: Technical paper by Frankfurt School of Finance and Management

There are many routes to achieving improved transparency. One route is through changes to **stock exchanges** rulemaking. There is a growing leadership group of stock exchanges which are making sustainability a routine aspect of listing requirements as part of their regulatory role, often upgrading traditional corporate governance codes. The *Johannesburg Stock Exchange* (JSX) requires companies

to comply with the *King Code* on corporate governance, which promotes sustainability disclosure and reporting. King III requires integrated sustainability reporting and third party assurance. At the *Australian Stock Exchange* (ASX), the latest set of Corporate Governance principles issued in March 2014 state that the "listed entity should disclose whether it has any material exposure to economic, environmental and social sustainability risks and, if it does, how it manages or intends to manage those risks".[82] The *UN Sustainable Stock Exchange (SSE)* initiative is a peer to peer network to encourage improvements in transparency, and involves BM&FBOVESPA (Brazil), Borsa Istanbul Stock Exchange (Turkey), the BSE (India), the Egyptian Exchange EGX, the London Stock Exchange (UK), NYSE Euronext and NASDAQ OMX (USA) and the Nigerian Stock Exchange. As a first step, exchanges have to publicly commit to promote sustainability in their markets and document progress. To support the process, UNCTAD has produced a set of 'Best Practice Guidance for Policymakers and Stock Exchanges on Sustainability Reporting Initiatives'.

Alongside action by stock exchanges, **securities regulators** have also started to mainstream sustainability disclosure. China's Green Securities Policy, supplemented by *the Green Initial Public Offering Policy* set standards for listing focused on the country's most polluting industries. India's Securities and Exchange Board requires listed companies to report on ESG initiatives. The US SEC has also issued guidance on disclosure related to climate change, but implementation has been weak, and demand for information by the regulator low.[83][84]

Finally, **corporate disclosure can also be driven by formal legislation.** In 2009, Denmark required large companies to report on corporate social responsibility factors, followed in 2010 by the Grenelle reporting requirements in France. Most recently, in April 2014, the European Parliament approved a new EU directive requiring companies with more than 500 employees to report environmental and social policies, risks and outcomes in their management report; this is one of the c40 measures proposed by the EC to deliver a 'new financial system for Europe' following the crisis.

Market standards are also required to ensure integrity and build liquidity – and are particularly important in the green arena given the lack of shared definitions and frameworks. While most sustainability activity started in equity markets, it is in **the bond market where considerable market innovation is now taking place to set new green economy frameworks.** The bond market represents the world's largest asset class, with a stock of over US$100trn out of the global total of US$225trn in 2012. Bond markets are heavily influenced by credit ratings, which have had a quasi-regulatory role in steering institutional capital. Since the financial crisis, the regulatory landscape for credit ratings has undergone enormous changes to improve fundamental transparency, accountability and supervision.

The established purpose of **credit ratings** is to assess investment risk and provide a long-term view on creditworthiness, not evaluate green performance. But a range of environmental risks, such as carbon, climate disruption and water stress are becoming increasingly material for traditional risk factors. S&P, for example, has published a variety of reports exploring how ESG issues affect creditworthiness, and is exploring how to incorporate water conservation, pricing and supply risks into sector analyses.[85] A recent assessment of climate change and sovereign risk, for example, highlighted how climate factors impinge on the ratings of sovereign bonds via changes in economic prospects, fiscal capacity and trade performance, concluding that ***"climate change is going to be the second global mega-trend affecting credit risk"* in the 21st century along with an ageing population.**[86] Looking ahead, a critical question for the bond market is the appropriate weighting of environmental and climate risks in routine credit rating regulations and methodologies.

Bonds offer a fast-growing source of capital for the green economy – prompting market innovation to set common principles and standards. In 2013, the Climate Bonds Initiative and HSBC estimated that US$346bn in existing bonds were aligned with the climate economy, across sectors such as clean energy and sustainable transport. Alongside this, there has been a rapid expansion of the labelled 'green bond' market, with US$11bn in issuance in 2013, and US$19bn to date in 2014; projections suggest US$40bn

could be raised this year. The market has been pioneered by multilateral investment banks, such as the European Investment Bank, the IFC and the World Bank. There has been growing green bond corporate issuance, as well as specific project bonds (for renewable energy, for example) and some securitized green bonds. In the USA, *Property Assessed Clean Energy (PACE)* bonds enable municipalities to raise money for energy saving retrofits for households and businesses, which are repaid via a specific premium on the property tax; the roll-out of this promising approach has been held up because of regulatory uncertainties over the relationship with underlying mortgage debt.

At present, there are no common definitions of 'green' – or shared procedures for raising green bonds. In January 2014, a set of *Green Bond Principles* were issued by a consortium of investment banks to set out recommended steps in the issuing of environmentally-focused fixed income instruments to ensure market integrity. The *Climate Bonds Initiative* is also developing multi-stakeholder standards, which specify the criteria for third-party verification of the 'green-ness' of a bond across key themes, such as clean energy, energy efficiency and sustainable transport.[87] The green bond market is still new and the longer-term trajectory of market rules needed for a healthy, fast-growing sector remain unclear.

Finally, **changes in underlying financial regulations could also be needed to mobilise debt capital markets for the green economy.** For example, rules on inclusion of assets in dual recourse covered bonds could be extended to include green assets, such as renewable energy. In addition, regulatory reform is needed to restart 'sound securitization', with a focus on recycling capital on bank balance sheets to unlock finance for new green assets. Regulators and policy-makers need to work with industry to develop greater standardization of contracts, leases and instruments. This is not only essential to lowering transaction costs to make securitization *viable*, but also essential to assist transparency of assets. Much of this is generic, but the areas that need most effort around standardization are small-scale clean energy lending (e.g solar rooftops, energy efficiency).

3.4 Investment institutions

Voluntary, market-wide efforts to embed sustainability and responsibility factors into the choice of investments and exercise of ownership rights have gathered pace. Institutions with US$45 trillion in assets under management are committed to the UN-supported Principles for Responsible Investment. The PRI's mission states that a ***"sustainable global financial system is a necessity for long-term value creation",*** leading to a commitment by its supporters to integrate ESG factors into its their investment operations and also to address *"obstacles to a sustainable financial system that lie within market practices, structures and regulation".*

Individual investment institutions are also highlighting the need for the alignment of financial regulation with sustainable development factors. For example, in the USA, the 'investment beliefs' of the CalPERS pension fund state that "a long time investment horizon is a responsibility and an advantage" (Belief 3) and that "long-term value creation requires effective management of three forms of capital: financial, physical and human (Belief 4); this provides the basis for advocacy to establish "public policies that promote fair, orderly and effectively regulated capital markets".[88] As part of its contribution to the post-2015 development agenda, Aviva Investors, has published a 'roadmap for sustainable capital markets' which includes a recommendation for governments to introduce regulation that integrates sustainable development factors in the mandates of the supervision agencies of stewardship codes, listing rules and financial stability.[89] At the same time, civil society organisations such as ShareAction and 350.org are mobilising people and institutions to improve the climate and sustainability performance of the funds that manage their assets through re-allocating capital, divestment, engagement and policy dialogue.[90]

Already policymakers and regulators are starting to take *a variety of routes to* **strengthen the responsibilities of institutional investors for long-term sustainable value creation.** A primary focus for

policy and regulation has been by the **principle of fiduciary duty,** which requires agents managing other people's money – such as pension funds - to act in the long-term best interests of the beneficiaries.[91] A decade ago, a legal report conducted by Freshfields with UNEPFI laid the groundwork for how ESG factors were compatible with fiduciary duties, and in 2009, an updated report from UNEPFI concluded that in relation to the law on fiduciary duty in Australia, Canada, France, Germany, Italy, Japan, Spain, the UK and the USA "*…integrating ESG considerations into an investment analysis so as to more reliably predict financial performance is clearly permissible and is arguably required in all jurisdictions.*"[92] This view is increasingly accepted and some well established pension funds have introduced ESG guidelines and investment programmes. In reality, however, actual legal advice and investment practice is lagging current thinking, putting funds at risk of future shocks as environmental risk factors become ever more material. According to the OECD, "laws governing fiduciary duties of pension fund trustees do not explicitly require trustees to take account of long-term risks such as climate change or the potential impact of environmental, social and governance issues on financial returns, and as a result, investors tend to fail to reflect these considerations in their investment practices".[93] This gap between theory and practice suggests **the need for an authoritative statement of fiduciary duty and sustainability to guide practical and prudent decision-making.**[94]

Another way of updating the expectations of investment institutions has been through **the evolution in the way pensions regulations addresses sustainability factors.** In 1999, the UK Pensions Act was amended to place a requirement on trustees to declare via their Statement of Investment Principles (SIP) "the extent (if at all) to which social, environmental or ethical (SEE) considerations are taken into account" in investment and ownership decision-making. More recently in 2011, *South Africa's Regulation 28* extended the traditional definition of prudent investing so that it "should give appropriate consideration to any factor which may materially affect the sustainable long-term performance of a fund's assets, including factors of an environmental, social or governance character". The voluntary Code for Responsible Investing in South Africa (CRISA) provides institutions with guidance on how to implement this legislative change.

Investor responsibilities are also being formalised through the introduction of stewardship codes, which mirror the governance obligations that corporations have towards their shareholders. Starting in the UK and with recent examples in Japan and Malaysia, the aim of these codes is to ensure that investors fulfill their obligations to promote the success of the companies they own – reconnecting their behaviour with the long-term health of the real economy. Issued by regulatory authorities but generally voluntary in nature, these codes suggest ways in which investors can demonstrate adherence through the publication of policies, the exercise of voting rights, engaging in constructive dialogue and a 'comply or explain' approach to reporting. In January 2014, Securities Commission Malaysia and the Minority Shareholders Working Group issued a public consultation on a *Malaysian Code for Institutional Investors*, which explicitly states (Principle 5) that ***"institutional investors should incorporate corporate governance and sustainability considerations into the investment decision-making process"*** on the basis that "institutional investors are expected to deliver sustainable returns in the long term interest of their beneficiaries or clients"[95]

Finally, a number of countries are introducing **specific ESG reporting requirements for investment institutions.** In France, for example, Article 224 of the 2012 Grenelle II requires fund managers to "describe in annual reports and documents for beneficiaries how they take into account ESG criteria in their investment policy". They must also document how they have voted as shareholders.

Beyond these targeted policies, there is growing awareness of the diverse ways in which routine financial regulation can influence the appetite and ability of institutional investors to allocate capital for the long-term, sustainable investments. Tensions can exist, for example, between measures to ensure the accountability of funds, such as mark-to-market accounting and the ability to take long-term

horizons. Pension funds in many countries also face legal restrictions on asset allocation. For example, Indonesia's civil servants pension fund (Jamsostek) and nearly all public pension funds in China (with the exception of the National Social Security Fund) are barred from investing in infrastructure. Nor is the issue of regulatory obstacles to infrastructure investment relevant only to emerging markets: many EU countries also proscribe their pension funds from allocating money to infrastructure. The Financial Stability Board recognises that while investment restrictions "strive to ensure that institutional investors are able to meet their obligations, they may have influenced investment behaviour and constrained the long-term outlook of those investors".[96] Fiscal incentives can also constrain allocations by institutional investors: in countries where renewable energy is promoted through tax credits, tax-exempt pension funds are unable to benefit.

3.5 Insurance

At the global level, the Insurance Core Principles produced by International Association of Insurance Supervisors (IAIS) provide the accepted regulatory framework for the sector. **Insurance policy has long been focused on risk management with regard to natural hazards** such as earthquakes, cyclones and floods – and ensuring that the market provides affordable insurance for households and enterprises. Economic losses from natural disasters are "out of control" and direct losses have been underestimated by at least 50 per cent. So far this century, direct losses from disasters are in the range of US$2.5 trillion.[97] Internationally, the Access to Insurance Initiative is working to extend risk-based cover to low-income and vulnerable communities, as well as regional initiatives such as the Regulatory Framework Promotion of Pro-poor Insurance Markets in Asia. Efforts are also underway to explore how the application of risk-based assessments common in the insurance sector can be applied to manage disaster risk in other parts of the financial system. Insurance companies are routinely assessed to ensure that they can remain solvent and pay all valid claims in the event of a 1:200 year worst-case event over each 12-month period.[98]

To date, climate change has been a driver of market innovation, policy engagement and analysis within the insurance sector - and is now stimulating new approaches to insurance regulation.[99] In the USA, National Association of Insurance Commissioners (NAIC) adopted a white paper on the potential impacts of climate change on insurance regulation in 2008, and in 2009 approved a mandatory requirement that insurance companies disclose to regulators the financial risks they face from climate change, as well as actions companies are taking to respond to those risks. A number of states have been actively promoting mandatory public disclosure, notably California.[100] In 2012, the NAIC adopted revisions to the 2013 Financial Condition Examiners Handbook to ensure that insurers are addressing climate-related risks. These revisions incorporated risk-focused examination questions that provide examiners with needed guidance on what questions to ask insurers regarding any potential impact of climate change on solvency. They were specifically designed to help examiners identify unmitigated risks and to provide a framework for them when examining such risks and their impact on how an insurer invests its assets and prices its products.[101] In Europe, the UK's Prudential Regulation Authority (PRA), part of the Bank of England, has accepted an invitation from the government to complete a Climate Change Adaptation Report. With a focus on insurance, the report will examine the impact of climate change on the PRA's objectives and the role of insurance regulation in supporting adaptation to climate change.

