



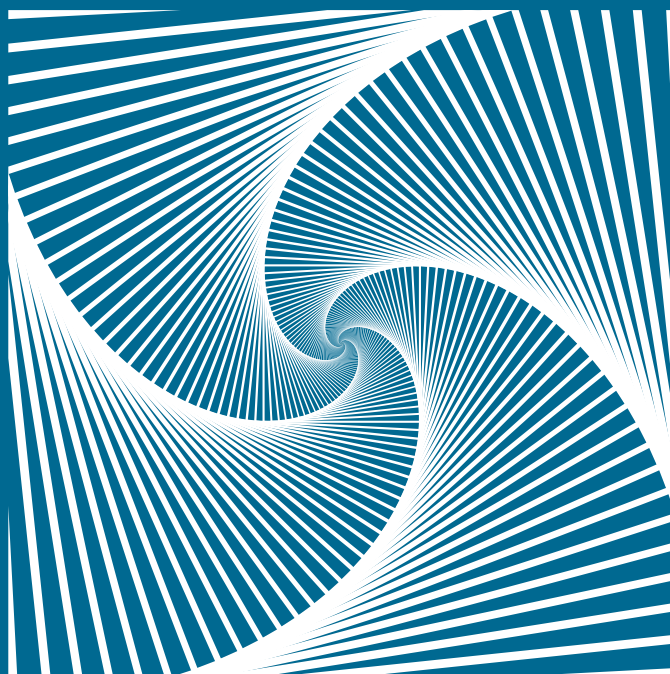
Inquiry: Design of a
Sustainable Financial System



ALIGNING

THE FINANCIAL
SYSTEM WITH
SUSTAINABLE
DEVELOPMENT

Pathways to Scale



THE INQUIRY'S 3RD PROGRESS REPORT

JANUARY, 2015

The Inquiry

The Inquiry into the Design of a Sustainable Financial System has been initiated by the United Nations Environment Programme to advance policy options to improve the financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development. Established in January 2014, it will publish its final report towards the end of 2015.

More information on the Inquiry is at: www.unep.org/inquiry/ or from:

Mahenau Agha, Director of Outreach mahenau.gha@unep.org

This Progress Report

This briefing is the third progress report by the Inquiry. It draws on the results of the Inquiry's engagements across the world, notably an international policy dialogue hosted with the Rockefeller Brothers Fund at Pocantico, NY in October 2014; convenings hosted by the Development Research Centre of the State Council and the People's Bank of China in Beijing in November; a conference co-hosted with the Federation of Indian Chambers of Commerce and Industry (FICCI) in New Delhi in November; a research symposium hosted by the Centre for International Governance Innovation (CIGI) in Waterloo, Ontario in December; discussions co-hosted with the Institute for Human Rights and Business in Geneva in December; and collaborative research initiatives with the UNEP Finance Initiative and the Principles for Responsible Investment. We would like to extend our deepest thanks to these institutions for their contributions and to the numerous participants at these and other events for their inputs.

The Inquiry recognises the contributions made to its work and the field by many individuals and institutions. In particular the Inquiry would like to acknowledge the support provided by the Government of Norway, the Government of Switzerland, and the Government of the United Kingdom of Great Britain and Northern Ireland to its core and country specific work. Further, the Inquiry is most appreciative of the contributions made by members of our Advisory Council and our core partners (many of which are set out in the appendix of this report), and those made by our colleagues throughout the United Nations Environment Programme.

Errors and omissions remain the responsibility of the Inquiry.

Comments or questions about the paper, or general enquiries, can be addressed to:

Simon Zadek, Co-Director simon.zadek@unep.org

Nick Robins, Co-Director nick.robins@unep.org

Copyright © United Nations Environment Programme, 2015

Disclaimer

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the United Nations Environment Programme concerning the legal status of any country, territory, city or area or of its authorities, or concerning delimitation of its frontiers or boundaries. Moreover, the views expressed do not necessarily represent the decision or the stated policy of the United Nations Environment Programme, nor does citing of trade names or commercial processes constitute endorsement.



UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente

Программа Организации Объединенных Наций по окружающей среде

برنامج الأمم المتحدة للبيئة

联合国环境规划署



2015 may one day be viewed as a milestone year for sustainable development. From a global perspective, this opportunity is framed by the finalisation of a universally applicable set of sustainable development goals in September and the completion of a global climate agreement in December. Just as important is the tangible evidence in communities and nations across the world that a strategic approach integrating economic, social and environmental factors in decision-making brings lasting benefits. Indeed, transitioning to a more inclusive, less resource intensive and low carbon economy is more possible than ever before, not least with falling costs of clean technology coming at a time of historically low interest rates.

Such a successful outcome is not, however, a foregone conclusion. Signs of economic recovery in some countries, along with progress on financial stability, are offset by continuing concerns about global economic imbalances, rising inequality, and turbulence in energy markets. All of this creates a challenging backdrop for the necessary breakthroughs to accelerate the transition to sustainable development.

This is why it is so important to explore and act upon the profound linkages between a healthy financial system and the pursuit of long-term sustainability—and a third crucial milestone at the global level this year will be the Financing for Development summit at Addis Ababa in July. It is clear that the lack of critically needed investment in infrastructure and innovation is holding back vital job creation and income growth. Here, a powerful two-way dynamic is in play. First, a sustainable recovery needs an effective financial system that can allocate trillions of dollars to priority investments in economic, human and natural capital, particularly in developing countries. And second, the financial system's own viability requires the incorporation of a broader range of value drivers to overcome a tendency to short-termism and asset bubbles.

The UNEP Inquiry into Design Options for a Sustainable Financial System, now entering the second half of its two-year work programme, was created to explore emerging changes and reforms to the financial system that would improve its alignment with sustainable development. Its investigations to date have revealed many innovations in financial and monetary policy, regulation and financial market standards. A notable feature is the leading—though not exclusive—role being taken by some developing countries, where policymakers are evolving new approaches to bridging financial and longer term development objectives.

Pathways to Scale, the Inquiry's third progress report, explores how innovative ideas and practices can be made more effective, adopted more widely, and taken to scale—and as a result move the trillions that are required. Scaling-up proven but limited innovations, is a common development challenge, requiring the adept handling of inevitable technical and institutional barriers, and the creation of viable pathways which can overcome outdated but often resilient conventional wisdoms.

The UNEP Inquiry has benefited from a global and broad spectrum of expertise in exploring practice and proposals for a sustainable financial system. It is guided by a high level Advisory Council of financial regulators, leading financial market actors and experts, and is also informed by a growing international network of partners in central banks, international institutions, the financial sector and civil society. As we start the year, we see an array of initiatives from governments, financial institutions and social movements seeking to find new ways of integrating social and environmental considerations into financial decision-making. It is this sense of the emergence of new partnerships for change that gives me confidence that 2015 will live up to its potential of shaping the future of sustainable development—including in the financial arena—and not signal a “return to the past”.

Achim Steiner
Under-Secretary-General
Executive Director, UNEP





CONTENTS

LETTER FROM THE UNEP EXECUTIVE DIRECTOR	i
HIGHLIGHTS	iv
1. MOBILISING INVESTMENT TO BUILD INCLUSIVE WEALTH	2
2. IDENTIFYING AREAS OF HIGH POTENTIAL	6
3. BUILDING VIABLE PATHWAYS	11
4. MEASURING PERFORMANCE IN A SUSTAINABLE FINANCIAL SYSTEM	18
5. 2015 – A YEAR OF CONVERGENCE	20
APPENDIX – ABOUT THE INQUIRY	22
END NOTES	25

ALIGNING THE FINANCIAL SYSTEM TO SUSTAINABLE DEVELOPMENT

2015 could be the year when the long separated agendas of financial reform and sustainable development are brought together. Now that measures to address some of the critical flaws that led to the financial crisis have been put in place, attention is turning to the rules and incentives needed to mobilise investment for a lasting recovery, one that also confronts rising inequality and continuing degradation of the environmental resource base.

The starting point for this policy convergence is the reality that the global economy has abundant stocks of financial assets, but insufficient flows of investment in the areas where they are needed for long-term sustainable development. Across the world, governments are looking for new approaches that would better align savings and investment towards long term innovation and infrastructure. This will require action to improve both the demand-side for capital (such as effective pricing in the real economy), as well the supply side in terms of improvements in the financial system.

Over the past year, the Inquiry has identified a growing number of innovations in financial policy, regulation and standards that have transformational potential. This is the Inquiry's Third Progress Report and marks the Inquiry's half-way point. It draws on our work with a growing network of partners in public institutions, the private sector and civil society to understand how changes to the rules that govern financial markets—policies, regulations, standards—can be better aligned with long-term sustainable development.

In this interim report, the Inquiry profiles innovations in five areas. This is not intended to be comprehensive, but to provide a sense of direction about the changes that a sustainable financial system could involve. The innovations that are profiled here include four clusters related to particular financial asset pools—banks, bond markets, institutional investors and central bank balance sheets—and one cross-cutting policy tool: long-term environmental risk assessment:

- **Banking:** Banks hold the largest pool of global financial assets (US\$139 trillion), and developing country leadership in 'green credit' regulations points to a new phase in international banking standards.

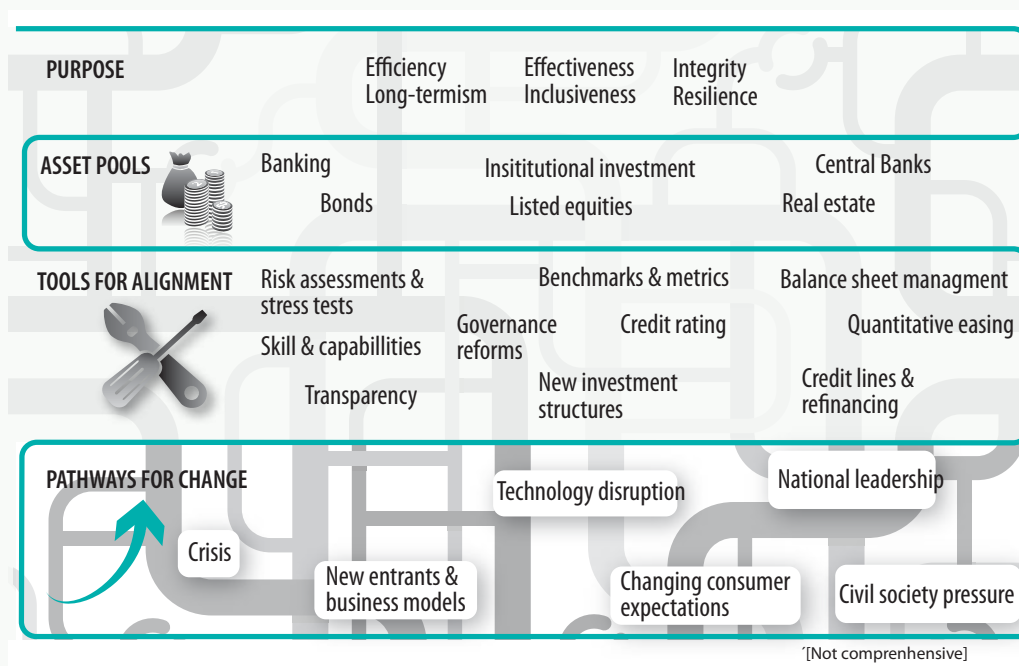
Highlights

- **Bond markets:** The largest capital market (US\$100 trillion assets) and fastest moving theme, with a rapid expansion of ring-fenced 'green bonds' and market innovation starting to integrate sustainability factors into credit ratings.
- **Institutional investment:** With US\$93 trillion in assets under management, this is the arena of greatest commitment to date, and where a focus on capital allocation, investor governance and market incentives could pave the way for the next phase.
- **Central bank balance sheets:** Central banks' monetary decisions, including balance sheet policies, could also have potential for marrying stability and sustainability, although some measures remain controversial (US\$24 trillion in assets).
- **Resilience and systemic risk:** Introducing 'environmental stress tests' could be one way to overcome the 'tragedy of horizon' for issues such as natural disasters, air pollution, resource security and climate change.

Turning innovative potential into system-wide change requires the creation of viable pathways to scale. Barriers to achieving a rapid, widespread realignment of financial rules are considerable, and include complexity, incumbent interests, fragmented governance, and conventional wisdom. Great vision, ideas and technological breakthroughs can and do transform the financial system, but often unexpectedly, and with unforeseen consequences along the way.

Designing for the future rather than the past or the present is also imperative as there are already multiple disruptions impacting today's financial system. These include post-crisis regulation, rapid technological change, new business models, the rise of shadow banking, the ascendance of emerging economies and shifting consumer expectations. All of these could enable as well as disable efforts to advance a sustainable financial system. The Inquiry's work with the Organisation for Economic Cooperation and Development (OECD) to develop alternative scenarios is one way of identifying potential 'blind spots'.

FIGURE 1: FROM PURPOSE TO PATHWAYS FOR A SUSTAINABLE FINANCIAL SYSTEM



Source: UNEP Inquiry, 2015.

Rapid scaling requires the development of viable pathways based on four key features, illustrated in Figure 1.

These include an articulation of sustainable financial system purpose and performance (e.g. efficiency, effectiveness, resilience); detailed assessment of potential within key asset pools (such as banking, bond markets, institutional investors); the design of specific tools (such as credit guidelines, risk tools, transparency, new investment structures); and the harnessing of critical catalysts for change (such as technology and the rise of emerging economies).

The resulting pathways will go beyond the ‘what’ of intervention to focus on the ‘how’, the ‘when’ and ‘by whom’. A diversity of approaches is therefore to be expected, involving a mix of public, private and social drivers of change—and a continuing dynamic between national leadership and international coordination.

Understanding whether scale is actually achieved will require a new framework to link the performance of the financial system with its underlying goals and purpose. Three performance areas appear critical:

- 1 *Effectiveness*, incorporating the measurement of allocations to the real economy, including tracking actual allocations by financial institutions and financial markets to sustainable development priorities.
- 2 *Efficiency*, revisiting the traditional focus on the cost of intermediation and broadening to assess

the fiscal efficiency of financial system subsidies and incentives.

- 3 *Resilience*, broadening the focus from short-term stability to longer-term resilience, including systemic risks such as natural disasters and climate change.

A series of policy milestones in 2015 provide opportunities for bringing together the historically separate agendas of financial reform and sustainable development. Within the UN system, these include the disaster risk reduction conference (Sendai, March), the Financing for Development conference (Addis Ababa, July), the finalization of the new Sustainable Development Goals (New York, September) and the completion of a new global agreement on climate change (Paris, December). Alongside this are the forthcoming summits of the G-7 (Elmau, June) and the G-20 (Antalya, November). These and other events and processes have the potential to create an unprecedented catalyst for change.

During 2015, the Inquiry will complete its programme of research and engagement at the country and international levels. It will co-host its final round of new country convenings in Colombia, Kenya, Indonesia and Switzerland, and work with a range of international partners on critical cross-cutting issues such as environmental stress testing, bond markets, insurance policy, institutional investment and fiscal policy. Its final report containing recommended policy options will be presented in October 2015.



1. MOBILISING INVESTMENT TO BUILD INCLUSIVE WEALTH

The global economy has abundant stocks of financial assets, but insufficient flows of investment in the areas where they are needed for long-term sustainable development.

The stock of total assets held by financial institutions are around US\$305 trillion for the 20 largest economies and the Euro area, according to the Financial Stability Board.¹ With global annual savings of US\$19 trillion, there is significant capital seeking returns. But not enough is available for long-term development. The World Economic Forum estimates that there is a US\$1 trillion gap in investment in infrastructure each year.² Looking at a selection of major economies—Brazil, China, France, Germany, India, Japan, Mexico, the UK and USA—the Group of Thirty estimate that an additional US\$7 trillion a year will be needed by 2020 for infrastructure, buildings, equipment and software, education and R&D, for economies to flourish.³ Focusing on investments needed to achieve the Sustainable Development Goals in the developing world, the United Nations Conference on Trade and Development has concluded that there is a US\$2.5 trillion annual investment gap.⁴

“Sustainable development is a complex challenge, with urgent requirements which have resulted in enormous financing needs”

UN Secretary General Ban-ki Moon⁵

Finding smart ways of mobilizing more efficient and effective long-term investment is at the top of the policy agenda, both in national capitals and international forums. At the 2014 G-20 Summit in Brisbane, the leaders of the economies that account for 80% of global output agreed on a Global Infrastructure Initiative.⁶ In the European Union, the world’s largest market, the new Commission has also launched a comprehensive investment plan, proposing to use EUR 21 billion of public money to leverage a total of EUR 315 billion of capital. Other countries such as Argentina, Australia, Brazil, India, Korea, Mexico, Saudi

Arabia and the US have also launched major investment initiatives.

Importantly, these plans include specific efforts to channel capital to the industries of the future that will underpin the green economy. The G-20 itself launched a new task group on enhancing capital flows to energy efficiency investments.⁷ India has committed to a five-fold increase in its targeted deployment of solar energy by 2022, requiring an additional investment of US\$100 billion alone. The European Commission’s investment plan has highlighted a broad range of priorities, including renewables and energy efficiency retrofits, water and wastewater, improved rail connections, greening projects in the area of maritime transport, alternative fuel-infrastructure and third generation biorefineries.⁸

Attracting sufficient capital to deliver these investment ambitions requires a comprehensive approach: effective pricing and regulation in the real economy, strategic public finance and an efficient, effective and resilient financial system to respond. Falling technology costs and strategic incentive programmes have underpinned strong investment in green economy priorities, such as renewable energy. Addressing perverse incentives in the price system of the real economy (such as through carbon prices or taxes, and the removal of fossil fuel subsidies) are critical to shift the risk: reward ratio.⁹ But progress is still too narrow in sectoral terms and too small in size to overcome structural barriers that underpin continued investment into more resource-intensive alternatives.

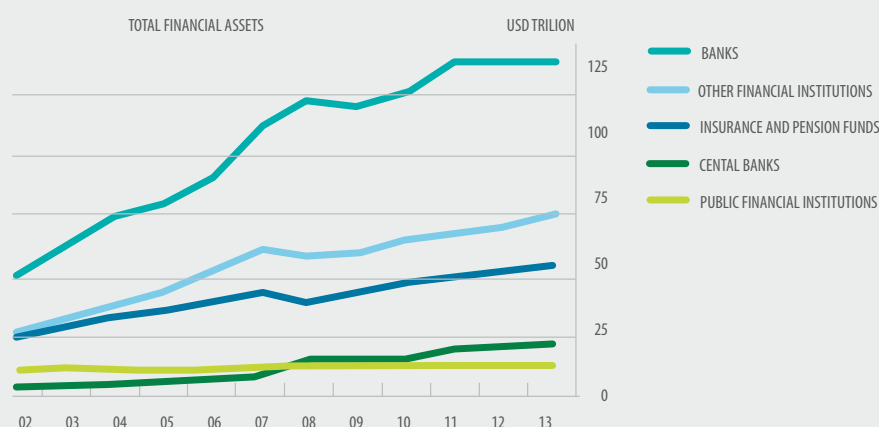
The value of financial assets relies on a deeper pool of stocks and flows, most fundamentally the health of human and natural resources. While ‘produced capital’ such as roads, buildings, equipment, software and other intellectual property is by far the most well understood form of capital,

THE FINANCIAL SYSTEM AND THE REAL ECONOMY

For the Inquiry, the financial system's value lies in its role in enabling a dynamic and efficient real economy in ways that deliver inclusive, sustainable development. The real economy is “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”.¹⁰ The goal of the financial system is to serve and support the real economy by facilitating transactions, intermediating capital, transferring risk, transforming maturity, providing liquidity and governing assets—its purpose is to enable capital to be allocated more efficiently to where it can best be used.

Distinguishing the real from the financial economy is closely linked to concerns about the so-called “financialisation” of the global economy, the increasing importance of financial markets and institutions in the operation of the economy and its governing institutions,¹¹ and the associated growth in the size of both financial assets, and the share of the financial sector in economic output. Across the jurisdictions and asset classes monitored by the Financial Stability Board, total financial assets have risen from some US\$115 trillion in 2002 to over US\$300 trillion in 2013.¹² Including the notional value of financial derivatives would increase this total significantly.¹³ This growth in assets also means that a growing share of GDP is captured as returns to the financial sector. In the US, this grew from 4.9% of GDP in 1980 to 7.9% of GDP in 2007.¹⁴

EXHIBIT 2: ASSETS OF FINANCIAL INTERMEDIARIES



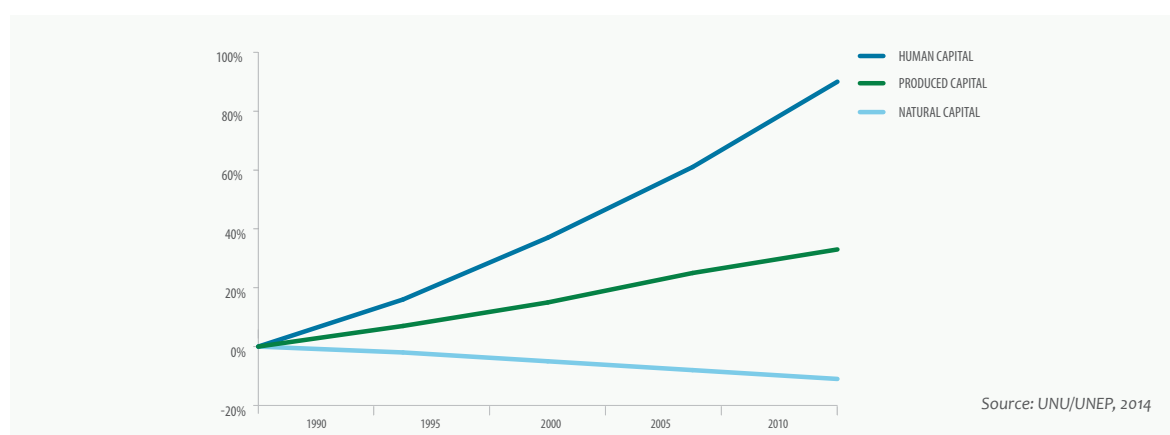
according to the latest Inclusive Wealth Report developed by the UN University and UNEP, it only accounts for 27% of the global productive base, while human capital (skills and health) contributes 61% and natural capital (including forests, agricultural land and fossil fuels) contributes 12%. The study finds that while produced capital and human capital are rising in most countries, natural capital stocks are falling in 116 out of 140 countries.¹⁵

Rising shares of human and produced capital are associated with economic growth. But improvements in the efficiency of resource use are still insufficient to stop the depletion of natural systems such as the atmosphere, forests and soils, oceans and water, resulting in damage to human health,

productive capacity and societal stability. Beyond key system limits, the impacts of environmental damage are non-linear. The global economy has already overstepped a number of ‘planetary boundaries’. In the case of climate change, the ‘carbon budget’ for the 21st century that would keep global temperature increases to below 2° Celsius will be depleted by the end of the 2030s at current levels of greenhouse gas (GHG) emissions.¹⁶

Meanwhile, gains in human capital are highly unequal, and this inequality is holding back the potential for economic development. According to the OECD, income inequality, in particular the gap between the lowest income households and the rest of the population, has a negative and sta-

FIGURE 3: HUMAN, PRODUCED AND NATURAL CAPITAL STOCKS
– PERCENTAGE CHANGE SINCE 1990



tistically significant impact on subsequent growth—potentially a contributory factor to ‘secular stagnation’.

The state and performance of these human, produced and natural capital stocks provide the underpinnings for the valuations of financial assets. Making progress towards sustainable development will involve require action to improve the both the demand-side for capital (such as effective regulation and pricing of natural capital in the real economy), as well as action on the supply side in terms of improvements in the financial system. Importantly, the existing stock of financial assets cannot easily be reallocated to alternative activities. Here, the focus needs to be on the flows of income that are saved every year and how these can be transformed into new financial assets aligned with sustainable development.

A critical first step in making sure that the financial system is deploying capital efficiently is to reduce the externalities it imposes on others. This lesson was learned the hard way following the 2008 crisis—with the recognition that the governance, incentives and risk management of banks was not a matter for institutions in isolation but could create serious damage for the rest of the system and the wider economy. For Jaime Caruana, Managing Director of the Bank of International Settlements, “it is such negative externalities and the significant spillovers to the real economy that are the essence of systemic risk and which make a case for policy intervention”.¹⁷ Since the crisis, an intensive package of measures has been introduced to reduce these externalities through regulatory and structural measures, with the Financial Stability Board concluding in November 2014 that “the job of agreeing measures to fix the fault lines that caused the crisis

is now substantially complete”.¹⁸ However the job of ensuring that the financial system is fit for sustainable development has just begun.