For insurance, delays in a strategic regulatory response to climate change could result in increasing litigation – both against insurers and by insurers. Climate change also reinforces the long-standing policy imperative of ensuring access to insurance to reduce vulnerability, particularly in developing countries. But there can be a market tension between access and risk-based pricing, which could move insurance cover out of reach of key communities.

Finally, the insurance sector is a large investor, with cUS$26 trillion in assets under management globally. In parallel to the debate on the impact of Basel III on long-term debt capital, there has been

concern about the impact of financial reforms (such as the EU's Solvency II regulations) and other post-crisis regulatory developments on the appetite of insurance companies to allocate capital to long-term infrastructure, just as companies are showing increasing interest in green investment options (such as renewables).[102] According to Swiss Re and the Institute for International Finance ***"high capital charges for longer-term assets such as infrastructure and a high degree of uncertainty surrounding the implementation of reforms is not conducive to these investments."***[103] The risk-based solvency rules at the core of Solvency II have been proposed for application to European pension funds as well.

As yet, there is **no common frame of reference for integrating sustainable development factors into routine insurance policy and regulation.** The UN-backed Principles for Sustainable Insurance (PSI) brings together sector leaders representing c15% of insurance premiums worldwide, and signatories have committed to dialogue with governments, regulators, and other policymakers, for example, "to support prudential policy, regulatory and legal frameworks that enable risk reduction, innovation and better management of environmental, social and governance issues". With climate change exacerbating disaster risk, insurers are increasingly looking at ways to better understand and reduce disaster risk and build resilience. This is the focus of the PSI's Global Resilience Project, which will include engaging insurance regulators and national governments on disaster risk reduction and its links to the availability and affordability of insurance. This initiative goes beyond the traditional, narrower focus on the risk financing (i.e. insurance) role of the insurance sector.

3.6 Monetary Policy

The actions taken by central banks with regard to interest rate levels, inflation targets, and exchange rates are key factors in investment decisions and play a significant role in the distribution of wealth and income. They also influence asset prices and volatility in general and commodity prices in particular.[104] Some central banks have mandates that extend beyond a narrow focus on price stability to include growth, employment and inclusion.[105] Nonetheless, **the links between monetary policy and a broad sustainability agenda that strengthens individual opportunity, social cohesion and environmental resilience are rarely reflected in policy debates.**

To date, there is little evidence suggesting that governments implement monetary policy actions explicitly in response to degradation of non-market or unpriced natural capital stocks and flows, such as water or ecosystem services. Governments may implement monetary policy actions in response to changes in the value of natural capital stocks (i.e. discoveries or depletion of resource wealth), losses of natural capital (i.e. natural catastrophe events), and changes in the value of market goods and services predicated upon natural capital stocks and flows (i.e. price volatility within international commodity markets). Governments do implement monetary responses to natural catastrophes in order to stabilise the economy and mitigate losses from environmental damage, but there has been less focus on the use of such instruments to manage interrupted flows of natural capital to the economy.[106]

Monetary policy also has potentially significant effects on commodity markets and thus resource security. Increasing commodity prices may influence similar tendencies in inflation, resulting in monetary policy issues. New research on relationships between commodity prices and dynamics of monetary policy instruments across countries is useful to examine what indirect policy responses natural capital degradation may elicit through commodity markets (beyond export inflows). Recent research has found an implicit inverse relationship between commodity prices and short-term interest rates for a set of heterogeneous countries, noting that high commodity prices and price shocks can influence short-term interest rate decreases.[107] Drawing on this finding, it could be argued that

increasing frequency and magnitude of commodity price shocks stemming from natural capital risk factors could indirectly motivate monetary policy responses.

Another area to consider is how the workings of the monetary system impacts on the viability of green investment opportunities. Low interest rates result in less discounting of the future and thus potentially more weight attached to long-term development, R&D and sustainability.[108] At the same time, low interest rates may provide opportunities to fund projects that may otherwise not be funded and can push investors into more risky projects to increase returns.[109] However, interest rates that are too low may enable relatively unproductive firms to remain in the market and thus hinder economic recovery and the Schumpeterian process of "creative destruction".[110]

The financial crisis has also stimulated new thinking in how monetary policy can support sustainability. For example, there have been calls for quantitative easing to be directed towards green growth, such as by central banks buying green assets instead of mortgage backed securities or directly funding public-private partnerships for investment in infrastructure.[111]

Green Quantitative Easing

Instead of simply repurchasing the bonds, the central bank could direct its asset purchases to the sectors needing investment via subsidiaries such as the Green and Business Investment Banks. To address concerns about the central bank's independence and inflation, a new independent body could be created that would decide how best to distribute QE funds to the subsidiaries. The new body would be staffed by independent experts but be accountable to elected officials rather than the central bank, given its more fiscal remit. The division between the purchase of assets by the Bank and their allocation would be transparent and democratically accountable. These proposals could create sustainable growth and jobs, boost productivity and exports. It would result in a major boost to the real economy, whilst still enabling further private sector de-leveraging. Given that the funds would be central bank assets rather than government expenditure it would also achieve this without increasing Government debt.[112]

Beyond unconventional monetary policy, such as quantitative easing, the financial crisis has also galvanised considerable intellectual, civil and market innovation in the links between money, the real economy and sustainability.[113] This builds on the growing number of **local and community level initiatives to develop alternative means of exchange**, such as Banco Palmas (Brazil), Bangla-Pesa (Kenya), the Chiemguaer (Germany), the Eusko (France), Berkshares (USA) and the Bristol Pound (UK). Alongside this are initiatives **to link monetary creation directly to resource use,** including through energy-related money[114] and the specific use of Special Drawing Rights for the transition to the green economy.[115]

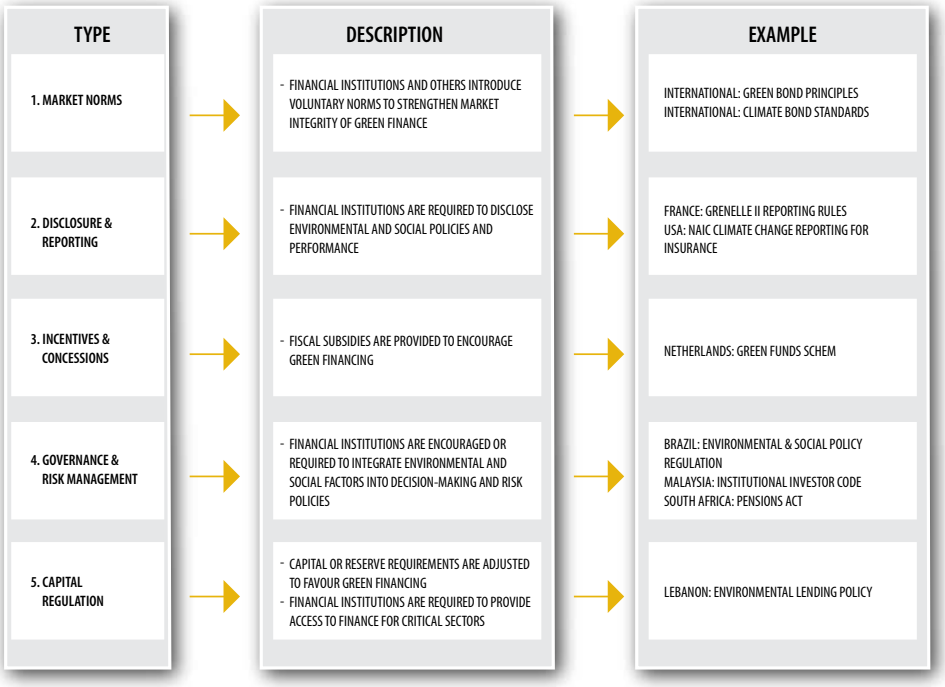
3.7 A spectrum of innovation

In the main, the issues and innovation captured here is new – often less than 5 years old. It is also relatively modest in scope and ambition, focusing heavily on improved transparency to tackle information gaps and asymmetries in the market place. At present, five main types of innovation can be identified, set out in the table below – graduating to potentially more transformative measures. This is only the start of a wave of potential innovation which could involve new rules covering market benchmarks and ratings through to directed lending measures for financial institutions and potential restrictions on financing for green and inclusive reasons.

3.8 Understanding role and impact

A new generation of financial policy innovation is clearly underway – involving both regulatory and market evolutions. **However, there has been no assessment either of measures that are specifically**

FIGURE 7 EMERGING FINANCIAL POLICY INNOVATION FOR THE GREEN ECONOMY



designed to impact green outcomes (e.g. ESG disclosure requirements) or conventional measures that may have unintended consequences (e.g. capital requirements). Much can be learned from existing practice and it is proposed that the Inquiry commissions work to review the relevance of existing regulatory impact assessment methodologies, and then suggest ways in which practical, cost-effective tools can be developed for decision-makers. Clearly there are real challenges to evaluating, let alone predicting, outcomes and impacts of financial policy measures on the green economy. Some initial features of an assessment framework could include:

- **Effectiveness:** how effective are the tools at mobilising capital for the green economy, directly and indirectly?
- **Comparability:** how do the tools compare with other options to deliver the same result?
- **Equity:** what have been the distributional impacts of the measures, and did they result in greater inclusion in the transition to a green economy?
- **Efficiency:** how do the tools perform in terms of the balance of costs and benefits, includeding unpriced values?
- **Unintended consequences:** What if any have been the unintended consequences of the action, both positive and negative?
- **Accountability:** what are the feedback mechanisms to ensure that the tools are properly accountable for their impacts?
- **Synergies:** what synergies if any do the measures have with more traditional interventions for the green economy?

4 CRITICAL DIMENSIONS OF SYSTEM INNOVATION

The financial system is complex, diverse geographically and dynamic - as are its linkages with the transition to a green economy. A powerful two-way interaction is at play – for example, declining natural capital can and does impact risks within the financial system, while the operation of the financial system in turn drives the allocation of capital that determines in large measure progress towards the green economy. From the Inquiry's mapping to date, through literature reviews, commissioned research and outreach, four key dimensions for system innovation have emerged to guide future research and engagement. In summary, the Inquiry needs to:

- Examine the major trends that are already shaping tomorrow's global economy and financial system.
- Understand the dynamic between short-termism, the mobilisation of capital for long-term green infrastructure and the imperatives of sustainability.
- Explore how this relates to stewardship of the financial system in terms of principles, mandates and purpose.
- Translate these high-level goals into practical measures that shape the behaviour and governance of financial institutions.

4.1 Tomorrow's Financial Systems: examining major trends

The financial system is highly dynamic, making effective policy and regulatory interventions difficult to achieve, and requiring forward thinking to develop measures which are suited for tomorrow`s rather than yesterday`s world.

The well-known adage that one should not "design solutions (even good ones) to yesterday`s crisis" is profoundly true in the case of the financial system. This future-proofing needs to encompass both the formative dynamics in the real economy as well as disruptive changes in the financial system itself. An efficient regulatory regime deals competently with 'what is', but a resilient regime needs to be able to deal competently with what arises next. Therefore, to be truly effective, financial policy and regulation must be forward-looking and prepared to accept the challenge of keeping pace with disruptive innovation – both realised and potential[116].

Complicating dynamics are also at play in the real economy. Growing intra-country inequality is socially undesirable and a drag on economic growth. It can lead to political instability just as strong political leadership becomes essential to drive forward needed changes. Technological intensification, notably the expected surge in automation across broad swathes of industry and services, may be cost effective and even carbon mitigating, but is undermining the role of employment in providing sustainable livelihoods. Climate change itself will be both a cause of growing destructive disruption, and may also shape structural changes in our global economy.

Within the financial system itself a number of disruptive trends are underway. One example is technology-driven disintermediation, which has the potential for transforming the institutional architecture of major parts of the financial system. The emergence of peer-to-peer lending and other financial services, crowd-funding, impact investing and privately issued crypto-currencies could stimulate a transformation of the financial system, allowing for more effective business models, including new actors with diverse interests. At the other end of the spectrum, the growing importance of policy-driven financial institutions establishes a counter-point to this trend towards disaggregation, inserting centralised interests at key points of leverage in the system.

Clearly, policy interventions need to strike a difficult balance between encouraging productive financial innovations, whilst also curbing those that threaten the integrity of the system. Addressing the long-term needs of the green economy is highly unlikely to succeed through exclusively, compliance-focused interventions. Much of what has delivered investment in the green economy to date, for example in the renewables field, has benefited from financial innovation, both at the instrument level, and in the institutional constellations that have developed and deployed such instruments. The next phase will certainly require further financial innovation, for example, around green bonds and debt capital markets.