Externalities are also a useful starting point for the design of a financial system aligned to sustainable development. One study estimated environmental costs amount to US\$7 trillion a year; the scope of the study was limited, so true global externalities may be greater.¹⁹ Clearly the factors that drive environmental regeneration will need to be placed within the price system of the real economy.²⁰ Furthermore, through a range of market failures, financial institutions can misallocate capital generating negative spillovers on society and the environment. This can degrade natural assets and undermine human rights threatening both asset values as well as wider financial stability, often separated far in time and place from the original financing decision.

“It is the obligation of the regulators to induce bank behaviour that will contain and abate social conflict, following a venerable tradition of using regulation to deal with externalities, i.e. with situations where the effects of concentrated events are widespread”

Daniel Schydrowsky,

Head, Superintendency of Banking, Insurance and Private Retirement Fund Administration of Peru and Robert C. Thompson²¹

The financial system is also impacted by environmental stress, notably through natural disasters, as well as by environmentally driven policies. For GHG emissions to shrink towards net zero by the end of this century, this will involve a fundamental re-pricing of risk and reward for both existing and future assets. Water insecurity is already a statistically significant global drag on growth—and thereby a threat to financial assets whose valua-

OVERCOMING THE ‘TRAGEDY OF HORIZON’

Investment horizons, whether in terms of the maturity of debts, the scope of risk analysis or the focus of equity markets, are often much shorter than the lifetime of the underlying assets and the impacts they create. An extended time horizon is a critical yet poorly understood dimension of a sustainable financial system. Standard practice underestimates the value of future threats, particularly those that are poorly priced and build slowly over time—a process exacerbated by technological and incentive-driven short-termism in many financial markets.

For the Governor of the Bank of England, Mark Carney, this is a ‘tragedy of horizon’, whereby new challenges to long-term prosperity and economic resilience, such as climate change, manifest themselves beyond the standard regulatory and market outlook of at most 2-3 years. Speaking at the 2014 World Bank/IMF Annual Meeting, Carney highlighted that the vast majority of fossil fuel reserves could become ‘unburnable’ in the transition to a low-carbon economy, resulting in ‘stranded assets’.

The Bank of England is deepening and widening its enquiry into the topic, not only undertaking a review of how climate factors could impact the insurance sector, but also asking the Financial Policy Committee to consider climate risks as part of its regular horizon scanning on financial stability risks.²²

tions rely on that growth.²³ At the same time, the financial system is facing disruptions of its own, as new technologies and business models create shifts in the roles of banking, insurance, pensions and even currencies.

For 2015, a critical policy task will be to identify the mechanisms with high potential to overcome market failures and enable sufficient capital to be deployed to deliver sustainable development in the face of a disruptive outlook for the financial system.

PERSPECTIVE FROM INDIA

Over the next five years, India faces one of the world’s biggest financing challenges; ending ‘financial untouchability’ for 100 million families, bringing affordable and reliable supplies of clean water and energy to all of its 1.3 billion inhabitants and investing in the enterprises that will provide livelihoods for an extra 10 million job seekers each year.

The extra capital required to meet these pressing needs is immense. The government has made a five-fold increase in the country’s solar target to 100 GW of installed capacity by 2022, requiring an additional US\$100 billion investment. Alongside this capital deployment imperative is growing awareness of the need for new tools to mainstream good practice. The Small Industries Development Bank of India (SIDBI) has found, for example, that loans to energy efficient companies have a much better loan recovery rate than the norm.

To identify the mechanisms that could enable India’s financial system to meet the aspirations for sustainable development, the Inquiry together with the Federation of Indian Chambers of Commerce and Industry (FICCI) and an advisory committee of financiers, policy makers and civil society held a high-level conference bringing together ministers, senior government officials as well as leaders from the financial sector and civil society.²⁴ Four initial pathways were highlighted:

- *Capital Markets:* green bonds and Infrastructure Investment Trusts as vehicles to mobilise investment in sustainable infrastructure.
- *Incentives:* guarantee and credit enhancement mechanisms for example, to underpin payments to energy service companies (ESCOs).
- *Guidelines:* environmental, social and governance guidelines for banking
- *Regulation:* priority lending requirements and sector exposure limits.

Speaking at the conference, Jayant Sinha, India’s Minister of State for Finance was clear that “India has to be a leader – and do it in a global way in partnership with others”.



2. IDENTIFYING AREAS OF HIGH POTENTIAL

With its partners, the Inquiry has identified a growing number of sustainability innovations in financial policy, regulation and standards. But their potential for scale and efficiency remains poorly understood. In their current form, many are ad hoc measures that are not integrated into the overall financial and capital markets. Many have only recently been enacted, so that their impacts remain untested and their prospects uncertain. The transferability of innovations is also unclear.

In this section, we profile five areas of innovation in the financial system where there is high potential to achieve large-scale change. The innovations that are profiled here include four interlocking financial asset pools—banks, bond markets, institutional investors and central bank balance sheets. In addition there is one cross-cutting policy tool: long-term environmental risk assessment:

- **Banking:** Banks hold the largest pool of global financial assets (US\$139 trillion), and developing country leadership in ‘green credit’ regulations points to a new phase in international banking standards.
- **Bond markets:** The largest capital market (US\$100 trillion assets) and fastest moving theme, with a rapid expansion of ring-fenced ‘green bonds’ and market innovation starting to integrate sustainability factors into credit ratings.
- **Institutional investment:** With US\$93 trillion in assets under management, this is the arena of greatest commitment to date, and where a focus on capital allocation, investor governance and market incentives could pave the way for the next phase.
- **Central bank balance sheets:** Central banks’ monetary decisions, including balance sheet policies, could also have potential for marrying stability and sustainability, although

some measures remain controversial (US\$24 trillion in assets).

- **Resilience and systemic risk:** Introducing ‘environmental stress tests’ could be one way to overcome the ‘tragedy of horizon’ for issues such as natural disasters, air pollution, resource security and climate.

“Individual and voluntary action alone cannot deliver a financial system appropriately focused on long-term objectives. Public policy is also needed.”

Adair Turner,
Senior Fellow, Institute for New
Economic Thinking (INET)

These areas are neither comprehensive nor complete. The Inquiry’s work is at the half-way mark—and so not all dimensions of a sustainable financial system are addressed here. We do not at this stage, for example, profile the potential for policy innovation within public and private equity. Furthermore, all are at very different stages of evolution—some are at the drawing board while others are already in a mainstreaming phase. As a result, these profiles are intended to highlight a selection of the best ideas that have emerged from the Inquiry’s dialogue at the national and international levels.

“Investing for the long-term requires strategies that create sustainable value, mitigate multifaceted risks, and strengthen both local and global economies. The common denominator in being able to do all of that effectively is having a stable and forward-thinking policy foundation”

Anne Stausboll,
CEO, CalPERS

BANKING

At 45%, banks hold the largest share of the financial sector’s assets, around US\$139 trillion in the 39 countries monitored by the FSB.²⁵ Steady progress has been made to incorporate environmental and social factors into parts of banks’ lending and capital market operations through a cycle of leadership

by pioneering banks, stakeholder pressure to meet rising social expectations, and the formation of sector-wide guidelines to raise average practice.

Now a fourth driver is being added—the role of financial policy and regulation. A growing number of developing country regulators and central banks are supplementing this dynamic with their own guidelines and requirements to ensure that core banking functions such as credit approval are aligned with their country’s social and environmental priorities so that financial risks and negative environmental externalities are reduced. Bangladesh’s Green Banking programme, China’s Green Credit guidelines and Brazil’s new resolution on socio-environmental risks are notable examples.²⁶ These country-level innovations point to the potential role of international policy frameworks—such as the Basel rules—which would enable national regulators to best manage sustainability factors in their own banking contexts.²⁷

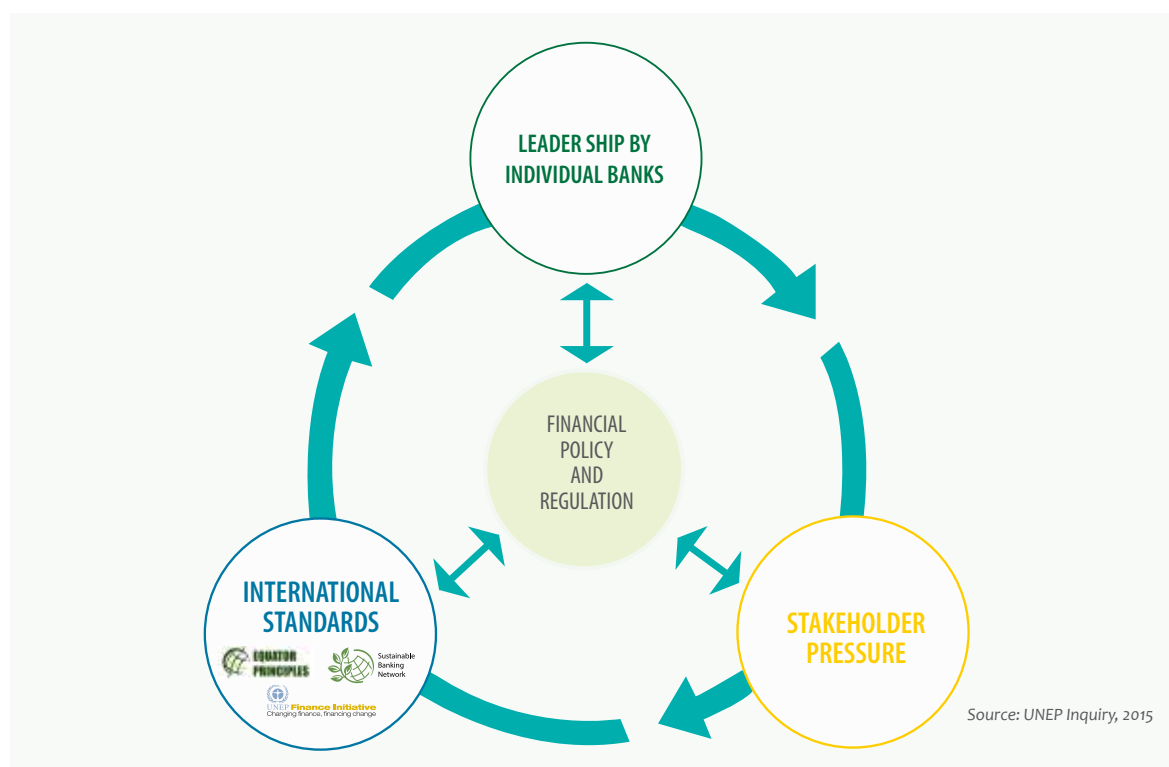
Looking ahead, these rules need to be both adequate to the task of sustainability and fully comprehensive, covering all key banking operations. This will involve a dynamic interplay of all four factors: sector leadership, stakeholder pressure, market standards and regulatory oversight. Key elements in this cycle of efforts to strengthen the sector’s stability, efficiency and sustainability could include:

- **Due diligence:** establishing and implementing common standards for environmental due diligence by banks.
- **Data and models:** collecting the data to undertake quantitative assessment of socio-environmental factors and key risks (credit, market, operational, reputational).
- **Capabilities:** incorporating critical environmental and social skills into routine professional and regulatory requirements for key banking executives.
- **Disclosure:** linking the need for improved environmental and social disclosure by the banking sector to the promising steps made by the Enhanced Disclosure Task Force, where sustainability factors have yet to be fully incorporated.²⁸
- **Forward looking risk:** testing the resilience of assets against future policy and environmental scenarios and incorporating an understanding of these risks into banks’ capital requirements and risk models.

“Sustainability is a positive asset for financial and monetary stability.”

Aloisio Tupinamba,
Chief of Staff, Financial Regulation
Central Bank of Brazil

FIGURE 4: THE FOUR DRIVERS OF CHANGE IN THE BANKING SECTOR



BOND MARKETS

Global debt capital markets are estimated at US\$100 trillion, covering sovereign, corporate and project bonds. Bond markets have a dual significance for sustainable development: first, as the primary arena for valuing the impact of sustainability risks on creditworthiness of projects, companies and governments; and second, as a direct source of capital for sustainable infrastructure through ‘green bonds’.