The Inquiry's assessment of policy-driven interventions to advance a sustainable financial system needs to be responsive to these forward-looking dynamics. Yet there is limited consolidated analysis of what these dynamics are, and what their pace and impacts might be. It will be important for this context to be brought to the forefront of the Inquiry's investigations to ensure that any proposals are forward rather than backward looking, implying some key questions, including:

Empirical questions	Analysis of Implications	Consideration of policy design options
▶ What are the emerging dynamics in the real economy which could be important for progress towards or away from a sustainable financial system? ▶ What are the key disruptive factors that could shape the prospects for a sustainable financial system to 2020 and beyond?	▶ How might these emerging dynamics affect options for interventions in pursuit of a sustainable financial system? ▶ How could technology and institutional innovations in the financial sector impact social and environmental outcomes?	▶ How do existing financial rules and regulations need to evolve in order not to hold back necessary green financial innovation? ▶ What new financial frameworks are needed to encourage specifically green financial innovation, for example, in investing in ecosystem services?

4.2 System horizons: understanding the dynamics of time and risk

Long-term investment horizons and sustainability are clearly closely related, but are not the same. Furthermore there is inadequate understanding on how short termism impacts upon the alignment of the financial system to a green and inclusive economy.

Aligning the financial system with the transition to a green economy will require a much deeper understanding of the ways in which time horizons influence the allocation of capital.

Discounting future value is a classic feature of financial decision-making, but one that can exclude long-term resilience as well as environmental and social factors that are not captured in prices. This is then exacerbated through "the plague of short-termism" to use the phrase of Dominic Barton and Mark Wiseman, which deters productive investment in the real economy and slows the transition to a sustainable economy[117]. Recent policy debate has highlighted the dampening effects of short-termism on long-term investment, for example, through the Kay Inquiry in relation to equity markets in the UK.[118]

Alongside this has been a growing policy priority placed on mobilizing vital long-term investment in the wake of the financial crisis. For the G30 group of economic experts, one key is to ensure that policymakers understand "the systemic impact of ongoing and future regulatory changes on long-term investment".[119] Under the aegis of the G-20, considerable work has been undertaken to put in place practical policies to finance the global infrastructure gap. One result has been the joint G-20/OECD set of high-level principles to assist countries to promote long-term investment by institutional investors. This highlighted 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.[120] Labour unions have also called for a new investment framework to "secure investment of workers' capital in long-term investments in the real economy and increasingly in green technology, infrastructure and services".[121] As yet, however, the potential synergies between the three agendas of reducing short-termism, mobilising long-term capital and harnessing this for the green economy have not been realised.

The scope of financial risk management will also need to be rethought to establish how the transition to the green economy impinges on existing risks to credit, markets and systems, as well as how notions of materiality may need to be updated. The key here is how long-term environmental and social risks can be brought forward into today's decision-making to enable market participants to act with foresight to minimise the financial disruption to existing 'sunk' assets and prevent the further misallocation of capital. Against this backdrop, key questions for the Inquiry could include:

Empirical questions	Analysis of Implications	Consideration of policy design options
▶ What is the relationship between long-term investment horizons and sustainability outcomes? ▶ What is the impact of short-termism, short-term trading activity and intra-sector trading on environmental and equity outcomes?	▶ What steps are needed to fully integrate the sustainability dimension into the long-term investment agenda? ▶ How can the scope of financial risk management effectively incorporate environmental and social factors at the system level?	▶ How can the short- and long-term dynamics of the financial system be reconciled with a green and inclusive economy? ▶ What are the policy and regulatory levers that can effectively reconcile the short- and long-term dynamics of the financial system with a green and inclusive economy?

4.3 System Governance: principles, mandates and purpose

There is consensus that the purpose of the financial system is to serve the real economy – and for the Inquiry this is interpreted in terms of the necessary transition to a green and inclusive economy. This means that the Inquiry needs to understand the implications for the national and international policy architecture that governs the financial system. This involves a number of components, notably principles, coordination and mandates.

At the international level, the financial system is guided by a host of 'soft law' agreements, standards and principles, which are then implemented at the national level and monitored through at variety of international mechanisms.[122] These include the Basel accords rules on banking, the FSB's principles for effective risk appetite, the IAIS's Insurance Core Principles, IOSCO's objectives and principles of securities regulation, and IOPS's principles of private pension provision. More recently, additional sets of principles have been established around long-term finance. Key aspects of these rules are highly relevant for the green economy. As yet, however, there is no specific set of principles guiding policy makers concerned with financial markets and sustainability. In parallel, there are a growing number of voluntary codes in financial markets explicitly aiming to improve sustainability performance, such as the Equator Principles

(project finance), the Principles for Responsible Investment and the Principles for Sustainable Insurance. Much could be learned by investigating the dynamics between these two realms.

The operating procedures and structures that link the policy institutions overseeing the financial system with those driving the transition to a green economy will also need to evolve to deliver effective joined-up governance. This is increasingly recognised as part of the discussions on financing the post-2015 sustainable development goals: "a strengthened financing framework would ask the question of how to create a global financial system – including its public, private, domestic, and international components – that incentivizes investors and other stakeholders to act in the interest of global sustainable development."[123] In addition, in climate finance discussions OECD ministers agreed in May 2014 to "better aligning investment and climate policies to support an effective partnership among governments, development partners, and the private sector in order to incentivise private investment in low-carbon and climate-resilient infrastructure."[124]

The specific mandates of the institutions that supervise the financial system could also need review and refinement. Across the world, policy makers and regulators often have a mix of financial and real economy goals within their mandates, including price stability, economic growth and employment, as well as inclusion and sometimes priority sectors such as agriculture and SMEs. There are few instances, however, of mandates extending to environmental outcomes, with the limit in most cases being restricted to requirements for regulated institutions to report on environmental policies and risk assessments. This shortfall is apparent both in terms of explicit environmental and associated economic goals, and also in the narrower sense of even assessing the impacts of financial policies and regulations on sustainability outcomes. Furthermore, interpretations of macro-prudential roles have to date not incorporated sustainability challenges into the assessment and management of systemic risks. And the frameworks for assessing financial policy performance and ensuring accountability rarely incorporate the implications for green economy outcomes. As a result, key questions for the Inquiry could include:

Empirical questions	Analysis of Implications	Consideration of policy design options
▶ How do international finance governance institutions and processes take social and environmental issues into account? ▶ How does analysis of systemic risk under macro-prudential regulation take environmental and social matters into account? ▶ Do different configurations of financial policy and regulatory authorities impact their capacity to address environmental and social objectives?	▶ What is the case for (and against) and practice of central banks and financial regulators directly and indirectly pursuing environmental and social and objectives? ▶ What are the key features of an assessment framework to evaluate financial policy measures for green economy impacts? ▶ What are the leading experiences – and potential innovations – in the ways that different parts of government can work together to deliver a sustainable financial system? ▶ What are the factors and mechanisms necessary to ensure accountability for the sustainability performance of the financial system to its ultimate beneficiaries?	▶ How could the mandates for rule setters be updated to take account of the systemic risks associated with the financial system`s impact on green and inclusivity outcomes, and vice versa? ▶ What are the essential principles that should guide policy options for a sustainable financial system? ▶ How could the 'soft law' principles that shape financial architecture best incorporate the green economy imperative?

4.4 Responsibilities, incentives, information: steering financial institutions

These high-level frameworks need to be translated into practical measures that shape the daily actions of key financial institutions – their responsibilities, incentives and information landscapes.

As our mapping of emerging practice has revealed there are already a number of both voluntary and policy initiatives that are flexing the fundamental responsibilities of private financial institutions to incorporate the sustainability dimension.[125] Increasingly, environmental and social factors have become material for capital allocation, driven by a range of factors including physical, regulatory, market and reputational risks. For institutional investors, there are promising signs of links being made between fiduciary duty and sustainability. But these remain largely at the margin – and this gap between theory and practice suggests the need for an authoritative statement of fiduciary duty and sustainability to guide practical and prudent decision-making. For banks, the evolution of green credit guidelines in the developing world points to a way in which environmental and social factors could become part of routine governance and decision-making. At the international level, however, this bottom-up innovation has not yet impinged on global financial frameworks, potentially constraining the appetite of national regulators to make the links between prudential regulation and the green economy.

In policy-directed financial institutions, such as development finance institutions and sovereign wealth funds, extended and multiple objectives are of course generally expected, including goals linked to sustainable development. The Inquiry needs to explore the experience of such extended mandates of financial institutions, its impact on capital allocation, risk-adjusted financial returns and the sustainability features of the investments, and the manner in which it has been achieved, that is, the modalities of implementation.

Capital allocation is also driven by incentives, whether through direct remuneration or indirectly via fiscal measures. Yet there remains a gap in our understanding of aligning incentives to longer-term performance that would value enhanced green and inclusive outcomes in the real economy. Governments have historically used fiscal mechanisms to steer capital towards specific real economy outcomes, notably to support the roll-out of public infrastructure. Tens of billions of dollars are allocated by governments to encourage savings and investment, but the direct and indirect links with the transition to a green economy remain unclear.[126] A range of fiscal instruments are used to mobilise capital for the green economy – such as tax credits for renewables – but few are focused directly on the underlying providers of capital, such as savers. In addition, attempts to introduce fiscal measures to dampen excess short-term trading – for example through the so called Financial Transactions Tax - have so far also become mired in legal and technical debate. Alignment to the green, inclusive economy has not been the main focus of these efforts, which have been framed rather in terms of investor, taxpayer and system risks.

Incentives embedded across corporations and financial institutions have become a hotly debated topic in the wake of the financial crisis. Linking remuneration with long-term performance and sustainability is still an embryonic work in progress: amongst the S&P500 companies in the USA, for example, there are fewer than 10 companies that incorporate sustainability factors into long-term incentives for senior management.[127] And incentives cannot be separated from the metrics and benchmarks that are used to assess financial performance. Market innovation has delivered an array of investment benchmarks that incorporate sustainability, climate and social factors. But the mainstream indices that drive capital allocation by institutional investors still do not reflect the economic reality they are trying to measure, are biased towards the past and do not incorporate the green economy: "capital is channeled disproportionately into old economy companies rather than green economy companies, and companies that may wish to move strategically in line with sustainable development find little incentive from stock and bond markets to do so".[128]

Finally, our mapping has underscored the considerable momentum that already exists to advance improved disclosure practices by corporations and financial institutions aligned to long-term value drivers. Positively, there is some evidence of growing use of relevant metrics internally within leading corporations. Yet many arms-length investors, particularly in capital markets dominated by short-term time horizons, appear in the main disinclined to value such data as material to their decisions. The next frontier is how this information changes financial decision-making across the system.

The Inquiry's interest lies in pursuing the following questions to more effectively steer financial institutions:

Empirical questions	Analysis of Implications	Consideration of policy design options
▶ How does investor governance and associated public policies take environmental and social matters into account? ▶ What is the experience of extended goals and risk-assessment frameworks on performance, in both private and public financial institutions? ▶ What is the level of fiscal support to the financial sector and its impacts on environmental and social outcomes? ▶ What is the impact of differing forms of, and policy approaches to credit creation on environmental and social outcomes? ▶ What impacts do existing private incentives (such as remuneration) have for the alignment of capital to a green, inclusive economy? ▶ What are the market conditions under which information on green and inclusive outcomes becomes material to financial decision-makers?	▶ How important is the perceived gap between fundamental financial responsibilities (such as fiduciary duty) and sustainability factors? ▶ How can the benchmarks and ratings that drive capital allocation become better aligned with the green economy? ▶ How can the practice of disclosure by corporations, financial institutions and regulators evolve to strengthen market discipline for a sustainable financial system? ▶ What is the case for (and against) and practice of different approaches to policy-incentivized lending in addressing environmental and social objectives?	▶ What are the business models and governance arrangements that could best embed environmental, social and governance factors into the operations of financial institutions? ▶ What are the most effective market and policy mechanisms to achieve alignment? ▶ How could policy mechanisms and fiscal incentives for credit creation, savings, investment and pensions support the long-term transition to a green, inclusive economy?

5 AN INVITATION TO CONTRIBUTE

5.1 Learning from Emergent Innovations

A performance framework, rather than a blueprint, is needed to advance a sustainable financial system. Such a framework would allow the system to evolve through innovation and response to diverse interests and needs, but be guided by a clearer and widely-accepted appreciation of what it has to deliver. Whilst the classical functions of the system remain, such as effective intermediation, maturity transformation and risk sharing, sustainability implies a need for a wider stewardship through design. The recent evolution of thinking of macro-prudential roles takes us part of this way, but could need to be extended to deliver the required resource resilience and capital reallocation.

The Inquiry aims to identify, analyse, crystallize and communicate emergent innovations in the rules that shape system behaviour. Effective design options for a sustainable financial system will be based on emergent practice, rather than being formulated as a static, one-size-fits-all blueprint. There is a growing body of practice being developed by both financial sector actors and policymakers, including green credit guidelines in China, new pension rules in South Africa, and climate disclosure requirements for the insurance sector in the USA. This practice is relatively new – but the trajectory is clearly pointing towards additional action. For the Inquiry, three dimensions of the financial system are of particular interest:

1. Green policy innovations: market or policy-based innovations specifically aiming to achieve outcomes linked to green or equity issues that result in new rules governing aspects of the financial system to ensure integrity and enable scale.

2. System reform: policy, regulatory and standards initiatives designed to impact other performance features of the financial system that indirectly may impact outcomes for environment and inclusivity, such as measures on remuneration, short-termism or new thinking around macro-prudential oversight.

3. Policy-embedded features: embedded policy features of the financial system from which learning can be gained, such as strategic initiatives to embed black economic empowerment in the South African financial system, or home ownership as a core policy aspect of the UK financial system.