Credit ratings have a critical influence on the allocation of capital.²⁹ Bonds are central to the financing strategies of many public and private institutions. Embedding climate risk into sovereign credit ratings, for example, could impact the cost of the US\$70 trillion of government debt with implications not just within the financial system, but for fiscal policy. Ratings also play an important systemic role through the way they are used in risk management by banks and other financial institutions. In addition, investors sometimes prefer to invest in only certain grades of bonds.

The significance of sustainability factors has risen up the agenda—driven by the increasing importance of environmental, social and governance factors, as well as growing demand from institutional investors for material factors to be incorporated into the assessment of creditworthiness. A number of positive steps have been taken by leading credit rating agencies, such as Standard & Poor’s.³⁰ Initiatives such as The UNEP Financial Initiative (UNEPFI)’s Environmental Risk in Sovereign Credit analysis (e-risk) methodology is developing metrics and methods for integrating natural resource and environmental risks into sovereign credit risk assessments.³¹ But environmental and social issues are still not being addressed in a systematic way. A key next step to scale up innovations that have incorporated sustainability factors (such as climate change) into credit rating would to include them as routine criteria for bonds analysis.

Likewise ‘green bonds’ hold out significant potential for sustainable development. Green bonds are attractively simple structures, providing a means to ring-fence funds for green economy investments in agriculture, buildings, energy, industry, transport, water and waste. Creating a large, liquid market in green bonds—including aggregating small projects—offers the opportunity to boost the volumes

of capital as well as reduce the cost of debt in the green economy.

The green bond market is developing rapidly. An estimated US\$500 billion+ of bonds are already linked to green economy and climate investment themes, with issuance of new ‘green bonds’ of US\$36 billion in 2014, more than three times the size in 2013.³² A set of Green Bond Principles has been launched by leading banks and investors and the type of issuers is growing from the initial leadership group of development banks to corporations, municipalities and projects, including from developing countries.

Policy measures that could help the ‘green bond’ market to grow to US\$1 trillion by 2020 include further work on **market principles & standards**; **strategic issuance** by cities, development banks and other public agencies; **market development** through aggregation, securitization and covered bonds; **improving the risk-return** profile via guarantees, credit enhancement; providing initial **investor incentives** in the form of fiscal subsidies; and **boosting demand** through mandates for public funds and central banks.

INSTITUTIONAL INVESTMENT

Across the world, institutional investors managed assets of US\$93 trillion in 2013 in mutual funds, pensions, insurance companies, sovereign wealth funds and foundations.³³ These investors allocate capital across all asset classes, notably bonds, listed equities, property, private equity, and infrastructure, as well as hedge funds and derivatives. As a result, institutional investors provide the largest source of latent demand for a diverse set of sustainability assets.

As a group, institutional investors have done more than most to integrate sustainability into their operations, extending a traditional focus on governance to incorporate environmental and social factors. For example, US\$45 trillion in assets now support the UN-backed Principles for Responsible Investment, and US\$24 trillion supporting the 2014 Global Investor Statement on climate change.³⁴ Institutional investors are increasingly working to align their investment portfolios to the long-term interests of pension holders; for example, stating in their Investment Beliefs that they will encourage investee companies to consider the long-term impact of their actions, favour investment strategies

that create long-term, sustainable value and advocate for public policies that promote fair, orderly and effectively regulated capital markets.³⁵

These initiatives indicate the potential for aligning institutional investment management better with long-term investment needs of society, and in many cases already involve a critical mass of investors. However, full alignment of the assets managed by institutional investors with sustainable development remains incomplete. From a policy perspective, closing the gap will involve work in at least three broad policy areas: capital allocation, investor governance and market incentives.

- **Capital Allocation:** Long-term investments into infrastructure (including low carbon infrastructure) should be a good prospect for institutional investors, such as insurers and pension funds, given their liability structure and need for cash flow maturity matching. According to SwissRe in an input to the Inquiry's work, "at this stage, there is a lack of a tradable asset class for institutional investors to easily access (low carbon) infrastructure investments".³⁶ A set of policy reforms could help build an attractive pipeline. Standardizing financial instruments and developing a sizeable project bond market is crucial to attract long-term investors. Another approach is Evergreen Direct Investment, which enables large, perpetual investors to invest through a structure similar to private real estate partnerships.³⁷ Linked to new structures, capital standards could need to be adjusted to remove any unintended discrimination. For instance, under Solvency II, infrastructure loans are subject to the same capital charges as corporate bonds in spite of their more favourable risk characteristics.
- **Investor Governance:** The rules that govern institutional investors—such as fiduciary duty, stewardship, risk management and accountability—still do not effectively incorporate long-term environmental and social related risks. Fiduciary duty remains a case in point: asset managers are not only permitted but in some cases required to take environmental, social and governance issues into account in their investment policy. One notable evolution is the recognition of investment leaders that it is part of their fiduciary duty to support policy change that enables sustainable value creation—a theme highlighted in

a report that the Inquiry has co-authored with the PRI.³⁸ But real and perceived issues about the legitimacy of incorporating sustainability into investment practice remain.³⁹ Beyond fiduciary duty, a range of other mechanisms may be needed to align investment practice with long-term sustainability, including greater transparency of funds to their savers and wider society, for example through the publication of portfolio carbon footprints, both through voluntary action and regulatory requirement.⁴⁰

- **Market Incentives:** Many prevailing benchmarks, metrics and incentives along the investment chain fail to reward sustainable value creation. Market efforts to promote long-term mandates are underway, but are held back by institutional inertia.⁴¹ As a result, coordinated policy intervention could be needed in a number of areas; for example, to ensure that fund manager remuneration is based on long-term performance, that investment bank research discloses the sustainability factors considered by the analyst, and that investment consultants' fee structures are aligned with the long-term performance of the funds they advise.⁴²

CENTRAL BANK BALANCE SHEETS

Central bank balance sheets today are valued at US\$24 trillion—around 8% of financial institution assets—up from US\$10 trillion in 2007.⁴³ The global financial crisis has driven a profound shift in the ways that key central banks operate to manage the price and quantity of money, through ultra-low (sometimes negative) interest rates and the expansion of their balance sheets.⁴⁴

Identifying how central banks' monetary instruments could be further aligned with sustainability is just beginning and is emerging from a bottom-up process of debate and experimentation based on the diverse mandates of central banks, which range from simply achieving price stability through to contributing to wider economic and social objectives.⁴⁵ At the domestic level, the toolkit of measures that could be prudently deployed includes:

- **Refinancing:** Linking the quantity and prices of central bank refinancing operations to long-term sustainability factors (e.g. dedicated credit lines for low-carbon, green investments at discounted interest rates).⁴⁶



- **Liquidity operations:** Updating the definitions of what can be considered as collateral in repurchase agreements to specifically include green assets.
- **Interest rates:** Specifically considering the capital-intensive nature of the green economy when setting interest rate policies.
- **Balance sheet management:** Mainstreaming environmental and social factors in the routine management of assets on central bank balance sheets from a risk and asset allocation perspective (including in pooled asset management services offered by the BIS and World Bank).
- **Quantitative Easing:**⁴⁷ Integrating environmental and social factors into special asset purchase programmes including the purchase of ‘green bonds’. In the Eurozone, proposals have been made for the European Central Bank to purchase EUR1 trillion in new bonds from the EIB to fund infrastructure projects as a way of escaping deflation.⁴⁸
- **Transparency:** Extending central bank reporting on monetary policy to reflect social and environmental impacts and dimensions.⁴⁹

Internationally, proposals continue to be made for the deployment of Special Drawing Rights—the international reserve asset created by the IMF—to finance climate action and sustainable development more broadly, flowing from the IMF’s Article XVIII, which authorizes a new SDR allocation to meet “the long-term global need”.⁵⁰

Many policymakers are rightly cautious about the abuse of monetary policy and the negative consequences of unconventional policies (such as quantitative easing). In this still controversial area, the focus for the Inquiry is on how the core pursuit of price stability and socio-environmental sustainability could best be aligned.

“We are focused on financial inclusion for agriculture, factories and SMEs [...] The Bangladesh Central Bank has made a revolutionary move in becoming developmental in outlook and strategy”

Atiur Rahman,
Governor of the Central Bank of Bangladesh⁵¹

RESILIENCE AND SYSTEMIC RISK

To overcome the ‘tragedy of horizon’, the impacts of future environmental shocks need to be considered and included in today’s asset values and capital allocation decisions. Simply put, we see an ‘environmental stress test’ (EST) as a tool to evaluate the financial impacts of plausible environmental scenarios on assets, portfolios, institutions and financial markets as a whole.⁵² Many parts of the financial system—banks, insurance, pension funds—are used to a scenarios-based approach to stress testing for conventional risk factors.⁵³ The task is now to apply and adapt these approaches for environmental risks such as urban air pollution, natural disasters, water insecurity and climate policy.

The re/insurance sector has the longest standing experience in incorporating environmental factors such as extreme weather events into their annual solvency assessments, testing their resilience against the worst combination of 1 in 200 year events. Importantly, progress has been achieved not through a single measure, but a series of interlinked regulatory metrics, financial regulation and reporting, credit ratings, accounting standards and investor analysis and accountability. A new UN initiative is exploring how to extend this approach in the wider financial system, which could be done through new requirements for key public and private organisations to report their financial exposure to extreme weather and a minimum of 1 in 100 (1%) per year risk.⁵⁴

In the case of exposure to climate policy risk (or so called ‘carbon exposure’), the work to date has included equity analysis of the discounted cash flow (DCF) implications of a low-carbon transition for fossil fuels companies.⁵⁵ Some fossil fuel companies are stress testing their own business models against a 2°C scenario, but as yet have not published the results.⁵⁶

This agenda is at an early stage of evolution. Critical next steps could include the construction of shared scenarios for environmental stress tests and the development of market guidelines for assessing different assets by financial institutions such as banks, insurance companies and pension funds.

3. BUILDING VIABLE PATHWAYS

Turning innovative potential into system-wide change requires the creation of clear pathways to scale. Potential is just that—something that has not happened to date. Barriers are considerable and there are already multiple disruptions impacting today's financial system. In this section, we focus on the challenge of scale and how to identify and deploy effective catalysts.

THE ERA OF SCALE

Our human systems are bigger, more complex and dynamic than we had ever imagined possible. Our US\$75 trillion global economy is financed by US\$305 trillion of financial assets, powered by over 100 terrawatts of energy we use annually.⁵⁷ Scaling rapidly is a feature of the current world. Between 1983 and 2014 mobile phone subscriptions grew from zero to almost 7 billion, and are set to overtake the number of people in the world.⁵⁸ In 2014 the five-year-old instant messaging company Whats App was valued at US\$19 billion, more than Sony. China overtook the US to become the world's largest economy at US\$17.6 trillion, an extraordinary feat achieved in less than half a century.⁵⁹

Barriers to scaling up promising innovations in the financial system are considerable, and include complexity, incumbent interests and fragmented governance.⁶⁰

- *Protection of economic advantage by existing market players and host governments* makes significant change even more difficult, especially given fragmented international governance of the financial system and the potential for regulatory arbitrage.
- **Such concerns, interests and perspectives generally justify an incrementalist approach,** with policy 'nudges' being seen as the best we can do; the optimal intervention under the circumstances. Dramatic change can and does happen, however:
- *Times of crisis* provide an exception to this view and practice, where conventions can be set aside. The response to the financial crisis overturned firmly held conventional beliefs, and was adopted through decisions made by a very small number of people and institutions. It introduced measures such as quantitative easing that were considered warranted despite the expectation of significant, secondary but system-wide consequences, such as asset inflation, rising inequality and currency fluctuations.⁶¹ Another case in point is China's record air pollution, which has catalysed major policy actions backed by major public funds, including in the financial policy area.⁶²
- *Technology* is a major source of disruptive change and may well prove to be the single greatest disruptor to the sector's current configuration. The impacts have the potential to greatly enhance financial inclusion—in at least nine African countries, more people use mobile money services like MPesa and MTN than bank accounts.⁶³ 'Big data' and the 'Internet of everything' give the ability to track activity in the real economy ever more closely, and to link risk assessments and asset allocation decisions to such data algorithmically. Alongside this is the way in which technology has enabled ever shorter-
- *Fear of the unintended consequences of intervening in a highly complex, dynamic financial system* makes us cautious in advancing major changes. Recent measures to enhance financial stability, such as increased capital requirements through Basel III and Solvency II and strengthened mark-to-market valuation, have unintentionally dampened enthusiasm for longer-term, including green investment.



term time horizons in major capital markets, creating profound issues for the integrity and efficiency of capital allocation, for example in high-frequency trading.

Technology and crises are not, however, always successful disruptors. Success depends on regulators being open to innovation—often from outside the financial system, as was the case with mobile banking—as well as being ready to steer financial technology so that it serves the needs of the real economy. The success of bankless transaction systems, for example in Kenya, is in no small part attributable to the willingness of the financial regulators to allow disruptive competition with the existing banking community. This is unlike South Africa, where such systems have made fewer inroads, in large part because of the regulator's stated view that the replication of Kenya's rapid adoption trajectory would threaten the stability of the banking sector.⁶⁴

Great vision, ideas and technological breakthroughs can and do transform our lives, but often unexpectedly, and with unforeseen consequences along the way. Today's bookstores are adorned with books on China's rise and global impact, but few in the 1980s could imagine the implications of Deng Xiaoping's decision to open up China. Nelson Mandela was a local hero long before he guided South Africa through an historic, largely non-violent transformation, and provided an inspiring message of progressive leadership worldwide in pursuit of freedom and development. In commerce, consumer-based self-regulation (scoring experience of everything from entertainment to transport to accommodation) has led to the rapid growth of the sharing economy, which by enabling private assets to be more efficiently used could be a major driver of dematerialised growth.⁶⁵ While the potential for Internet-enabled innovation to disrupt the financial sector have been long heralded, the results are likely to be equally unexpected.

The pathways towards enhanced sustainability have to factor in the multiple disruptions already impacting today's financial system. These disruptions take many forms, including five of particular relevance:

- *Regulatory changes* in the aftermath of the financial crisis are challenging many incum-

bent financial market actors, in some cases threatening their future viability and ability to deliver on their promises to clients, shareholders and policy holders.

- *Technology-enabled innovations*, notably new businesses based on electronic trading, are disintermediating and commoditizing financial services that have to date benefited incumbents, also opening new sources of capital raising, risk assessment, sharing and interest in blended financial and non-financial returns.
- *The 'shadow' financial system* is expanding rapidly, in part as a response to the more stringently regulated parts of the financial system, and partly responding to a broader range of technology-driven opportunities. Now channelling an estimated US\$ 75 trillion, or about one quarter of global financial assets, the sustainability features of this "other" financial system will be of growing importance.
- *Emerging market state champions and financial institutions* with differing world views and interests, promoting new approaches to designing, deploying and governing the financial system that will become more influential internationally through existing or newly-established international institutions and processes.
- *Changing consumer expectations*, by savers and users of finance, through experience of supply chain disintermediation in other sectors, combined with low levels of trust and loyalty to financial system incumbents leading to greater willingness to consider new entrants.

Designing for the future rather than the past and present is therefore the challenge in considering interventions to advance a sustainable financial system. For example:

- *Focusing on banking regulations* may have large opportunity costs—since the time required to change international codes and frameworks must be set against the speed of growth of shadow banking outside of these regulations.

- *Stock exchanges too may become less useful as a pathway for guiding long-term value creation due to their exposure to high frequency trading and the development of parallel ‘dark pools’ for share trading.*
- *Growing importance of emerging market investors, including pension and social security funds, insurance companies, as well as sovereign wealth funds and development banks, may take distinctive approaches to sustainability beyond the fiduciary framework of Anglo-Saxon style institutional investors.*
- *Foreign direct investment from emerging markets is an increasingly important source of project finance for most developing and many developed countries, making rules set by originating country governments and regulators, of considerable importance to the future of development finance.⁶⁶*

Rapid scaling requires the development of viable pathways based on four key features.

These include an articulation of sustainable financial system purpose and performance (e.g. efficiency, effectiveness, resilience); detailed assessment of potential within key asset **pools** (such as banking, bond markets, institutional investors); the design of specific **tools** (such as credit guidelines, risk tools, transparency, new investment structures); and the harnessing of critical **catalysts** for change (such as technology and the rise of emerging economies). These pathways will incorporate the ‘what’ of intervention, as well as the ‘how’, the ‘when’ and ‘by whom’. A diversity of approaches is therefore to be expected, involving a mix of public, private and social drivers of change—and a continuing dynamic between national leadership and international coordination. For example, the role and effectiveness of financial policy and regulation in China today in addressing air pollution will be very different from just one or two years ago. Less developed countries are more dependent on domestic banking and foreign direct investment, reducing the likely effectiveness of, say, transparency of local stock exchanges.

Industry principles, codes and enhanced disclosure have been pathways of choice for many, creating a ‘soft law’ web of sustainability governance. The Equator Principles, focused on enhancing project finance risk assessment is one of the best known—stimulating nationally-tailored approaches in a growing number of countries such as Bangladesh, China and Peru. The United Nations-supported Principles for Responsible Investment (PRI) initiative, created by the UNEP Finance Initiative and the UN Global Compact, is the most extensive case in point.⁶⁷ The Sustainable Stock Exchange (SSE) initiative brings together a growing number of markets, securities regulators and investors to promote better integration of environmental, social and governance factors: 12 of 55 exchanges surveyed in 2014 now require some form of sustainability reporting, while more than one-third of the regulators on the board of the International Organisation of Securities Commission (IOSCO) have a sustainability reporting initiative.⁶⁸ Understanding how these and other transparency initiatives can be truly effective at changing financial behaviour is an emerging priority. The Portfolio Decarbonisation Initiative is seeking to assemble a coalition of investors committed to disclose carbon emission associated with US\$500 billion of investment, coupled with an initial commitment to decarbonize (reduce the carbon intensity) of \$100 billion of assets.⁶⁹

Contrasting with these market-based approaches to improve transparency, policy direction is another path way for channelling capital towards investment with social, economic and, increasingly, environmental goals. The clearest mandate for policy direction lies with publicly owned institutions such as development banks and sovereign wealth funds, which channel both fiscal resources and funds raised through capital markets. The International Development Finance Club (IDFC)⁷⁰, for example, a club of 23 leading development banks, committed US\$99 billion in ‘green finance’ in 2013.⁷¹ A performance record reflecting a long view on risk-adjusted returns and clear policy mandates to accelerate investment in clean technology. Sovereign wealth funds are one of the fastest growing classes of investment institutions, all of which have explicit policy mandates. With over NOK5.5 trillion (US\$0.7 trillion)

MAKING TRANSPARENCY AN EFFECTIVE PATHWAY OF CHANGE

For regulators, transparency provides ‘market discipline’ to encourage the right behaviours in financial institutions. For investors, transparency provides the foundations for accurate asset valuation and accountability to owners. And for society, transparency is essential to assess the contribution that finance is making in the transition to sustainable development. Transparency is a public good—and addresses one of the routine failings in capital markets, the ‘information asymmetries’ that prevail throughout the system.

The disclosure of sustainability factors by financial assets and markets is among the longest standing reform priorities, and now involves an interconnected network of international initiatives, such as the SSE, the International Integrated Reporting Council, the Global Reporting Initiative, and the Carbon Disclosure Standards Board, as well as the Sustainability Accounting Standards Board in the US.

Progress has been made—but there is clearly a long way to go even to achieve adequate disclosure: according to Bloomberg data, 75% of 25,000 surveyed companies do not produce even one data point on sustainability. Data alone, of course, is not sufficient: we know that it was not a raw lack of disclosure that lay behind the recent financial crisis, but a culture of reporting that failed to generate effective transparency over key risks facing both banks and the financial system more broadly.

One clear way of turning disclosure into transparency is to link the agenda around core financial reporting with sustainability; for example, connecting the post-crisis Enhanced Disclosure Task Force for banking with the broader Integrated Reporting initiative. A system’s view can also help. Disclosure initiatives traditionally focus on the supplier of information; a system view would also address the duties of users to use material information. One way of achieving this would be to focus on the duties of key financial intermediaries to evaluate sustainability performance. For example, one proposal has argued that “investment banks should be required to include a view on a company’s performance on corporate governance, corporate sustainability, culture and ethics when they make their Buy, Sell and Hold recommendations”.⁷² Finally, sustainability can go further faster when placed as part of a broader strategy to promote the competitiveness of financial centres. The leading role of emerging market exchanges such as Sao Paulo’s Bovespa and the Johannesburg Stock Exchange can be explained in part by the way in which sustainability attracted flows of foreign institutional capital. Competition amongst major financial centres has been widely benchmarked, with New York, London, Hong Kong and Singapore regularly featured at the top of most lists, such as the Z/Yen Group’s Global Financial Centres Index⁷³ and the World Economic Forum’s Financial Development Index.⁷⁴ Such indexes do not—yet—deal explicitly with the alignment of financial centres to long-term sustainable development.

Norway's Government Pension Fund has a long-standing approach to responsible investment, focusing on ownership and engagement strategies, along with ethical exclusions. NBIM's stance does not make it an instrument for other public policies such as climate change, "beyond what is compatible with its role as a financial investor".⁷⁵

The use of policy-direction for commercial financial institutions is far more regionally focused and remains controversial.⁷⁶ In a paper for an UNEP Inquiry/ Center for International Governance Innovation (CIGI) research symposium, Andrew Sheng has highlighted that emerging nations have tended to be more open to lending to the domestic private sector through government institutions, such as providing seed money for priority sectors, discounting export bills or providing special loans to industrial banks.⁷⁷ In Asia, India, Indonesia, Malaysia, the Philippines, Thailand, and Vietnam all require private banks to undertake priority sector lending, usually for underserved segments of the economy such as SMEs or agriculture, whether through lending quotas or interest rate caps.⁷⁸ Concerns exist, however, about the impact of policy directed lending on loan impairment and thereby on financial stability.

Specifically in the area of 'green finance', Bangladesh has taken a nuanced approach through reduced cost of central bank refinancing. Moreover, in September 2014, the country's central bank announced that every financial institution will be obliged to allocate at least 5% of its loan portfolio to green finance from 2016. Priority sector lending also remains central in India, where 40% of bank loans have to be allocated to policy priorities such as agriculture micro and small enterprises, education, housing and export credit. Off-grid solar is already included within the priority sector norms, but this could be expanded to the renewable sector as a whole.⁷⁹

More broadly, core financial regulations are often adjusted to take account of wider policy concerns, for example to prevent restrictions on trade finance in Basel 3 or support SMEs as in the EU's capital requirements directive. A range of explicit and implicit subsidies to and through the financial sector—from tax relief on mortgage interest payments to access to low cost, refinancing windows—clearly skews the allocation of lending and investments.

Managing the risks of market disruption flowing from environmental stress is a rapidly emerging priority, where pathways have yet to be constructed.