5.2 The Inquiry`s Approach

The Inquiry's approach to knowledge development is to draw on current practice, existing methods and analysis, leadership opinion, and forward-looking scenarios and policy proposals. This network knowledge approach will include commissioned research, collaborative research and accessing the results of third-party research, as well as outreach, convenings and internally-generated research.

Building on the initial mapping and associated analysis and reflections, the Inquiry proposes to focus its efforts on three work streams - country engagement, design foundations and critical themes:

1. **Country engagement:** Policy innovation for a sustainable financial system is taking place primarily at the country level, and the Inquiry wants to understand in-depth the driving imperatives behind innovations in specific locations, the lessons emerging and the potential for further developments. The Inquiry is planning to work with national institutions and partners, focusing initially on Bangladesh, Brazil, China, the EU, India, Indonesia, South Africa, Uganda, the UK and the USA. This work is critical to root the Inquiry's thinking in the diversity of country realities and needs.

2. **Design foundations:** alongside and drawing from the country engagement, the Inquiry is planning to deliver three pieces essential for a disciplined approach to a sustainable financial system.

    - Scenarios of financial system futures, produced as forward-looking projections, which are designed to reveal blind spots in conventional thinking and encourage an openness of mind to possible evolutions.

    - Principles that could inform and guide the alignment and coherence of financial policy and the green economy.

    - An assessment framework to evaluate the two-way impacts of conventional financial frameworks on the green economy.

3. **Cross-cutting themes:** the country work and foundation analysis will be matched by collaborative research and engagement on critical themes that cut across national boundaries. These include a focus on the specific rules of the game shaping the performance of key sectors, such as banking, capital markets, investment and insurance. In addition, there will be attention to issues that then cut across the sectors themselves such as the responsibilities of financial institutions, information and incentives.

5.3 Signs of Success

The Inquiry aims to catalyse change towards a sustainable financial system. As a fixed-term initiative expected to last up to two years, it is focused on establishing the foundations for such a change, which it is hoped would subsequently take place over an extended period. Such foundations should include the following:

- **Establishing a credible vision that blends forward-looking ambition with robust analytics.** This will underpin credible policy options that in turn can ensure that sustainability moves from being a rationale for ad hoc measures, to becoming an embedded feature of any future design work on the financial system.

- **Placing sustainability on the right agendas of key institutions.** This includes national and international financial policy-makers, regulators and standard setters, but also financial actors and other stakeholders, who can help shape tomorrow's financial system.

- **Building a credible, practical portfolio of policy options based on emergent practice.** This might, include new accounting standards, ways of addressing short-termism, integrating green factors into credit risk, new approaches to fiduciary responsibilities and more extensive mandates for central banks and financial regulators.

- **Supporting the emergence of individual and collective leadership.** *Such leadership,* rooted in specific institutions and countries from both the public and private sectors is a pre-condition for advancing ambitious change.

The Inquiry will produce a stream of outputs. Some outputs will be authored solely by the Inquiry, such as this paper and the final report due in the second half of 2015. Most, however, will be co-authored with

other institutions and initiatives, resulting from collaborations led by the Inquiry as well as many others involving the Inquiry as one of many partners.

And it is hoped that the Inquiry will catalyse many other outputs beyond those in which it is directly involved, a growing number of publications, events and debates that amplify and deepen our collective understanding of the core topic, and so advance the Inquiry's goal beyond its own work and lifespan.

5.4 An Invitation

The success of the Inquiry depends on the participation of experts, actors and interested stakeholders in every aspect of its work and the broader agenda. The Inquiry is therefore making an open invitation to those with relevant experience, insights and interests to engage through one or more of the workstreams in-progress, whether at a country level, focused on specific themes and frameworks identified by the Inquiry, or that they might wish to initiate.

In particular, the Inquiry is keen to interact with others around the questions outlined in the previous section and in particular around 11 summary questions:

POSSIBLE QUESTIONS

1. ***Disruptions***: what are the key disruptive factors that could shape the prospects for a sustainable financial system to 2020 and beyond?
2. ***Definitions***: what are the critical elements that need clarification and communication to facilitate the convergence of the financial system and a green and inclusive economy?
3. ***Horizons:*** how can the short- and long-term dynamics of the financial system be reconciled with a green and inclusive economy?
4. ***Principles***: what are the essential principles that should guide policy options for a sustainable financial system?
5. ***Architectures:*** what are the leading experiences – and potential innovations – in the ways that different parts of government can work together to deliver a sustainable financial system?
6. ***Responsibilities:*** what are the different business models and governance arrangements that best embed environmental, social and governance factors into the routine operations of financial institutions, large and small, public and private?
7. ***Incentives:*** what are the critical incentives that currently enable or disable the effective participation of financial actors in the transition to a green and inclusive economy?
8. ***Transparency:*** how can the practice of disclosure by corporations, financial institutions and regulators evolve to strengthen market discipline for a sustainable financial system?
9. ***Competitiveness:*** how will further moves towards a sustainable financial system impact upon the competitiveness of nations and development of the world's financial centres?
10. ***Accountability:*** what are the factors and mechanisms that will deliver the necessary accountability for the sustainability performance of the financial system to its ultimate beneficiaries?
11. ***Change pathways:*** How best can financial policy and regulatory aimed at social and environmental outcomes be sequenced, how can trade-offs be understood and how can critical constituencies of support be mobilised?

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END NOTES

1 *WEF (2013).The Green Investment Report – The means to unlock private finance for green growth. Geneva: WEF.*

2 *UNEP (2014). Eradicating poverty through an inclusive green economy, Post-2015 Note, Nairobi: UNEP.*

3 *Sukhdev, P. and Stone, S. (2010). Driving a Green Economy Through Public Finance and Fiscal Policy Reform. UNEP Green Economy Working Paper 1.0. Nairobi: UNEP, and UNFCCC (2013). Report of the Outcomes of the extended work programme on long-term finance, November 2013 Bonn: UNFCCC and World Bank (2012) Inclusive green growth: the pathway to sustainable development, Washington D.C: World Bank.*

4 *WEF (2013). The Green Investment Report - The ways and means to unlock private finance for green growth. Geneva: WEF.*

5 *UNEP (2011).Towards a Green Economy.Pathways to Sustainable Development and Poverty Eradication.A Synthesis for Policy Makers. Nairobi: UNEP.*

6 *REN 21 (2014).Renewables 2014 Global Status Report. Paris: REN21/UNEP.*

7 *Leaton, J., Ranger, N. ,Ward, B., Sussams, L. and Brown, M. (2013). Unburnable Carbon 2013: Wasted capital and stranded assets. London: Carbon Tracker Initiative/Grantham Institute on Environment and Climate Change.*

8 *Kay, J (2012). The Kay Review of UK Equity Markets and Long–Term Decision Making. London: UK House of Commons - Business, Innovation and Skills Committee.*

9 *FSB (2014).FSB Chair's Letter to G20 Ministers and Governors on financial reforms. Basel: Financial Stability Board.*

10 *FSB (2014). Financial Reform – Progress and Challenges, 17 February 2014. Basel: Financial Stability Board.*

11 *G20 (2010). Framework-strong-sustainable-balanced-growth.*

12 *See for example Sukhdev, P. and Stone, S. (2010). Driving a Green Economy Through Public Finance and Fiscal Policy Reform. UNEP Green Economy Working Paper 1.0. Nairobi: UNEP, and AfDB/OECD/UN/ World Bank (2013). A Toolkit of Policy Options to Support Inclusive Green Growth for the G20 Development Working Group.*

13 *IISD & UNEPFI (2012). Lens and clocks: financial stability and systemic risk. Geneva. UNEPFI*

14 *Narbel, P. (2013). The likely impact of Basel III on a bank's appetite for renewable energy financing. Oslo: NorgesHandelshøyskole.*

15 *Dupré, S. and Chenet, H. (2012). Connecting the Dots Between Climate Change Goals, Portfolio Allocation and Financial Regulation. Paris: 2 Degrees Investing.*

16 *Trucost (2013). Natural Capital at Risk: Top 100 Externalities. Report for TEEB for Business Coalition.*

17 *Vivid Economics (2014). Financing Green Growth. London: Vivid Economics.*

18 *Hipwell, E. (2013). Coordinating, Mandating, Monitoring What Can the Post-2015 Climate Regime Learn From Global Financial Governance?, Paris: IDDRI.*

19 *Lagarde, C. (2014). Economic Inclusion and Financial Integrity—an Address to the Conference on Inclusive Capitalism, London, May 27, 2014.*

20 *Lagarde, C. (2014). op cit.*

21 *Kim,. J. (2014). Remarks at Davos Press Conference, Davos January 23 2014.*

22 *Burrows, M. (2014). Keynote speech at CIFOR Forests Asia Summit, Jakarta May 6 2014*

23 *Naidoo, K. (2003). Presidential Lecture, Delivered at the World Bank, Washington Feburary 10, 2003.*

24 *Carney, M. (2014).Speech given at Conference on Inclusive Capitalism, London 27 May 2014.*

25 *See for example, FSB (2014). FSB Chair's Letter to G20 Ministers and Governors on financial reforms. Basel: Financial Stability Board; FSB (2014). Financial Reform – Progress and Challenges, 17 February 2014. Basel: Financial Stability Board, and G20 (2010). Framework-strong-sustainable-balanced-growth.*

26 *Campiglio, E. (2014) Beyond carbon pricing: The role of banking and monetary policy in financing the transition to a low-carbon economy. London: Grantham Insititute/ LSE.*

27 *Intergovernmental Committee of Experts on Sustainable Development Financing (2014). Co-Creating New Partnerships for Financing Sustainable Development, report of outreach event. Helsinki,April 2014.*

28 *See UNFCCC (2013). Report of the Outcomes of the extended work programme on long-term finance, November 2013 Bonn: UNFCCC.*

29 *IMF (2014). FACTSHEET: Financial System Soundness, March 18, 2014. Available at: https://www.imf.org/external/np/exr/facts/banking.htm*

30 *Based on G30 Consultative Group on International Economic and Monetary Affairs (2013). Long-Term Finance and Economic Growth. Washington: G30.*

31 *Andrew Haldane (2009). Rethinking the financial network, London: Bank of England; Wallace Turbeville (2013). Financialization and the New Paradigm in Financial Markets, New York: Demos.*

32 *Andy Haldane & Bob May (2011). Systemic risk in banking ecosystems, Nature, 469*

33 *W. Brian Arthur (2014). Complexity Economics: a different framework of economic through, Santa Fe: Santa Fe Institute,*

34 *WEF (2014).New Growth Models. Geneva: World Economic Forum*

35 *UNEP (2011).Towards a Green Economy.Pathways to Sustainable Development and Poverty Eradication.A Synthesis for Policy Makers. Nairobi: UNEP.*

36 *World Bank (2012). Inclusive green growth: the pathway to sustainable development, Washington D.C: World Bank*

37 *UNEP (2014). Eradicating poverty through an inclusive green economy, Post-2015 Note, Nairobi: UNEP*

38 *See World Bank (2013). Rethinking the Role of the State in Finance: Global Financial Development Report, 2013. Washington DC: World Bank, and World Bank (2014). Financial Inclusion, Global Financial Development Report 2014. Washington DC: World Bank.*

39 *Financial Times Lexicon ft.com*

40 *IIRC (2013). Capitals – a background paper, London: International Integrated Reporting Council.*

41 *Rockström et al (2009) . Planetary boundaries:exploring the safe operating space for humanity. Ecology and Society 14(2): 32.*

42 *Wikipedia. Green growth. Last accessed 3 February 2014: (http://en.wikipedia.org/wiki/Green_growth)*

43 *Green Growth Best Practice (2014), Summary of Key Findings, March 2014, Seoul: GGGI*

44 *WHO (2014). Air pollution deteriorating in many of the world's cities, 7 May 2014*

45 *OECD (2012). Environmental Outlook to 2050: the Consequences of Inaction. Paris: OECD*

46 *Goetz von, P.vonDahlen, S. Saxena, S. (2012). Unmitigated disasters? New Evidence on the Macroeconomic Cost of Natural Catastrophes, Basel: Bank of International Settlements.*

47 *Cummins, D, et al (2010). Federal Financial Exposure to Natural Catastrophe Risk, Cambridge MA: National Bureau of Economic Research.*

48 *IPCC (2014). Climate Change 2014: Impacts, Adaptation & Vulnerability, WGII.*

49 *World Economic Forum (2014).New Growth Models. Geneva: WEF.*

50 *Stern, N. (2013). The Structure of Economic Modeling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models, Journal of Economic Literature, 51(3), 838–859.*

51 *See Oxford Smith School of Enterprise and the Environment (2014) Financial Dynamics of Natural Capital, Technical Paper for the Inquiry, forthcoming.*

52 *See Oxford Smith School for more details of these pathways*

53 *WEF (2013). The Green Investment Report - The ways and means to unlock private finance for green growth. Geneva: WEF.*

54 *CERES (2014). The Clean Trillion, Boston: CERES.*

55 *Bazilian, M and PielkeJr, R. (2013), Making Energy Access Meaningful, Issues in Science and Technology, Summer 2013.*

56 *McKinsey Global Institute (2013) Financial Globalisation: retreat or reset?.*