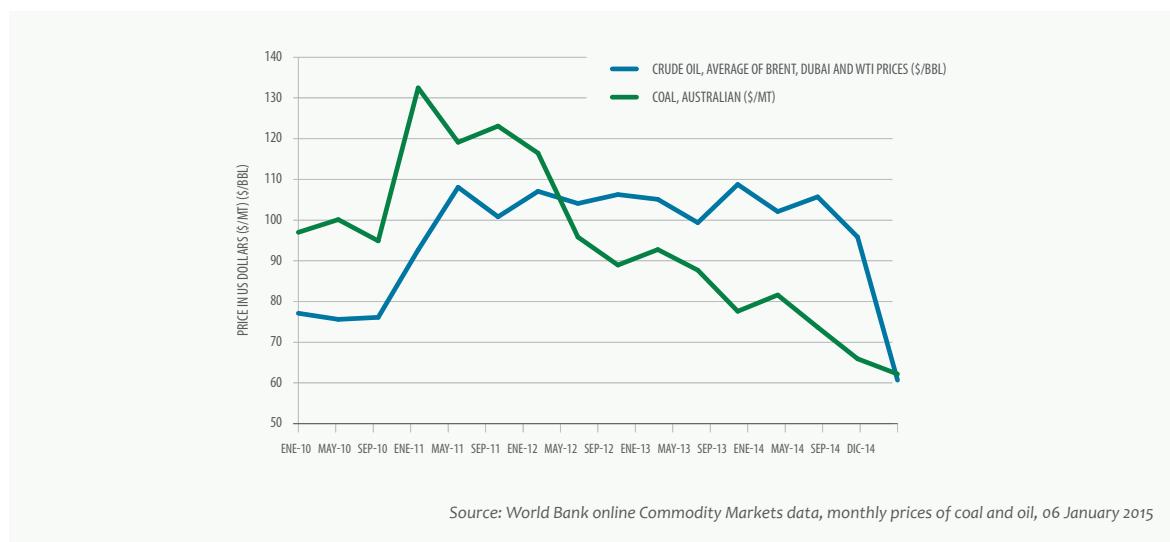
It is increasingly clear that only a small proportion of existing fossil fuel reserves can be commercialized if global environmental goals, such as climate security, are to be realized. According to the latest research published in *Nature*, a third of global oil reserves, half of gas reserves and over 80 per cent of current coal reserves should remain unused from 2010 to 2050 in order to meet the target of 2°C.⁸⁰ This prospect of 'stranded assets' and 'wasted capital' first popularized by the think-tank, Carbon Tracker, has moved to the top of the investment agenda. This has coincided with recent downward price volatility in global commodity markets, notably for oil but also for coal.⁸¹ International prices for coal have fallen by over 50% since the beginning of 2011, while oil prices fell precipitously in 2014, losing more than 40% of their value. Classic cyclical supply and demand factors are at play—but also more structural trends, including sustainability factors, suggesting that prices and thereby asset values may not revert to trend. In the case of coal, these include tighter air pollution regulations in China, the EU and the US, as well as increasing deployment of renewables, improvements in energy efficiency. For oil, improving fuel efficiency is a key component. For example, the US economy has grown by 8.9% since 2007, while demand for finished petroleum products has dropped by 10.5%.⁸²

The challenge for regulators overseeing the stability and efficiency of capital allocation is to minimize disorderly market responses to these shifts, not least by developing tools such as 'environmental stress tests'. One of the factors accelerating this process is the rise of the civil society divestment movement.

International co-operation is a pre-requisite for any successful pathway to scale the alignment of the financial system to sustainable development.

Financial sector policies and regulations are largely national, and in some aspects regional, such as for the Eurozone. Internationally, a small number of institutions shape the core rules for the financial system, generally agreed as 'soft law' and implemented through an evolving system of standards,

FIGURE5: PRICE HISTORY OF OIL AND COAL, JANUARY 2010-DECEMBER 2014



assessment and review.⁸³ Today, these institutions include the G-20 and the Financial Stability Board, the IMF and the World Bank, the Bank of International Settlements and the OECD, as well as specialist bodies such as IOSCO for securities. At the

global level, the FSB has nominated 14 standards that it views as key for sound financial systems and deserving of priority implementation in the areas of macroeconomic policy and data transparency, financial regulation and supervision, as well as



DIVESTMENT AS A CATALYST FOR CHANGE

Mirroring the historic use of divestment as part of the wider economic sanctions against apartheid South Africa, civil society organisations such as 350.org go are calling on institutions to completely sell their holdings in fossil fuel companies. Divestment is a tool that fuses societal and financial objectives—on the one hand, an advocacy tool to focus attention on investment flows and reduce the reputational capital of controversial assets and on the other also reducing exposure to assets which face risks of impairment in the face of future policy changes. The movement has been energised by recent decisions by the likes of Stanford University⁸⁴ and more recently the Rockefeller Brothers Fund.⁸⁵

Leading investors such as Al Gore and David Blood of Generation Investment Management, as well KLP in Norway, have pointed out that ethical pressures to disinvest can also be consistent with financial duties because of changing economic fundamentals.⁸⁶ These include the rapid growth of renewables and shale gas, as well as the increased will of major coal users, notably China, to price pollution and fast-forward peak use to cut air pollution, water use and carbon emissions. While the number of investors who have divested assets remains at the margin, the movement has acted as a catalyst for change, prompting major asset owners to scale up their efforts. The Carbon Asset Risk Initiative (US\$3 trillion of assets), for example, seeks to use the financial voice of major institutional investors to drive best risk management by corporations.

CHINA ADVANCES GREEN FINANCE

National experimentation can trigger similar actions elsewhere. China's Green Credit Guidelines⁸⁷, for example, led to the creation of the Sustainable Banking Network, an informal learning network of central banks supported by the International Finance Corporation focused on green finance innovations.⁸⁸ Another wave of green financial innovation is underway in China, with a number of initiatives including:

- *The Peoples Bank of China* has joined with⁸⁹ the UNEP Inquiry in convening a high-level Green Finance Task Force mandated to develop and encourage the implementation of wide ranging measures in the financial markets to advance green finance.
- *The Development Research Centre of the State Council* has partnered with the International Institute of Sustainable Development in association with the UNEP Inquiry to explore the potential for financial policies, regulations and standards for green finance.
- *The China Council for International Co-operation on Environment and Development*, under the leadership of the Ministry of Environmental Protection and co-Chaired by UNEP's Executive Director, has established a year-long investigation of green finance needs and opportunities, with active involvement of UNEP Inquiry.

institutional and market infrastructure. Implementation is then driven at the national level with peer review and assessment internationally, through mechanisms such as the Financial Sector Assessment Programme⁹⁰ overseen by the IMF and the World Bank. Financial inclusion is an increasingly important feature of these international norms, although environmental sustainability factors do not yet feature explicitly.

Emerging nations are increasingly championing the alignment of sustainable development and the financial system, which could stimulate movement at the international level. A diversity of factors are in play. In China, the imperative of

'greening the financial system' has been catalysed by the nation's extensive air, water and soil pollution. In Brazil, the focus of the central bank has been on the financial stability implications of environmental degradation and the potential liability of banks for damage. Indonesia's central bank and financial regulator have developed sustainability principles, road maps and its stock exchange now deploys a green index. South Africa has introduced a package of principles, codes and transparency requirements for its banks, stock exchanges, pension funds and major non-financial companies,⁹¹ as well as advancing a sector-wide Financial Charter that has established a carefully negotiated agreement on financial inclusion.⁹²

4. MEASURING PERFORMANCE IN A SUSTAINABLE FINANCIAL SYSTEM

Over the past five years, considerable effort has been expended in building metrics and data sets that enable policy makers to assess the performance of the financial system. The World Bank, for example, through its Global Financial Development database has collated data across four dimensions of financial institutions and markets: (a) the size of financial institutions and markets (financial depth); (b) the degree to which individuals can and do use financial institutions and markets (access); (c) the efficiency of financial institutions and markets in providing financial services (efficiency); and (d) the stability of financial institutions and markets (stability). Importantly, these dimensions are often independent: “deep financial systems do not necessarily provide high degrees of financial access; highly efficient financial systems are not necessarily more stable than the less efficient ones, and so on”.⁹³

Following the crisis, intense focus has been placed on better understanding the delivery of core objectives in the financial system—as well as new imperatives. Efficient intermediation is a classic case. According to Thomas Philippon, the cost of financial intermediation has ranged between 1.5% and 2% in the US, with “the unit cost of intermediation about as high today as it was at the turn of the 20th century”.⁹⁴ In spite of enormous advances in information technologies, financial efficiency has struggled to improve. At a time of fiscal constraints in many parts of the world, the efficiency with which the financial system uses any public incentives or subsidies is also critical. For the World Bank, a key principle of good financial regulation is ‘to better align private incentives with public interest, without taxing or subsidizing private risk taking’.⁹⁵ Currently, financial subsidies come in many forms and apply

to many different participants, for example, ranging from tax relief for individual pension saving to institutional support for ‘too important to fail’ banks.⁹⁶ To date, however, there is no overall assessment of the scale of subsidies that operate through the financial system or their relationship to sustainable development.

As well as examining how classic performance dimensions such as efficiency need to be reviewed, the Inquiry’s research and engagement has uncovered demand for a complementary set of performance metrics to better understand different dimensions of financial system sustainability.

1 Effectiveness – If the underlying purpose of the financial system is to support the long-term health of the real economy, then it is important to disaggregate flows. However, “publicly available financial information does not currently provide a clear distinction between bank activities in the real, as contrasted with the financial, economy”.⁹⁷ Existing data sets can be used to provide proxy indicators. For example, the Global Alliance for Banking on Values uses the relationship between a bank’s total lending to its total assets as one measure of its real economy focus although this does not assess the extent to which lending is investment to create new productive assets or acquisition of existing stock such as housing.⁹⁸ Beyond this, further analysis could then be required to identify allocations to existing rather than new assets (e.g. loans to purchase existing housing stock), as well as the inclusivity of the system, drawing on the extensive existing work on access to finance (including small and medium sized enterprises).

Measuring a financial system's contribution to sustainable development means understanding not just quantity (depth), but also investment in particular areas (allocation). At present, however, there is a lack of data and metrics for critical sustainable finance variables particularly in terms of private flows. Even in the well-established arena of climate finance, there are no common definitions, with the result that attention focuses on the most easily measured (e.g. renewables; public funds) rather than necessarily the most significant (e.g. adaptation and energy efficiency; capital markets).^{99 100} In its work to evaluate the sustainability of Brazil's financial system, the Inquiry's partners Febraban & FGV have identified two key categories: funds screened according to socio-environmental procedures and financial allocations to specific priority sectors and themes, recommending the "development of an international baseline with standardized and comparable methods, to estimate the current level of global resource allocation to the green economy".¹⁰¹

Upon these foundations, policymakers can then assess the gap in funding for delivering sustainable development from a strong baseline. Beyond this, further work will be needed to evaluate specific issues such as a financial system's functioning in terms of technology development and start up financing, clearly key to any transition to a sustainable economy.

- 2 **Efficiency** – Increasing attention is being focused on the costs of the financial system. According to Thomas Philippon, the cost of financial intermediation has ranged between 1.5% and 2% in the US, with "the unit cost of intermediation about as high today as it was at the turn of the 20th century".¹⁰² In spite of

enormous advances in information technologies, financial system efficiency has struggled to improve. At a time of fiscal constraints in many parts of the world, the efficiency with which the financial system uses any public incentives or subsidies is also critical. For the World Bank, a key principle of good financial regulation is 'to better align private incentives with public interest, without taxing or subsidizing private risk taking'.¹⁰³ Currently, financial subsidies come in many forms and apply to many different participants, for example, ranging from tax relief for individual pension saving to institutional support for 'too important to fail' banks.¹⁰⁴ To date, however, there is no overall assessment of the scale of subsidies that operate through the financial system or their relationship to sustainable development.

- 3 **Resilience** – An extensive set of metrics now exists to monitor the stability of the financial system at the domestic and international levels. But the focus is relatively short-term and addressed to classic financial factors rather than wider sustainability. Key factors to monitor would be exposure of assets, institutions and markets to a variety of environmentally-related shocks, including natural disasters, climate impacts, resource stress, regulatory change, technological shifts and changing social expectations. As we have seen environmental stress testing is in its infancy in terms of method, data availability, and policy and regulatory response. A particular need is for a measure of environmental stress to be added to the balance sheets of systemically important financial institutions, and to capture the potential impact of highly correlated environmentally-related events on the stability and ultimately the solvency of defined parts of the financial system.

5. 2015 – A YEAR OF CONVERGENCE

2015 offers an opportunity to bring together the historically separate agendas of financial reform and sustainable development. Within the UN system, critical policy milestones include the world disaster risk reduction conference (Sendai, March), the Financing for Development conference (Addis Ababa, July), the finalization of the new Sustainable Development Goals (New York, September) and the completion of a new global agreement on climate change (Paris, December). Alongside this are the forthcoming summits of the G-7 (Elmau, June) and the G-20 (Antalya, November).