57 *Carbon Tracker and the London School of Economics (2013) Unburnable Carbon 2013: Wasted capital and stranded assets. London: LSE.*

58 *Trucost (2013), Natural Capital at Risk: the Top 100 Externalities of Business. Report for TEEB.*

59 *Bank of International Settlements (2013). Foreign Exchange Turnover, September 2013; BIS, Interest Rate Derivatives Turnover, September 2013; BIS (2013. OTC Derivatives Statistics, November 2013*

60 *Kay, J. (2012). The Kay Review of UK Equity Markets and Long–Term Decision Making, UK House of Commons: Business, Innovation and Skills Committee.*

61 *See AfDB/OECD/UN/ World Bank (2013). A Toolkit of Policy Options to Support Inclusive Green Growth for the G20 Development Working Group.*

62 *See for example Zadek, S. andChenghui, Z. (2014). Greening China's Financial System An Initial Exploration, Beijing: IISD/DRC*

63 *Campiglio, E. (2014) op cit.*

64 *Carbon Tracker and the London School of Economics (2013) Unburnable Carbon 2013: Wasted capital and stranded assets. London: LSE.*

65 *BNEF (2013). Financial regulation biased against clean energy and energy infrastructure? London: BNEF*

66 *Spencer, T., Stevenson, J. (2013). EU Low-Carbon Investment and New Financial Sector Regulation: What Impacts and What Policy Response?, Working Papers n°04/13. Paris: IDDRI.*

67 *2 Degrees Investing (2013). Shifting Private Capital Towards Climate Friendly Investments: The Role of Financial Regulatory Regimes. Paris: 2 Degrees Investing.*

68 *Johnson, S. (2014. Dutch Pension Chief Believes in 'Controlled Simplicity, Financial Times, 5 January 2014.*

69 *Ministry of Economy & Finance, Ministry of Ecology & Sustainable Development (2013).White Paper on Financing the Ecological Transition, Paris, November 2013.*

70 *Frankfurt School of Finance & Management – UNEP Collaborating Centre for Climate & Sustainable Energy Finance (2014), Delivering the green economy through financial policy, forthcoming Technical Paper for the Inquiry. Frankfurt: FS; New Economics Foundation (2014), Financial System Impact of Disruptive Innovation, forthcoming Technical Paper for the Inquiry. London: NEF; Smith School of Enterprise and the Environment (2014) Financial Dynamics of Natural Capital, forthcoming technical paper for the Inquiry. Oxford: Smith School.*

71 *The Equator Principles Association (2013).Equator Principles II; CFI.co (2013).The Equator Principles: Banking on Sustainability, August 23 2013.*

72 *Bangladesh Bank (2011). Environmental Risk Management (ERM) Guidelines for Banks and Financial Institutions in Bangladesh, January 2011. Available at: http://www.bb.org.bd/aboutus/regulationguideline/jan302011erm.pdf*

73 *Drawn from interviews with IFC staff. Please see Annex 1: The Informal Sustainable Banking Network for details.*

74 *Banque de Liban (2011). Environmental loans – slide presentation.*

75 *Reserve Bank of India (2014). Priority Sector Lending - Targets and Classification, Available at: http://www.rbi.org.in/scripts/FAQView.aspx?Id=87.*

76 *Narbel, P. (2013). NorgesHandelshøyskole. The likely impact of Basel III on a bank's appetite for renewable energy financing. Available at: http://www.nhh.no/Files/Filer/institutter/for/dp/2013/1013.pdf.*

77 *Rozenberg, Julie, et al. (2013), 'Funding low-carbon investments in the absence of a carbon tax', Climate Policy, 13 (1), 134-41*

78 *Hassett, T. (2014). Enabling Long-term Sustainable Investments through Financial Regulation, Slide presentation, WWF, May 2014*

79 *See University of Cambridge Institute for Sustainability Leadership and UNEP Finance Initiative forthcoming research report authored by Professor Kern Alexander.*

80 *We are grateful to Bank of America Merrill Lynch for this insight. See also UNC Center for Community Capital & Institute for Market Transformation (2013) Home Energy Efficiency and Mortgage Risks, March 2013.*

81 *See Redefine (2011). Funding the Green New Deal: Building a green financial system and 2 Degrees Investing (2013).Shifting Private Capital Towards Climate Friendly Investments: The Role of Financial Regulatory Regimes.*

82 *ASX (2014). Corporate Governance Principles and Guidelines.*

83 *Shorter, G. (2013). SEC Climate Change Disclosure Guidance: An Overview and Congressional Concerns. Congressional Research Service.*

84 *Discussion with industry analysts, February 2014, New York.*

85 *See https://ratings.standardandpoors.com/about/who-we-are/Our-Approach-to-Corporate-Social-Responsibility.html.*

86 *Wilkins, M. (2014) Climate Change: Preparing For The Long-Term, S&P Special Report, May 22 2014. Washington: Standard's and Poor's.*

87 *Climate Bonds Initiative (2014).Climate Bond Standard. Available at: http://standards.climatebonds.net/wp-content/uploads/2014/01/ClimateBondStandard_Text.pdf.*

88 *CalPERS (2013), Statement of Investment Policy for Investment Beliefs, Sacramento: California Public Employees' Retirement System.*

89 *Aviva Investors (2014) A Roadmap for Sustainable Capital Markets: how can the UN Sustainable Development Goals harness the global capital markets? London: Aviva Investors.*

90 *ShareAction (2013) The GreenLight Campaign: Using Pension Power to Protect the Planet;*

91 *Maheshwari, A. et al (2013). Mobilizing Public and Private Funds for Inclusive Green Growth Investment in Developing Countries. International Finance Corporation. Available at: www.ifc.org/Report-MobilizingGreenInvestment.*

92 *UNEPFI (2005) A legal framework for the integration of environmental, social and governance issues into institutional investment; UNEPFI (2009). Fiduciary responsibility: Legal and practical aspects of integrating environmental, social and governance issues into institutional investment. Geneva: UNEPFI.*

93 *Kaminker, C., Kawanishi, O., Stewart, F., Caldecott, B. & Howarth, N. (2013). Institutional Investors and Green Infrastructure Investments: Selected Case Studies. Paris: OECD Publishing.*

94 *MMSG & SCM (2014).Joint Public Consultation Paper on the Malaysian Code for Institutional Investors, 2014.*

95 *For a review of the latest thinking, see Hawley, J.P., Hoepner, A.G.F., Johnson, K.L., Sandberg, J. & Waitzer, E.J. (2014) Cambridge Handbook of Institutional Investment and Fiduciary Duty. Cambridge: Cambridge University Press*

96 *Financial Stability Board (2013). Update on financial regulatory factors affecting the supply of long-term investment finance. Basel: FSB.*

97 *UN Office for Disaster Risk Reduction (2013). UN warns that economic losses from disasters are out of control and urges private sector to reduce risk, Press Release Available at: http://www.unisdr.org/files/33003_2013gar15final.pdf*

98 *Douglas, R. (2014) Integrating Natural Disaster Risks & Resilience into the Financial System. London: Willis Research Network*

99 *See Carroll, C., Randolph Evans J., Patton, L. (2014) Climate Change and Insurance, American Bar Association; Lloyd's' (2014) Catastrophe Modelling and Climate Change; MunichRe (2014) Natural Catastrophes 2013; Geneva Association (2014) Climate Risk Statement; ClimateWise, MCII, UNEPFI (2013) Global insurance industry statement.*

100 *Leurig, S &Dlugolecki, A. (2013)Insurer Climate Risk Disclosure Survey, Boston: CERES*

101 *Leurig, S &Dlugolecki, A. (2013). Insurer Climate Risk Disclosure Survey. Boston: CERES*

102 *Bloomberg New Energy Finance (2013).Financial Regulation – Biased Against Clean Energy and Green Infrastructure? Clean Energy – White Paper.*

103 *SwissRe& IIF (2013).Infrastructure Matters.*

104 *Barkawi, A. (2014). Monetary Policy and Sustainability. Briefing note to the UNEP Inquiry, Zurich: Council on Economic Policies.*

105 *Creel, J. and Saraceno, F.(2011). "The dual mandate, the Fed and the ECB", September 22nd, 2011 ,http://www.ofce.sciences-po.fr/blog/the-dual-mandate-the-fed-and-the-ebc/ and Kelton, S. (2013). "Dual mandate – right goals, wrong agency?", 6 August 2013, http://ftalphaville.ft.com/2013/08/06/1593422/guest-post-dual-mandate-right-goals-wrong-agency/*

106 *Smith School (2014). ibid.*

107 *AnoSujithan, K., Koliai, L., &Avouyi-Dovi, S. (2013). Does Monetary Policy Respond to Commodity Price Shocks?*

108 *Binswanger, H. (2009). VorwärtszurMäßigung: PerspektiveneinernachhaltigenWirtschaft . Hamburg: MurmannVerlag.*

109 *Garrison, R. (2012). "Natural Rates of Interest and Sustainable Growth", Cato Journal Spring/Summer 2012, http://object.cato.org/sites/cato.org/files/serials/files/cato-journal/2012/7/v32n2-15.pdf and Polleit, T. (2011)."The Cure (Low Interest Rates) Is the Disease", http://mises.org/daily/5164/The-Cure-Low-Interest-Rates-is-the-Disease.*

110 *Schnell, F. (2013). "Can Monetary Policy Delay the Reallocation of Capital", University of St. Gallen Discussion Paper 2013-29, http://www1.vwa.unisg.ch/RePEc/usg/econwp/EWP-1329.pdf.*

111 *Werner, R. (2012). "Time for Green Quantitative Easing", http://www.greennewdealgroup.org/wp-content/uploads/2012/03/Green-QE-report-CBFSD-Policy-News-2012-No-1.pdf and Diaz-Bonnila, E. (2012a): Déjà Vu, All Over Again: QE3 and Developmental Central Banking, http://www.economonitor.com/blog/2012/09/deja-vu-all-over-again-qe3-and-developmental-central-banking/.*

112 *Greenham et al (2014). ibid*

113 *Litaer, B., Arnsperger, C., Goerner, S., Brunnhuber, S. (2012): Money and Sustainability. The Missing Link.The Club of Rome.http://www.clubofrome.org/cms/wp-content/uploads/2012/05/Money-and-Sustainability-the-missing-link-Executive-Summary.pdf.*

114 *Ryan-Collins, J; Schuster, L; Greenham, T. (2013). "Energising Money. An introduction to energy currencies and accounting. London: New Economics Foundation. http://s.bsd.net/nefoundation/default/page/file/d5efb739f3fb9a137c_q2m6y7916.pdf.*

115 *Erten, Bilge; Ocampo, José Antonio (2012). Building a stable and equitable global monetary system, http://www.un.org/esa/desa/papers/2012/wp118_2012.pdf See also Jaeger, C., Haas, A. &Toepfer, K. (2013) Sustainability, Finance and a Proposal from China. Working Paper. Potsdam: Institute for Advanced Sustainability Studies.*

116 *Greenham, McCann & Ryan-Collins (2014). ibid*

117 *Barton, D. and Wiseman, M. (2014). Focusing capital on the Long Term. Harvard Business Review, January-February 2014.*

118 *Kay, J (2012) ibid.*

119 *G30 (2013) ibid.*

120 *G20/OECD (2013), High-Level Principles of Long-Term Investment financing by Institutional Investors. Paris: OECD.*

121 *ITUC (2014) Sustainable jobs, secure incomes, social protection. 3rd ITUC World Congress. Berlin*

122 *Cotter, L. (2014) Incorporating Sustainability in the Principles of the Financial Regulatory System.Internal working Paper for the Inquiry.*

123 *UN (2014) Coherence, coordination and cooperation in the context of financing for sustainable development andthe post-2015 development agenda. Note by the Secretary-General. New York: ECOSOC, 27 March 2014 .*

124 *OECD (2014). OECD Ministerial Statement on Climate Change Paris: OECD*

125 *See also Banktrack (2003) The Collevecchio Declaration: the role and responsibility of financial institutions. Amsterdam: Banktrack*

126 *Hewett, C. (2012). Saving for a Sustainable Future. London: Green Alliance*

127 *Hewitt, G. (2014). Sustainability metrics in Executive Pay: short-term focus on a long-term issue. GMI Ratings.*

128 *Zaouati, P. and Joly, C. (2014). EC legislation to regulate financial indexes, in Visser, W. (ed) Disrupting the Future, http://www.2052.info/disrupting-the-future/*

BIBLIOGRAPHY

Access to Insurance Initiative (2014). Regulatory Approaches to inclusive insurance market development, February 2014.

AfDB/OECD/UN/ World Bank (2013). A Toolkit of Policy Options to Support Inclusive Green Growth for the G20 Development Working Group.

Aizawa, M., Yang, C. (2012) .*Green Credit, green Stimulus, green Revolution? China's Mobilization of Banks for Environmental Cleanup.* The Journal of Environment & Development 19(2).

Alliance for Financial Inclusion (2011). *G20 Principles for Innovative Financial Inclusion.* Available at: *www.afi-global.org/sites/default/files/publications/afi g20 principles.pdf*

Haldane, A. (2009). Rethinking the financial network, London: Bank of England;

Haldane, A. & May, R. (2011). Systemic risk in banking ecosystems, Nature, 469

Ano Sujithan, K., Koliai, L., & Avouyi-Dovi, S. (2013). Does Monetary Policy Respond to Commodity Price Shocks?

Anzuini, A., Lombardi, M.J., Pagano, P. (2010). *The impact of Monetary Policy Shocks on Commodity Prices. Working Paper Series No 1232.* Frankfurt: European Central Bank. Available at: *ideas.repec.org/p/bdi/wptemi/td_851_12.html*

Arthur, W. (2014). Complexity Economics: a different framework of economic through, Santa Fe: Santa Fe Institute.

Asset Management Working Group (2009). *Fiduciary responsibility Legal and practical aspects of integrating environmental, social and governance issues into institutional investment,* UNEPFI.

ASX (2014). Corporate Governance Principles and Guidelines.

Aviva Investors (2014) A Roadmap for Sustainable Capital Markets: how can the UN Sustainable Development Goals harness the global capital markets? London: Aviva Investors.Bangladesh Bank (2011). Environmental Risk Management (ERM) Guidelines for Banks and Financial Institutions in Bangladesh, January 2011. Available at: *http://www.bb.org.bd/aboutus/regulationguideline/jan302011erm.pdf*

Bank for International Settlements (2009). *Issues in the Governance of Central Banks.* Basel: Bank for International Settlements. *www.bis.org/publ/othp04_2.pdf*

Barkawi, A. (2014). Monetary Policy and Sustainability. Briefing note to the UNEP Inquiry, Zurich: Council on Economic Policies.

Barton, D. and Wiseman, M. (2014). Focusing capital on the Long Term. Harvard Business Review, January-February 2014.

Basel Committee on Banking Supervision (2010). *Basel III: A Global regulatory framework for more resilient bank and banking systems.* Basel: Bank for International Settlements.

Bazilian, M and Pielke Jr, R. (2013), Making Energy Access Meaningful, Issues in Science and Technology, Summer 2013.

Binswanger, H. (2009). Vorwärts zur Mäßigung: Perspektiven einer nachhaltigen Wirtschaft . Hamburg: Murmann Verlag.

BNEF (2013), *Financial regulation biased against clean energy and energy infrastructure*. London: Bloomberg New Energy Finance.

Bollier, D. (2013). *Bauwens Joins Ecuador in Planning a Commons-based, Peer Production Economy.* Blog post September 20, 2013. Available at: *http://bollier.org/blog/bauwens-joins-ecuador-planning-commons-based-peer-production-economy*

Brown, M. (2013). Unburnable Carbon 2013: Wasted capital and stranded assets. London: Carbon Tracker Initiative/ Grantham Institute on Environment and Climate Change.

Buchner, B.K., Heller, T.C., Wilkinson, J. (2012). *Effective Green Financing: What have we learned so far?* Venice: Climate Policy Initiative

Burrows, M. (2014). Keynote speech at CIFOR Forests Asia Summit, Jakarta May 6 2014

Caldecott, B., Tilbury, J., Care, C. (2014). *Stranded Assets And Scenarios. Discussion paper.* Oxford: Smith School of Enterprise and the Environment. Available at: *www.smithschool.ox.ac.uk/research/stranded-assets/Stranded%20Assets%20and%20Scenarios%20-%20Discussion%20Paper.pdf*

Campiglio, E. (2014) Beyond carbon pricing: The role of banking and monetary policy in financing the transition to a low-carbon economy. London: Grantham Insititute/ LSE.

Carbon Tracker and the London School of Economics (2013) Unburnable Carbon 2013: Wasted capital and stranded assets. London: LSE.

Carney, M. (2014). Speech given at Conference on Inclusive Capitalism, London 27 May 2014.

Carney, M., Tucker, P., Hildebrand, P., de Larosiene, J., Dudley, W., Turner, A., Ferguson Jr. R.W. (2011). *Regulatory Reforms and Remaining Challenges. G30 Occasional Paper 81.* Washington D.C.: Consultative Group on International and Monetary Affairs. Available at: *http://www.group30.org/images/PDF/ReportPDFs/OP81.pdf*

Central Bank of Bangladesh (2012). Recent Reform Initiatives. Dhaka: Central Bank of Bangladesh. Available at: *www.bangladesh-bank.org/pub/special/14062012.pdf*

CERES (2014). The Clean Trillion, Boston: CERES.

Clark, A. and Large, A. (2011). *Macroprudential Policy: Addressing the Things We Don't Know. Occasional Paper 83.* Washington D.C.: Consultative Group on International and Monetary Affairs. Available at: Washington D.C.: G30, *http://www.group30.org/images/PDF/OP83.pdf*

Climate Bonds Initiative (2014). Climate Bond Standard. Available at: *http://standards.climatebonds.net/wp-content/uploads/2014/01/ClimateBondStandard_Text.pdf.*

Collins, J., Ludwig, S. and Greenham, T. (2013). *Energising Money: An introduction to energy currencies and accounting.* London: New Economics Foundation. Available at: *s.bsd.net/nefoundation/default/page/file/d5efb739f3fb9a137c_q2m6y7916.pdf*

Commonwealth Expert Group on Climate Finance (2013). Improving Access to Climate Finance for Small and Vulnerable States. Available at: *http://www.secretariat.thecommonwealth.org/Internal/190676/255400/climate_finance_expert_group/*

Cotter, L. (2014). Incorporating Sustainability in the Principles of the Financial Regulatory System. Internal working Paper for the Inquiry.

Creel, J. and Saraceno, F.(2011). "The dual mandate, the Fed and the ECB", September 22nd, 2011 , http://*www.ofce.sciences-po.fr/blog/the-dual-mandate-the-fed-and-the-ebc/ and Kelton, S. (2013).* "Dual mandate – right goals, wrong agency?", 6 August 2013, *http://ftalphaville.ft.com/2013/08/06/1593422/guest-post-dual-mandate-right-goals-wrong-agency/*

Cummins, D, et al (2010). Federal Financial Exposure to Natural Catastrophe Risk, Cambridge MA: National Bureau of Economic Research.

Davies, H. (2014). *The Banks that Ate the Economy,* Project Syndicate Article FEB 24, 2014. Available at: *www.project-syndicate.org/commentary/howard-davies-points-to-growing-doubt-about-the-financial-sector-s-contribution-to-overall-economic-health*

Della croce, R., Stewart, F. and Yermo, J. (2011). *Promoting Long-Term Investment by Institutional Investors: Selected Issues and Policies.* OECD Journal, Financial Market Trends Volume 2011 – Issue 1. Paris: OECD Publishing. Available at: *http://www.oecd.org/daf/fin/private-pensions/48616812.pdf*

Desai, M. (2012). *The Incentive Bubble. Outsourcing pay decisions to financial markets has skewed compensation and, with it, American Capitalism*. Harvard Business Review, March 2012. Available from: *http://hbr.org/2012/03/the-incentive-bubble/ar/1*

Diaz-Bonnila, E. (2012a). Déjà Vu, All Over Again: QE3 and Developmental Central Banking, *http://www.economonitor.com/blog/2012/09/deja-vu-all-over-again-qe3-and-developmental-central-banking/.*

Douglas, R. (2014). Integrating Natural Disaster Risks & Resilience into the Financial System. London: Willis Research Network.

Dupré, S. and Chenet, H. (2012) *Connecting the Dots Between Climate Change Goals, Portfolio Allocation and Financial Regulation*. Paris: 2 Degrees Investing. *http://2degrees-investing.org/IMG/pdf/connecting_the_dots-2deginvesting_2012-v2.pdf*

Dupre, S., Chenet, H. (2013). Shifting Private Capital Towards Climate friendly Investments: The Role of Financial Regulatory Regimes. Working Paper. Paris:2i Investment.

Environmental Audit Committee, UK House of Commons (2014). Twelfth Report: Green Finance. London: UK Parliament. Available from *www.publications.parliament.uk/pa/cm201314/cmselect/cmenvaud/191/19102.htm*

Erten, Bilge; Ocampo, José Antonio (2012). Building a stable and equitable global monetary system, http://www.un.org/esa/desa/papers/2012/wp118_2012.pdf See also Jaeger, C., Haas, A. & Toepfer, K. (2013) Sustainability, Finance and a Proposal from China. Working Paper. Potsdam: Institute for Advanced Sustainability Studies.

Financial Stability Board (2013). Financial regulatory factors affecting the availability of long-term investment finance. Report to G20 Finance Ministers and Central Bank Governors. February 8, 2013. Basel: FSB. Available at: *www.financialstabilityboard.org/publications/r_130216a.pdf*

Financial Stability Board (2013). Update on financial regulatory factors affecting the supply of long-term investment finance. Basel: FSB.

Financial Stability Board (2013a). Credit Rating Agencies: Reducing reliance and strengthening oversight. Progress Report to G20 29 August 2013. Basel: FSB. Available at: *www.financialstabilityboard.org/publications/r_130829d.pdf*

FSB (2014). Financial Reform – Progress and Challenges, 17 February 2014. Basel: Financial Stability Board.

FSB (2014). FSB Chair's Letter to G20 Ministers and Governors on financial reforms. Basel: Financial Stability Board.

FSB (2014). FSB Chair's Letter to G20 Ministers and Governors on financial reforms. Basel: Financial Stability Board, FSB (2014). Financial Reform – Progress and Challenges, 17 February 2014. Basel: Financial Stability Board,

Fullenkamp, C., Sharma, S. (2011). Good Financial Regulation: Changing the Process is Crucial. The ICFR Financial Times Research Prize. Available at: *http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2044217*

Fullerton, J., Humphreys, J., Kelly, M. and White, A. (2012). Redesigning Finance: Pathways to a Resilient Future. Summary of proceedings of August 9, 2012, San Fransisco invitational gathering. Boston: Tellus Institue. Available at: *www.capitalinstitute.org/sites/capitalinstitute.org/files/docs/Redesigning_Finance-proceedings_San_Fran_8-9-12.pdf*

Fulton, M. and Capalino, R. (2014). Investing in the Clean Trillion : ClosIng The Clean energy Investment gap. Boston: CERES. Available at: *www.ceres.org/resources/reports/investing-in-the-clean-trillion-closing-the-clean-energy-investment-gap/*

G20 (2010). Communiqué - Meeting of Finance Ministers and Central Bank Governors (The G-20 Framework for Strong, Sustainable and Balanced Growth) 23 April, 2010. Available at: *www.treasury.gov/resource-center/international/Documents/G20%20Spring%20Meetings%20Washington%20DC%20FM%20Communique%20April%202010.pdf*

G20/OECD (2012). Policy Note on Pension Fund Financing for Green Infrastructure and Initiatives. Available at: *www.oecd.org/finance/private-pensions/S3%20G20%20OECD%20Pension%20funds%20for%20green%20infrastructure%20-%20June%202012.pdf*

G20/OECD (2013). High Level Principles of Long-Term Investment Financing by Institutional Investors. Paris: OECD Publishing. Available at: *www.oecd.org/finance/private-pensions/G20-OECD-Principles-LTI-Financing.pdf*

G20/OECD (2013). High-Level Principles of Long-Term Investment financing by Institutional Investors. Paris: OECD.

G30 Consultative Group on International Economic and Monetary Affairs (2013). Long Term Finance and Economic Growth, Twelfth Report of Session 2013-14. Volume 1. Washington D.C.: Consultative Group on International and Monetary Affairs.

G30 Working Group on Financial Reform (2009). Financial Reform A Framework for Financial Stability Washington D.C.: Consultative Group on International and Monetary Affairs. Available at: *www.group30.org/images/PDF/Financial_Reform-A_Framework_for_Financial_Stability.pdf*

G30 Working Group on Macroprudential Policy (2010). Enhancing Financial Stability and Resilience: Macroprudential Policy, Tools and Systems for the Future.Washington D.C.: Consultative Group on International and Monetary Affairs. Available at: *http://www.group30.org/images/PDF/Macroprudential_Report_Final.pdf*

Gallagher, K.P. (2013) Profiting from Precaution. How China's Policy Banks Can Enhance Social and Environmental Standards. Chicago: Paulson Institute. Available from *http://ase.tufts.edu/gdae/Pubs/rp/GallagherProfitingPrecaution_Eng.pdf*

Garrison, R. (2012). "Natural Rates of Interest and Sustainable Growth", Cato Journal Spring/Summer 2012, *http://object.cato.org/sites/cato.org/files/serials/files/cato-journal/2012/7/v32n2-15.pdf*

Global Sustainable Investment Alliance (2013). 2012 Global Sustainable Investment Review. Available at: *http://gsiareview2012.gsi-alliance.org/pubData/source/Global%20Sustainable%20Investement%20Alliance.pdf*

Goetz von, P. von Dahlen, S. Saxena, S. (2012). Unmitigated disasters? New Evidence on the Macroeconomic Cost of Natural Catastrophes, Basel: Bank of International Settlements.