The asset pools, tools and catalysts profiled in this report suggest some of the new and emerging ways of closing the asset and investment gap. Considerable further work is needed to expand and evaluate the initial design options presented in this report. The continued rapid growth in ‘green bonds’ is not guaranteed, for example. But smart policy work now could ensure greater volumes of debt finance for the green economy at lower cost. Likewise, the extension of international banking standards to incorporate sustainability factors may have seemed unlikely just a year ago, but growing practice at the national level suggests that articulation of shared frameworks at the international level is a pragmatic option.¹⁰⁵

The Inquiry has now completed its first year of operation—and in 2015 will finalize its work programme. With its partners, it will:

- Hold its last round of new convenings in Colombia, Kenya, Indonesia and Switzerland, and complete its country programme in Bangladesh, Brazil, China, the EU, India, South Africa and the US.
- Complete a range of thematic and sectoral research projects and consultations on issues such as credit ratings, environmental stress testing, fiscal policy, human rights, insurance, institutional investment and social banking.
- Engage with international institutions and initiatives to explore potential pathways for its results; and
- Produce its final report, along with supporting national and thematic reports. The final report containing policy options for advancing a sustainable financial system will be presented in October 2015.

As always, it welcomes comments and inputs to its work programme.

What unites these efforts is the recognition that the task of financing sustainable development is complex, urgent and unprecedented in scale. For example, UN Secretary-General Ban-ki Moon has now presented his synthesis report on the Sustainable Development Goals (SDGs), which makes clear that “urgent action is needed to mobilize, redirect, and unlock the transformative power of trillions of dollars of private resources to deliver on sustainable development objectives”.



MOBILISING THE FINANCIAL SYSTEM ON THE ‘ROAD TO DIGNITY’

The UN Secretary-General’s synthesis report on the Sustainable Development Goals report builds on the earlier report of the Intergovernmental Committee of Experts on Sustainable Development Financing, which sets out more than 100 options for policymakers.¹⁰⁶ One critical barrier to overcome is “the policy incoherence between current modes of international governance in matters of trade, finance, and investment on the one hand, and our norms and standards for labour, the environment, human rights, equality, and sustainability on the other”.

Policy alignment is thus critical to ensure that “the regulatory frameworks, incentives and risk-return profiles that enable private investments and business models” serve the SDGs. The design of measures to achieve financial stability now also “needs to take into account their impact on financial inclusion and incentives for investment in sustainable development”. Inclusion and integrity are critical compass points for this new financial system: ensuring equal access for all to financial services, as well as curbing illicit financial flows. Across financial markets, incentives also must be “be retooled to attract investments and reinforce sustainable development”. Deeper integration is required so investment policies are in line with the UN Guiding Principles on Business and Human Rights, core labour standards and environmental standards.

Fundamentally, a sustainable financial system is focused on raising new and additional resources, as well as reallocating existing flows. Long-term investments, including foreign direct investment (FDI), are needed in critical sectors, especially in developing countries. Policies are also required to encourage responsible and accountable investment of private finance in sustainable development. Transparency is essential, with the synthesis report underlining the importance of requiring companies to undertake mandatory economic, environmental, social and governance reporting.

Critically, there has to be a proper balance between “investor preferences with the needs of the people in countries in which they operate”. One way of achieving this, according to the synthesis report, is for all countries “to adopt their own national sustainable development financing strategies”. These need to strengthen the domestic policy, legal and institutional environment and build the necessary policy alignment for sustainable development.



APPENDIX – ABOUT THE INQUIRY

The Inquiry into the Design of a Sustainable Financial System aims to advance policy options that would improve financial system's effectiveness in mobilizing capital towards a green and inclusive economy—in other words, sustainable development.

The Inquiry's approach is to crystallize relevant experience into a coherent framework to support action by those responsible for setting the rules governing the financial system. This includes central banks, financial regulators, finance ministries and financial market standard setters, such as accounting standards, credit rating and indexes and voluntary initiatives.

The Inquiry was launched in January 2014 and is running over two years. Its programme includes intensive research and engagement at the country level.

The Inquiry works with and through a growing network of partners in the public, private and civil society sectors.

THREE CORE QUESTIONS

Why and under what circumstances should the rules governing the financial system be deployed in pursuit of sustainable development outcomes ?

What rules governing the financial system have been, or could be, deployed for achieving sustainable development ?

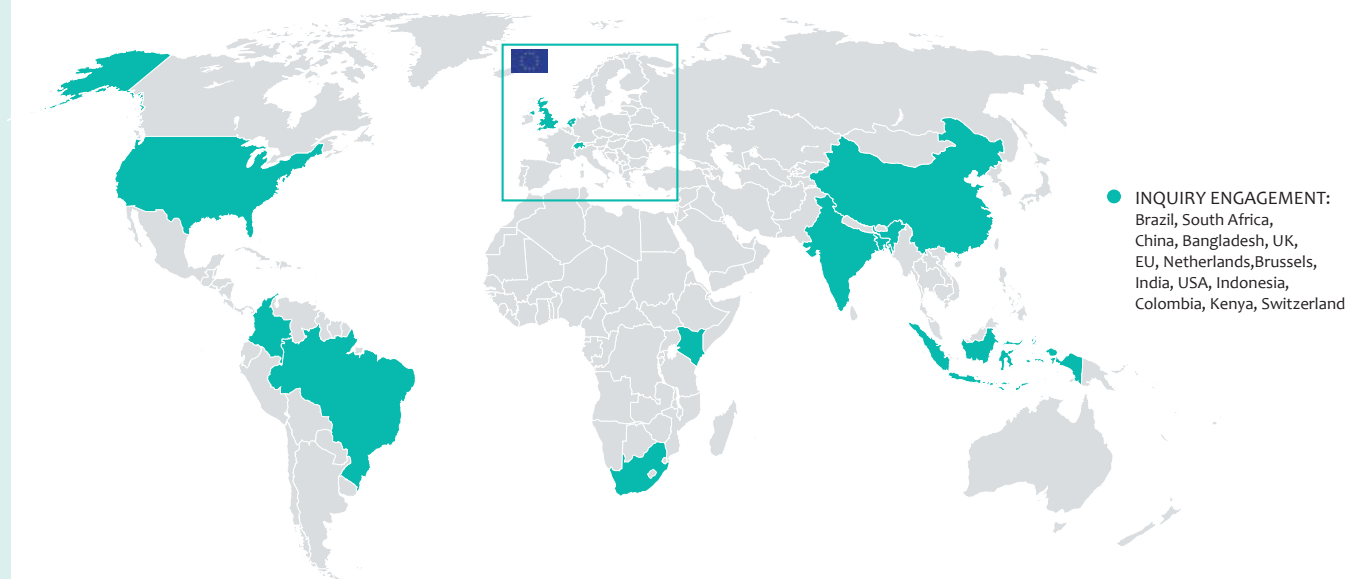
How can rules be most effectively deployed for sustainable development, given the complexities and competitiveness concerns of financial actors ?

The Inquiry's Advisory Council oversees its activities and champions many aspects of its work. The Advisory Council comprises leading financial system experts, policy makers and regulators, and practitioners from around the world. Several country engagements are being championed by specific members, notably in Bangladesh, Brazil, India, South Africa, Uganda, Europe and the US.

THE INQUIRY'S EMERGING KNOWLEDGE NETWORKS



THE INQUIRY'S COUNTRY ENGAGEMENTS



ADVISORY COUNCIL



KATHY BARDSWICK
CEO, THE COOPERATORS
GROUP, CANADA



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



NAINA KIDWAI
GROUP GENERAL MANAGER & COUNTRY
HEAD, HSBC
INDIA



JEAN-PIERRE LANDAU
FORMER DEPUTY GOVERNOR,
BANQUE DE FRANCE



MARIA KIWANUKA
MINISTER OF FINANCE,
GOVERNMENT OF UGANDA



RACHEL KYTE
GROUP VICE PRESIDENT,
WORLD BANK



JOHN LIPSKY
FORMER DEPUTY MANAGING
DIRECTOR, IMF



DAVID PITT-WATSON
CO-CHAIR UNEPFI



MURILO PORTUGAL
PRESIDENT, BRAZILIAN BANKERS
FEDERATION



NICKY NEWTON-KING
CHIEF EXECUTIVE,
JOHANNESBURG STOCK EXCHANGE



BRUNO OBERLE
STATE SECRETARY AND
DIRECTOR OF FOEN



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

END NOTES

- 1 FSB (2014), *Global Shadow Banking Monitoring Report*, Basel: FSB; see also IMF (2014) *Global Financial Stability Report*, Washington: FSB.
- 2 World Economic Forum (2013). *Strategic Infrastructure Steps to Prepare and Accelerate Public-Private Partnerships*. Geneva: WEF.
- 3 Group of Thirty (2013). *Long Term Finance and Economic Growth, Twelfth Report of Session 2013-14. Volume 1*. Washington D.C.: G30 Consultative Group on International and Monetary Affairs.
- 4 UNCTAD (2014). *World Investment Report 2014 - Investing in SDGs*. Geneva: UNCTAD
- 5 UN (2014). *The Road to Dignity by 2030: Synthesis Report of the Secretary-General On the Post-2015 Agenda*. New York: UN.
- 6 G20 (2014). *Brisbane Action Plan*.
- 7 G20 (2014). *Energy Efficiency Action Plan*.
- 8 European Commission (2014). *An Investment Plan for Europe*. Brussels: European Commission. See also Factsheet, *Where will the money go?*
- 9 <http://investorsonclimatechange.org/>
- 10 <http://lexicon.ft.com/Term?term=real-economy>
- 11 For example see Eppstein, G (2002) *Financialization, Rentier Interests, and Central Bank Policy*, Amherst: University of Massachusetts
- 12 FSB (2014). *Global Shadow Banking Monitoring Report*, Basel: FSB; see also IMF (2014). *Global Financial Stability Report*. Washington: IMF.
- 13 Sheng, Andrew (2015, forthcoming) *Should Central Bankers Engage in Social Impact Investing*, Discussion paper prepared for a UNEP Inquiry/Center for International Governance Innovation Academic Symposium in Waterloo Ontario, 2-4 December 2014
- 14 Greenwood, R and D. Scharfstein (2012) *The Growth of Modern Finance*. Harvard Business School and NBER.
- 15 UNEP/UNU-IHDP (2014) *Inclusive Wealth Report 2014*. Cambridge University Press.
- 16 UNEP (2014). *The Emissions Gap Report 2014*. Nairobi: UNEP.
- 17 Caruana, J. (2010). *Systemic risk: how to deal with it?* Basel: Bank for International Settlements.
- 18 Financial Stability Board (2014). *Financial reforms: completing the job and looking ahead*. Basel: Financial Stability Board.
- 19 Trucost (2013) *Natural Capital at Risk: the Top 100 externalities of business*. Amsterdam: Natural Capital Coalition.
- 20 <http://investorsonclimatechange.org/>
- 21 See Schydrowsky, D. and R. Thompson (2014). *Reducing the Financial Risk of Social Conflict in Americas*. Americas Quarterly, Spring 2014. NY: Americas Society and Council of the Americas
- 22 Carney, M. (2014). *Letter to the Chair of the Environmental Audit Committee*. London: Bank of England. <http://www.parliament.uk/documents/commons-committees/environmental-audit/Letter-from-Mark-Carney-on-Stranded-Assets.pdf>
- 23 Brown C., R. Meeks, Y. Ghile, and K. Hunu (2013). *Research article: Is water security necessary? An empirical analysis of the effects of climate hazards on national-level economic growth*. In *Philosophical Transactions A on Water Security, Risk and Society*. London: Royal Society Publishing.
- 24 Robins, N. and R. R. Choudhury (2014). *Building a Financial System to Serve India's Development Needs*. New Delhi: FICCI & UNEP.
- 25 FSB (2014). *Global Shadow Banking Monitoring Report*. Basel: FSB.
- 26 BACEN (2014). *Resolution 4.327 of 24/4/2015*. Brasilia: Bacen.
- 27 Alexander, K. (2014). *Stability and Sustainability in Banking Reform*. Cambridge: Institute for Sustainability Leadership.
- 28 See Enhanced Disclosure Task Force (2012). *Improving the Risk Disclosures of Banks and EDTF (2014). 2014 Progress Report*. Basel: Financial Stability Board.
- 29 UNEPFI/Global Footprint Network (2012) *A New Angle on Sovereign Credit Risk: E-RISC: Environmental Risk Integration in Sovereign Credit Analysis*. Geneva: UNEP.
- 30 See, for example discussion in SandP (2014). *Climate Change: Business Can Pay Now – or Pay More Later*. Credit Week, September 24. NY: SandP.
- 31 UNEPFI (2012) *A New Angle on Sovereign Credit Risk E-RISC: Environmental Risk Integration in Sovereign Credit Analysis*. Geneva: UNEP
- 32 Boule, B., S. Kidney and P. Oliver (2014) *State of the Climate Bonds Market 2014*. London: Climate Bonds Initiative.
- 33 OECD (2014). *Pension Markets in Focus*, Paris: OECD. This is divided as follows: US\$35 trillion coming from investment funds, US\$26 trillion from insurance companies, US\$25 trillion from pension funds, US\$5 trillion from public pension reserve funds and US\$2 trillion from other investors
- 34 <http://www.iigcc.org/publications/publication/2014-global-investor-statement-on-climate-change>
- 35 CalPERS (2014). *CalPERS Beliefs: Thought Leadership for Generations to Come*. Sacramento: CalPERS.
- 36 SwissRe (2014) *Response to the UNEP Inquiry on the Design of a Sustainable Financial System*
- 37 Aterian Chang, S. (2013) *Evergreen Direct Investing Field Guide*. Greenwich: Capital Institute.
- 38 Sullivan, R., W. Martindale, N. Robins and H. Winch (2014). *The Case for Investor Engagement in Public Policy*. Geneva: UNEPRI and UNEP Inquiry
- 39 Asset Management Working Group (2009) *Fiduciary Responsibility: Legal and practical aspects of integrating environmental, social and governance issues into institutional investment*. Geneva: UNEP.
- 40 See Portfolio Decarbonisation Coalition <http://unepfi.org/pdc> and Montreal Carbon Pledge <http://www.unpri.org/whatsnew/investors-take-montreal-carbon-pledge-to-footprint-portfolios/>
- 41 UNEP PRI (2014). *Long Term Mandates: A Discussion Paper*. Geneva: UNEP.
- 42 Aviva (2014). *Sustainable Capital Markets Union Manifesto*. Aviva: London.
- 43 FSB (2014) op cit
- 44 See also, Benes, J. and M. Kumhof (2012). *The Chicago Plan Revisited*. IMF Working Paper. Washington DC: IMF and Werner, R. (2012). *Implications of the Quantity Theory of Credit for the prevention and resolution of banking and debt crises*. *International Review of Financial Analysis* 25.
- 45 See Barkawi, A. and Monnin, P. (2015 – Forthcoming) *Monetary Policy and Sustainability – the Case of Bangladesh*. Geneva : UNEP Inquiry ; Monnin, P. and A. Barkawi (2015-Forthcoming) *Monetary Policy and Green Finance – Exploring the Links*. Geneva : IISD and December 2014 Ferron, C. and J. Morel (2014). *Smart Unconventional Monetary (SUMO) Policy*. Climate Report No. 46. Paris: CDC Climat Research.
- 46 Hourcade, J.C., M. Aglietta and B. Perrissin-Fabert (2014). *A Climate Remediation Asset device*. Paris: CIRED
- 47 Lyonnet, V. and R. Werner (2012). *Lessons from the Bank of England on 'quantitative easing' and other 'unconventional' monetary policies*, in special issue: *Banking and the Economy*, *International Review of Financial Analysis*, 25, 94-105.
- 48 Benink, H. and W. Boonstra (2014). *How Europe could escape deflation*. Commentary: Fri 19 Dec 2014. London: Official Monetary and Financial Institutions Forum.
- 49 Monnin, P. (2014). *Monetary Policy and Income Inequality*. September 3rd 2014. Global Economic Symposium. <http://blog.global-economic-symposium.org/monetary-policy-and-income-inequality/>
- 50 See Bredenkamp, H. and C. Pattillo (2010). *Financing the Response to Climate Change*. Washington DC: IMF; World Future Council (2012). *Breaking the Climate Finance Deadlock*; and Carin, B. (2013). *The IMF and Climate Change*. Waterloo: Center for International Governance Innovation.