Green Growth Best Practice (2014), Summary of Key Findings, March 2014, Seoul: GGGI

Green Watershed (2013). Green Credit Footprint of Chinese Banks 2008-2012. Kunming: Green Watershed. English summary available at: *www.banktrack.org/manage/ems_files/download/green_credit_footprint_of_chinese_banks_2008_2012_english_summary/131210_green_credit_chinese_banks_summary_english.pdf*

Greenwood, R. and Scharfstein, D. (2012). The Growth of Modern Finance. Working paper. Cambridge MA: Harvard Business School. Available at: *www.people.hbs.edu/dscharfstein/Growth_of_Modern_Finance.pdf*

Groh, S. (2013). The Synergy Potential of Financial and Energy Inclusion. Center for Financial Inclusion blog post. August 28, 2013. Available at: *http://cfi-blog.org/2013/08/28/the-synergy-potential-of-financial-and-energy-inclusion/#more-12227*

Haldane, A., (2010). The contribution of the financial sector – miracle or mirage? Speech, at the LSE Future of Finance conference, London, 14 July 2010. Available at: *www.bis.org/review/r100716g.pdf*

Hassett, T. (2014). Enabling Long-term Sustainable Investments through Financial Regulation, Slide presentation, WWF, May 2014

Hawley, J.P., Hoepner, A.G.F., Johnson, K.L., Sandberg, J. & Waitzer, E.J. (2014) Cambridge Handbook of Institutional Investment and Fiduciary Duty. Cambridge: Cambridge University Press

Hermes EOS/ National Association of Pension Funds/ BT Pension Scheme/ RPMI Railpen Investments/ Universities Superannuation Scheme (2013). Remuneration principles for building and reinforcing long-term business success. Available at: *www.uss.co.uk/Documents/Remuneration%20Principles%20for%20building%20and%20reinforcing%20long-term%20business%20success.pdf*

Herring, J. and Schmidt, R. (2011). The Economic Rationale for Financial Regulation Reconsidered: An Essay in Honor of David Llewellyn. Policy Platform White Paper. Franfurt: House of Finace Goethe University. Available at: *http://safe-frankfurt.de/uploads/media/Herring_Schmidt_Llewellyn_Financial_Regulation_Paper_Reconsidered.pdf*

Hewett, C. (2012) .Saving for a Sustainable Future. London: Green Alliance

Hewitt, G. (2014). Sustainability metrics in Executive Pay: short-term focus on a long-term issue. GMI Ratings.

Hipwell, E. (2013). Coordinating, Mandating, Monitoring What Can the Post-2015 Climate Regime Learn From Global Financial Governance?, Paris: IDDRI.

IFC Financial Inclusion Experts Group (2010). Scaling Up SME Access to Financial Services in the Developing World. Washington D.C.: IFC. Available at: *www.gpfi.org/sites/default/files/documents/G20_Stocktaking_Report_0.pdf*

IIRC (2013). Capitals – a background paper, London: International Integrated Reporting Council.

IISD & UNEPFI (2012) Lens and clocks: financial stability and systemic risk. Geneva. UNEPFI

Inderst, G., Kaminker, C. and Stewart, F. (2012). Defining and Measuring Green Investments: Implications for Institutional Investors' Asset Allocations. OECD Working Papers on Finance, Insurance and Private Pensions, No. 24, Paris: OECD Publishing.

Institutional Investors Group on Climate Change/ Investor Network on Climate Risk/ Investor Group on Climate Change (2011). Global Investor Survey on Climate Change. Annual Report on Actions and Progress 2011. Available at: *www.igcc.org.au/Resources/Documents/Global%20investor%20survey%20on%20climate%20change.pdf*

Intergovernmental Committee of Experts on Sustainable Development Financing (2014). Co-Creating New Partnerships for Financing Sustainable Development, report of outreach event. Helsinki,April 2014.

IPCC (2014). Climate Change 2014: Impacts, Adaptation & Vulnerability, WGII.

IRRC Institute/Mercer (2010). Investment horizons: Do managers do what they say? New York: IRRC Institute. *www.irrcinstitute.org./pdf/IRRCMercerInvestmentHorizonsReport_Feb2010.pdf*

Johnson, S. (2014). Dutch Pension Chief Believes in 'Controlled Simplicity, Financial Times, 5 January 2014.

Kaminker, C., Kawanishi, O., Stewart, S., Caldecott, B. and Howarth, N. (2013). Institutional Investors and Green Infrastructure Investments: Selected Case Studies. Paris: OECD Publishing.

Kaminker, C., Stewart, F. (2012). The Role Of Institutional Investors in Financing Clean Energy. OECD Working Papers of Finance, Insurance and Private Pensions No 23. Paris: OECD Publishing.

Kapoor, S., Oksnes, L. with Hogarth, R. (2011). Funding the Green New Deal: Building a Green Financial System. Policy Maker Report, Green New Deal Series volume 6. Brussels: Green European Foundation. Available

from: *http://re-define.org/sites/default/files/GEF-Funding%20the%20GND%20web.pdf*

Kay, J. (2012). The Kay Review of UK Equity Markets and Long–Term Decision Making. London: UK House of Commons Business, Innovation and Skills Committee.

Kennedy, C. and Corfee-Morlot, J. (2012). Mobilising Investment in Low-Carbon, Climate-Resilient Infrastructure. OECD Environment Working Papers, No. 46. Paris: OECD Publishing. *http://dx.doi.org/10.1787/5k8zm3gxxmnq-en*

Kim,. J. (2014). Remarks at Davos Press Conference, Davos January 23 2014.

Lagarde, C. (2014). Economic Inclusion and Financial Integrity—an Address to the Conference on Inclusive Capitalism, London, May 27, 2014.

Large, A. (2010). Systemic Policy and Financial Stability: A Framework for Delivery. In Wooley, P. (Ed.) The Future of Finance. London: LSE. Available at: *www.futureoffinance.org.uk*

Leaton, J, Ranger, N. ,Ward, B., Sussams, L. and Brown, M. (2013) Unburnable Carbon 2013: Wasted capital and stranded assets. London: Carbon Tracker Initiative/Grantham Institute on Environment and Climate Change. Available at: *www.lse.ac.uk/GranthamInstitute/publications/Policy/docs/PB-unburnable-carbon-2013-wasted-capital-stranded-assets.pdf*

Leurig, S & Dlugolecki, A. (2013). Insurer Climate Risk Disclosure Survey. Boston: CERES

Liebreich, M. (2013). Financial Regulation – Biased Against Clean Energy and Green Infrastructure? Clean Energy – Global Agenda Council on New Energy Architecture White Paper. Geneva: WEF. Available at: *www3.weforum.org/docs/GAC13/WEF_GAC_NewEnergyArchitecture_DiscussionPaper_2013.pdf*

Litaer, B., Arnsperger, C., Goerner, S., Brunnhuber, S. (2012): Money and Sustainability. The Missing Link. The Club of Rome. *http://www.clubofrome.org/cms/wp-content/uploads/2012/05/Money-and-Sustainability-the-missing-link-Executive-Summary.pdf.*

Lodge, A., Freeman, A. (2012). The Long and Short Term of it: Demos Finance on the Kay Review. London: Demos. Available at: *www.demos.co.uk/files/Kay_paper.pdf?1350390047*

Luis A., Catão V. and Chang, R., (2010). World Food Prices and Monetary Policy, IMF Working Paper WP/10/161 . Washington D.C.: IMF. Available at: *https://www.imf.org/external/pubs/ft/wp/2010/wp10161.pdf*

Lund, S. , Daruvala, T. Dobbs, R., Harle, P., Kwek, J. and Falcon, R (2013). Financial Globalization: Retreat or Reset. London: McKinsey Global Institute. Available at: *www.mckinsey.com/insights/global_capital_markets/financial_globalization*

Maheshwari, A. et al (2013). Mobilizing Public and Private Funds for Inclusive Green Growth Investment in Developing Countries. International Finance Corporation. Available at: *www.ifc.org/Report-MobilizingGreenInvestment.*

McCrone, A. (2013). How to Attract New Sources of Capital to EU Reewables. White Paper. London: Bloomberg New Energy Finance. Available at: *http://about.bnef.com/white-papers/how-to-attract-new-sources-of-capital-to-eu-renewables/*

McKinsey Global Institute (2013) Financial Globalisation: retreat or reset?.

Millat K.M., Chowdhury R., Singha E.A. (2012). Green Banking in Bangladesh. Fostering Environmentally Sustainable Inclusive Growth Process. Dhaka: Bangladesh Bank. Available at: *http://www.bangladesh-bank.org/pub/special/greenbankingbd.pdf*

Mills, E. (2007). "Responding to Climate Change — The Insurance Industry Perspective." In Climate Action, Sustainable Development International (in partnership with the United Nations Environment Programme). Available at: *http://evanmills.lbl.gov/pubs/pdf/climate-action-insurance.pdf.*

Ministry of Ecology, Sustainable Development and Energy, Government of France. (2013) Livre blanc sur le financement de la transition écologique. Paris: Ministry of Ecology, Sustainable Development and Energy. Available at: *www.consultations-publiques.developpement-durable.gouv.fr/IMG/pdf/Livre_blanc_sur_le_financement_de_la_transition_ecologique.pdf*

Mintzberg, H. (2014). Rebalancing Society, radical renewal beyond left, right and center. Available at: *http://www.mintzberg.org/sites/default/files/rebalancing_society_pamphlet.pdf*

MMSG & SCM (2014). Joint Public Consultation Paper on the Malaysian Code for Institutional Investors, 2014.

Naidoo, K. (2003). Presidential Lecture, Delivered at the World Bank, Washington Feburary 10, 2003.

Narbel, P. (2013). The likely impact of Basel III on a bank's appetite for renewable energy financing. Oslo: Norges Handelshøyskole.

Neidl, C. (2012). Can the Microfinance Sector Help Deliver Clean Energy? Consultative Group to Assist the Poor Blog post 14 May, 2012. Available at: http://www.cgap.org/blog/can-microfinance-sector-help-deliver-clean-energy

Nelson, D. and Vladeck, T.(2013). The Policy Climate. Venice: Climate Policy Initiative. Available at: *http://climatepolicyinitiative.org/wp-content/uploads/2013/04/The-Policy-Climate.pdf*

OECD (2010). Policy Framework for Effective and Efficient Financial Regulation - General Guidance and High Level Checklist. Paris: OECD Publishing. Available at: *www.oecd.org/finance/financial-markets/44362818.pdf*

OECD (2010). Regulatory Policy and the Road to Sustainable Growth. Paris: OECD Publishing. Available at: *www.oecd.org/regreform/policyconference/46270065.pdf*

OECD (2012). Environmental Outlook to 2050: the Consequences of Inaction. Paris: OECD

OECD (2013). Policy Framework for Investment in Agriculture, Paris: OECD Publishing Available at: *www.oecd.org/daf/inv/investment-policy/PFIA.pdf*

OECD (2013). The Role of Banks, Equity Markets and Institutional Investors in Long-Term Financing for Growth and Development -Report for G20 Leaders. *www.oecd.org/finance/private-pensions/G20reportLTFinancingForGrowthRussianPresidency2013.pdf*

OECD (2014) OECD Ministerial Statement on Climate Change Paris: OECD

Ostry, J.D., Berg, A., Tsangarides, C.G. (2014). Redistribution, Inequality and Growth. IMF Staff Discussion Note. SDN/14/02. Washington D.C.: IMF.

Pagano, M. (2013). Investment's the key victim of this bonus rampage. In The Independent. October 13, 2013. Available at: *www.independent.co.uk/news/business/comment/margareta-pagano/margareta-pagano-investments-the-key-victim-of-this-bonus-rampage-8876432.html*

Patel, S. (2011) Climate Finance: Engaging the Private Sector. A Background Paper for Mobilizing Climate Finance Report Prepared at the Request of G20 Finance Ministers. Washington D.C.: IFC. Available at: *www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/cb_home/publications/publication_climatefinance*

Perez, C. (2007). Great Surges of Development and alternative forms of Globalization. Working Paper No 15 on Technology Governance and Economic Dynamics. Tallin: University of Technology Available from: *http://hum.ttu.ee/wp/paper15.pdf*

Pisano U., Martinuzzi A. & Bruckner B. (2012). The Financial Sector and Sustainable Development: Logics, principles and actors. ESDN Quarterly Report No 27. European Sustainable Development Network. Available at: *www.sd-network.eu/?k=quarterly%20reports&report_id=27*

Polleit, T. (2011). "The Cure (Low Interest Rates) Is the Disease", *http://mises.org/daily/5164/The-Cure-Low-Interest-Rates-is-the-Disease.*

PWC Switzerland (2013). Path to the Sustainable Financial Centre Switzerland, A Call to Action. White Paper. Sustainability Forum Zurich/ Sustainable Finance Geneva. Available from: *www.sustainability-zurich.org/cm_data/130514_TSF-SFG_White-Paper_Screen.pdf*

Rahman, A. (2013) The Mutually Supportive Relationship Between Financial Inclusion and Financial Stability. Dhaka: Bangladesh Bank. Available at: *http://www.bangladesh-bank.org/pub/special/msrelationship_2013.pdf*

Redefine (2011). Funding the Green New Deal: Building a green financial system. Brussels: Redefine.

REN 21 (2014). Renewables 2014 Global Status Report. Paris: REN21/UNEP.

Research Center of the State Council (2013) China's Green Finance: Status Quo, Issues and Future Development. Working paper. Winnipeg: IISD.