- 51 Rahman, A. (2015) Bangladesh's Inclusive Central Bank. <http://blogs.worldbank.org/jobs/bangladesh-s-inclusive-central-bank>
- 52 2 Degrees Investing Initiative (2014). Carbon Risk for Financial Institutions: A Perspective on Stress Testing. Paris: 2 Degrees Investing Initiative.
- 53 Oliver Wyman (2014). The Challenges Ahead: The state of the financial services industry 2014. NY: Oliver Wyman.
- 54 The 1 in 100 Initiative (2014). Integrating Risks into the Financial System: The 1-in-100 Initiative Action Statement. <http://www.un.org/climatechange/summit/wp-content/uploads/sites/2/2014/09/RESILIENCE-1-in-100-initiative.pdf>
- 55 See Robins, N. and A. Keen (2012). Coal and Carbon: Stranded Assets – Assessing the Risk. London: HSBC Global Research and Lewis, M. (2014). Stranded assets, fossilized revenues, Paris: Kepler Chevreux.
- 56 See Sussmans, L. (2014). Recognising Risk, Perpetuating Uncertainty: a baseline survey of climate disclosures by fossil fuel companies. London: Carbon Tracker Initiative.
- 57 IEA (2014). Key World Energy Statistics. Paris: IEA.
- 58 ITU (2013). The World in 2013. Geneva: ITU.
- 59 FT (2014). The Year in Numbers. 30th December 2014, Financial Times.
- 60 Sheng, A. (2015, forthcoming). op cit.
- 61 MacIntosh, S. (2015, forthcoming) Making the Jump: How Crises Affect Policy Consensus and Can Trigger Paradigm Shifts, discussion paper prepared for UNEP Inquiry/Center for International Governance Innovation Symposium, held in Waterloo, Ontario in December 2014.
- 62 International Science Times (2013). Airpocalypse In China Kills 1.2 Million: Record Air Pollution Cause Beijing State of Emergency. April 2 2013.
- 63 Bhan, N. (2014). Mobile Money Is Driving Africa's Cashless Future, Harvard Business Review, September 19, 2014
- 64 Hawkins, P. (2015, forthcoming). Design Options for a Sustainable Financial Sector: Lessons from Inclusive Banking Experiments, discussion paper prepared for UNEP Inquiry/Center for International Governance Innovation Symposium, held in Waterloo, Ontario in December 2014
- 65 The Economist (2013). The Rise of the Sharing Economy. March 9th 2013.
- 66 Zadek, S. and C. Flynn (2013) South-South Originating Green Finance: Exploring the Potential. Geneva: International Finance Dialogues.
- 67 <http://www.unpri.org/about-pri/about-pri/>
- 68 Sustainable Stock Exchanges Initiative (2014). Report on Progress. Geneva: UNEP/ GRI/UNCTAD
- 69 Portfolio Decarbonisation Initiative (2014). Mobilizing financial markets to catalyze economic decarbonization. Geneva: UNEP.
- 70 <https://www.idfc.org/>
- 71 International Development Finance Club (2014). IDFC Green Mapping for 2013. Frankfurt: IDFC.
- 72 Aviva (2014). Sustainable Capital Markets Union Manifesto. Aviva: London.
- 73 Yeandle, M, N. Danev and M. Mainelli (2014). Global Financial Centres Index 15. London: Z/Yen Group
- 74 WEF (2012). The Financial Development Report. Geneva: WEF.
- 75 Skancke, M., E. Dimson, M. Hoel, M. Kettis, G. Nystuen and L. Starks (2014) Fossil- Fuel Investments in the Norwegian Government Pension Fund Global: addressing climate issues through exclusion and active ownership. Report by the Expert Group appointed by the Norwegian Ministry of Finance.
- 76 World Bank (2013) Rethinking the Role of the State in Finance, Global Financial Development Report. Washington DC: World Bank.
- 77 Sheng, Andrew (2015, forthcoming) op cit
- 78 Creehan, S. (2014). Priority sector lending in Asia. Federal Reserve Bank of San Francisco.
- 79 Robins, N. and Choudhury, R. (2014). Building a Sustainable Financial System to Serve India's Development Needs: Executive Briefing. New Delhi: UNEP Inquiry and FICCI.
- 80 McGlade, C. and Ekins, P. (2014). The geographical distribution of fossil fuels unused when limiting global warming to 2 °C, Nature, 517, 187–190.
- 81 Carbon Tracker (2013). Unburnable Carbon 2013: Wasted Capital and Stranded Assets. London: Carbon Tracker/LSE.
- 82 BNEF (2014). Press Release Oil Price Plunge and Clean Energy: the real impact. DEC 22, 2014 billion
- 83 Spencer, T. and E. Hipwell (2013) Coordinating, Mandating, Monitoring: What Can the Post-2015 Climate Regime Learn from Financial Governance. Carbon and Climate Law Review - Issue: 4/2013.
- 84 Mufson, S. (2014). Stanford becomes the most prominent university yet to divest from coal. Washington Post. May 6th 2014.
- 85 <http://gofossilfree.org/commitments/>
- 86 Gore, A. and D. Blood (2014). Strong Economic Case for Coal Divestment. Financial Times, August 6th 2014.
- 87 Zhang, C., and S. Zadek (editors) (2015, forthcoming) Greening China's Financial System. Beijing: Development Research Centre of the State Council and International Institute for Sustainable Development.
- 88 Sustainable Banking Network (2014) Sustainable Banking Network Brochure. Washington DC: IFC.
- 89 China Green Finance Task Force (2015, forthcoming) Green Finance in China. Report of the Green Finance Task Force, Co-Convened by the Peoples Bank of China and the UNEP Inquiry into the Design of a Sustainable Financial System.
- 90 IMF (2014) The Financial Sector Assessment Program, Factsheet. Washington DC: IMF.
- 91 Goldstuck, A., S. Zadek and S. Naidoo (2015, forthcoming). South Africa, Sustainability and Finance, Global Green Growth Institute and the UNEP Inquiry, Pretoria.
- 92 The Banking Association of South Africa (2014) FSC Journey: The process followed by the financial sector in drafting the 2004 Financial Sector Charter, and the lessons learnt. Pretoria: BASA.
- 93 Čihák, M., A. Demirgüç-Kunt, E. Feyen and R. Levine (2012). Benchmarking Financial Systems around the World. World Bank Research Paper 6175, August 2012. Washington DC: World Bank.
- 94 Philippon, T. (2014). Has the U.S. Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation. American Economic Review, updated September 2014.
- 95 World Bank (2013). Rethinking the Role of the State in Finance, Global Financial Development Report. Washington DC: World Bank.
- 96 See IMF (2014). Global Financial Stability Report, April 2014, Chapter 3. Washington DC: IMF.
- 97 Global Alliance for Banking on Values (2014). Real Economy – Real Returns: The Business Case for Sustainability Focused Banking. Zeist: GABV.
- 98 Global Alliance for Banking on Values (2014) op cit.
- 99 UNFCCC (2014). Summary and recommendations by the Standing Committee on Finance on the 2014 biennial assessment and overview of climate finance. Bonn: UNFCCC.
- 100 B. Buchner, B., M. Stadelmann, J. Wilkinson, F. Mazza, A. Rosenberg, D. Abramskiesh (2014). The Global Landscape of Climate Finance. San Francisco: Climate Policy Institute.
- 101 Center for Sustainability Studies at Getulio Vargas Foundation (2014). The Brazilian Financial System and the Green Economy, draft report prepared for Febraban and UNEP Inquiry.
- 102 Philippon, T. (2014). Has the U.S. Finance Industry Become Less Efficient? On the Theory and Measurement of Financial Intermediation. American Economic Review, updated September 2014
- 103 World Bank (2013). Rethinking the Role of the State in Finance, Global Financial Development Report. Washington DC: World Bank.
- 104 See IMF (2014). Global Financial Stability Report, April 2014, Chapter 3. Washington DC: IMF.
- 105 UN (2014). The Road to Dignity by 2030: Synthesis Report of the Secretary-General On the Post-2015 Agenda, New York: UN.
- 106 ICESDF (2014). Report of the Report of the Intergovernmental Committee of Experts on Sustainable Development Financing. New York: UN.



ALIGNING

THE FINANCIAL
SYSTEM WITH
SUSTAINABLE
DEVELOPMENT

Pathways to Scale



Inquiry: Design of a Sustainable Financial System

International Environment House
Chemin des Anémones 11-13
Geneva,
Switzerland

Tel.: +41 (0) 229178995

Email: inquiry@unep.org - Twitter: @FinInquiry

Website: www.unep.org/inquiry/