Reserve Bank of India (2012). Priority Sector Lending – Targets and Classification. Available at: *http://www.rbi.org.in/scripts/NotificationUser.aspx?Id=7460&Mode=0*

Reserve Bank of India (2014). Priority Sector Lending - Targets and Classification, Available at: *http://www.rbi.org.in/scripts/FAQView.aspx?Id=87.*

Robins, N. (2013) Steering capital markets by 2 degrees Celsius: five themes for the next decade. London: HSBC

Robinson, J. (2014). Using Innovative Policy and Regulatory Approaches to Incentivize the Alignment of Investment Strategies with Sustainability Considerations.Winnipeg:IISD. Available from *http://www.iisd.org/publications/pub.aspx?id=2912*

Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, III, E. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C. A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and J. Foley. (2009) . Planetary boundaries:exploring the safe operating space for humanity. Ecology and Society 14(2): 32. Robins, N. (2013). Integrating Environmental Risks into Asset Valuations: The Potential for Stranded Assets and the Implications for Long-Term Investors. Working Paper. Winnipeg: IISD

Rozenberg, Julie, et al. (2013), 'Funding low-carbon investments in the absence of a carbon tax', Climate Policy, 13 (1), 134-41

Ryan-Collins, J., Schuster, L. and Greenham, T. (2013). "Energising Money. An introduction to energy currencies and accounting. London: New Economics Foundation. *http://s.bsd.net/nefoundation/default/page/file/d5efb739f3fb9a137c_q2m6y7916.pdf.*

Schafer, A., Schnabel, I. and Weder di Mauro, B. (2013). Financial Sector Reform After the Crisis: Has Anything Happened? Discussion Paper No 9502. London: Center for Economic Policy Research. Available at: *www.cepr.org/pubs/dps/DP9502.asp*

Schnell, F. (2013). "Can Monetary Policy Delay the Reallocation of Capital", University of St. Gallen Discussion Paper 2013-29, *http://www1.vwa.unisg.ch/RePEc/usg/econwp/EWP-1329.pdf.*

Secretary-General's High-Level Group on Sustainable Energy for All (2012). Sustainable Energy For All - A Global Action Agenda: Pathways for Concerted Action toward Sustainable Energy for All. United Nations. Available at: *www.un.org/wcm/webdav/site/sustainableenergyforall/shared/Documents/SEFA-Action%20Agenda-Final.pdf*

Shiller, R. (2013). Finance and the Good Society. Cambridge, MA: Harvard University Press.

Shorter, G. (2013). SEC Climate Change Disclosure Guidance: An Overview and Congressional Concerns. Congressional Research Service. ..

Silva, MH. (2014). Accountability and Transparency: Advancing Green Finance. Working Paper. Winnipeg: IISD

Smith School of Enterprise and the Environment (2014) Financial Dynamics of Natural Capital, Technical Paper for the Inquiry, Oxford University

Spencer, T, Stevenson, J. (2013). EU Low-Carbon Investment and New Financial Sector Regulation: What Impacts and What Policy Response? IDDRI SciencesPo Working Paper No 513.

Spencer, T. and Hipwell, E. (2013). Coordinating, Mandating, Monitoring What Can the Post-2015 Climate Regime Learn From Global Financial Governance? Paris: IDRI.

Spencer, T., Stevenson, J. (2013). EU Low-Carbon Investment and New Financial Sector Regulation: What Impacts and What Policy Response?, Working Papers n°04/13. Paris: IDDRI.

Standard & Poor's (2014). Global Infrastructure: How To Fill A $500 Billion Hole. S&P Briefing. Available at: *www.standardandpoors.com/spf/upload/Ratings_EMEA/HowToFIllAn500BillionHoleJan162014.pdf*

Stern, N. (2013). The Structure of Economic Modeling of the Potential Impacts of Climate Change: Grafting Gross Underestimation of Risk onto Already Narrow Science Models. Journal of Economic Literature, 51(3) 838-859. Available at: *http://personal.lse.ac.uk/sternn/128NHS.pdf*

Sukhdev, P. and Stone, S. (2010). Driving a Green Economy Through Public Finance and Fiscal Policy Reform. UNEP Green Economy Working Paper 1.0. Nairobi: UNEP,

SwissRe & IIF (2013) Infrastructure Matters.

The Equator Principles Association (2013). Equator Principles II.

The Finance Lab (2013). Transforming Finance, A Charter for a New Financial System. Available at: *http://thefinancelab.org/wp-content/uploads/2013/06/Transforming-Finance-Charter.pdf*

Thomä, J. Dupré, S., Chenet, H. and Clerwall, U. (2013). Shifting Private Capital Towards Climate Friendly Investments: The Role of Financial Regulatory Regimes, Working Pape. Paris: 2 Degrees Investing. *http://www.2degrees-investing.org/IMG/pdf/2deg_policy_framework_working_paper_v0.pdf*

Tolley, S. (2013). Banking 2020: A Vision for the Future. London: The New Economics Foundation. Available at *http://www.neweconomics.org/blog/entry/a-vision-of-banking-in-2020*

Trucost (2013). Accounting for Asia's Natural Capital. London: Trucost. Available at: *www.trucost.com/_uploads/publishedResearch/TEEB%20Accounting%20for%20Asia's%20Natural%20Capital_Nov%2013.pdf*

Trucost (2013). Natural Capital at Risk: Top 100 Externalities. Report for TEEB for Business Coalition. Available at: *www.teebforbusiness.org/js/plugins/filemanager/files/TEEB_Final_Report_v5.pdf*

Turbeville, W. (2012). Cracks in the Pipeline. Restoring Efficiency to Wall Street and Value to Main Street. Financial Pipeline Series. New York: Demos. Available at: *http://www.demos.org/publication/cracks-pipeline-restoring-efficiency-wall-street-and-value-main-street*

Turbeville, W. (2013). Financialization and a New Paradigm for Financial Markets. New York: Demos. Available at: *http://www.demos.org/sites/default/files/publications/Tuberville.pdf*

Turner, A. (2009). The Turner Review: a regulatory response to the global banking crisis. London: Financial Services Authority. Available at: *http://www.fsa.gov.uk/pubs/other/turner_review.pdf*

Turner, A. (2013). Debt, Money and Mephistopheles: How do We Get Out of This Mess? Address to Cass Business School. February 6, 2013. Available at: *http://www.fsa.gov.uk/static/pubs/speeches/0206-at.pdf*

UKSIF (2009). Response to "Reforming Financial Markets" London: UKSIF. Available at: *http://uksif.org/wp-content/uploads/2012/10/sep-UKSIF_Response_to_Reforming_Financial_Markets_Consultation.pdf*

UN (2009) Report of the Commission of Experts of the President of the United Nations General Assembly on Reforms of the International Financial and Monetary System.

UNC Center for Community Capital & Institute for Market Transformation (2013) Home Energy Efficiency and Mortgage Risks, March 2013.

UNCTAD (2013). Best practice guidance for policymakers and stock exchanges on sustainability reporting initiatives. Note prepared by the UNCTAD secretariat TD/B/C.II/ISAR/67. Geneva: UNCTAD. Available at: *http://unctad.org/meetings/en/SessionalDocuments/ciiisard67_en.pdf*

UNEP (2010). Driving a Green Economy Through Public Finance and Fiscal Policy Reform. Nairobi: UNEP. Available at: *www.unep.org/greeneconomy/Portals/88/documents/ger/GER_Working_Paper_Public_Finance.pdf*

UNEP (2011). Green Economy Report: A Preview. Nairobi: UNEP

UNEP (2011). Towards a Green Economy. Pathways to Sustainable Development and Poverty Eradication. A Synthesis for Policy Makers. Nairobi: UNEP.

UNEP (2011). Towards a Green Economy. Pathways to Sustainable Development and Poverty Eradication. A Synthesis for Policy Makers. Nairobi: UNEP.

UNEP (2013). A New Angle on Sovereign Credit Risk. E-RISC: Environmental Risk Integration in Sovereign Credit Analysis. Phase 1 Report. UNEP Finance Initiative.

UNEP (2013). Overcoming strategic barriers to a sustainable financial system: A consultation with signatories on a new Principles for Responsible Investment work programme. Available at: *http://d2m27378y09r06.cloudfront.net/viewer/?file=wp-content/uploads/2013Strategicbarriersconsultation.pdf*

UNEP (2014). Eradicating poverty through an inclusive green economy, Post-2015 Note, Nairobi: UNEP.

UNEPFI (2005). A legal framework for the integration of environmental, social and governance issues into institutional investment. Geneva: UNEPFI

UNEPFI (2009). Fiduciary responsibility Legal and practical aspects of integrating environmental, social and governance issues into institutional investment. Geneva: UNEPFI.

UNFCCC (2013). Report of the Outcomes of the extended work programme on long-term finance, November 2013 Bonn: UNFCCC

UNFCCC (2014). Safeguarding Future Retirement Funds,Time for Investors to Move out of High-Carbon Assets Says UN Top Official. Press Release. 15.01.14. Available from: *http://unfccc.int/files/press/press_releases_advisories/application/pdf/pr20140115_ceres_final1.pdf*

UN Secretary-General's High Level Panel (2013). A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development. Available from:

http://www.post2015hlp.org/the-report/

Vander Stichele, M. (2011) Missing Dimension: How European Financial Reforms Ignore Developing Countries and Sustainability. Amsterdam: Somo

Vivid Economics (2014). Financing Green Growth. London: Vivid Economics.

Von Peter, G, Von Dahlen, S, Saxena, S. (2012). Unmitigated disasters? New Evidence on the Macroeconomic Cost of Natural Catastrophes, Basel: Bank for International Settlements.

Waygood, S (2011). How do the Capital Markets Undermine Sustainable Development? What can be done to correct this? Journal of Sustainable Finance and Investment. 1:1, 81-87 *http://dx.doi.org/10.3763/jsfi.2010.0008*

WEF (2013). Young Global Leaders - Sharing Economy Innovation. Geneva:WEF. Available at: *http://www.weforum.org/reports/young-global-leaders-sharing-economy-innovation*

WEF (2013).The Green Investment Report - The ways and means to unlock private finance for green growth. Geneva: WEF

WEF (2014). Global risk report 2014. Geneva:WEF.

WEF (2014). New Growth Models: Challenges and Steps to achieving patterns of more equitable, inclusive and sustainable growth. Geneva: WEF

Werner, R. (2012). "Time for Green Quantitative Easing", *http://www.greennewdealgroup.org/wp-content/uploads/2012/03/Green-QE-report-CBFSD-Policy-News-2012-No-1.pdf*

WHO (2014). Air pollution deteriorating in many of the world's cities, 7 May 2014

Wilkins, M. (2014) Climate Change: Preparing For The Long-Term, S&P Special Report, May 22 2014. Washington: Standard's and Poor's.

Wood, G. and Kabiri, A. (2010). Firm Stability and System Stability: The Regulatory Delusion, Paper prepared for a conference on Managing Systemic Risk at the University of Warwick

Wooley, P. (Ed.) (2010). The Future of Finance. London: LSE. Available at: *http://harr123et.files.wordpress.com/2010/07/futureoffinance5.pdf*

World Bank (2012) Inclusive green growth: the pathway to sustainable development, Washington D.C: World Bank.

World Bank (2013). Global Financial Development Report: Rethinking the Role of the State in Finance. Washington, DC: World Bank.

World Bank (2014). Global Financial Development Report: Financial Inclusion. Washington D.C.: World Bank Available at: *http://siteresources.worldbank.org/EXTGLOBALFINREPORT/Resources/8816096-1361888425203/9062080-1364927957721/GFDR-2014_Complete_Report.pdf*

World Bank Group, (2013). Financing for Development Post 2015. Washington D.C.: World Bank.

World Economic Forum (2014). New Growth Models. Geneva: WEF.

Yao, W. (2013). Financial Instruments to Facilitate Low Carbon Growth in Cities. Research Center for Climate and Energy Finance CUFE.

Yeandle, A. (2012). The Global Financial Centres Index 12. London: Long Finance Initiative. Available at: *http://www.longfinance.net/Publications/GFCI%2012.pdf*

Yeandle, A. and Danev, N. (2013.) The Global Financial Centres Index 14. London: Long Finance Initiative. Available at: *www.longfinance.net/programmes/fcf/834.html*

Yifu Lin, J, Wang, Y. (2013) Beyond the Marshall Plan: A Global Structural Transformation Fund. Background Research Paper Submitted to the High Level Panel on the Post-2015 Development Agenda. Available at: *http://www.post2015hlp.org/wp-content/uploads/2013/05/Lin-Wang_Beyond-the-Marshall-Plan-A-Global-Structural-Transformation-Fund.pdf*

Zadek, S., Chenghui, Z., Thomas, J. (2014) Greening China's Financial System An Initial Exploration. IISD/DRC

Zadek, S., Flynn, C. (2013). South - Originating Green Finance: Exploring the Potential. Geneva: International Finance Dialogues.

Zaouati, P. and Joly, C. (2014) EC legislation to regulate financial indexes, in Visser, W. (ed) Disrupting the Future, *http://www.2052.info/disrupting-the-future/*

Zhang, B. (2010). Tracking the implementation of green credit policy in China: Top-down perspective and bottom-up reform, Journal of Environmental Management 92.

ALIGNING
THE FINANCIAL SYSTEM WITH SUSTAINABLE DEVELOPMENT

Inquiry: Design of a Sustainable Financial System

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