

MEASURING PERFORMANCE: KEY MESSAGES

Momentum is clearly observable across the financial system. A deeper question is how this is influencing the efficiency, effectiveness or resilience of financial systems in light of sustainable development.

- There is growing recognition of the importance of measuring performance, but existing data is fragmented, incomplete and does not allow for effective evaluation within or between countries.
- UN Environment has developed an early stage framework focused on three performance characteristics: the rules architecture, market behaviour and financial flows.
- A set of 21 best-in-class indicators have been identified for the overall system, banking, bond markets, equity markets, institutional investment and insurance, which were then used to compare 20 developing, emerging and developed economies.
- From the current phase of the work, a number of initial insights can be drawn:
 - A small number of emerging, developing and developed countries are playing a critical leadership role in evolving the frameworks of overall system governance. Emerging economies as a whole appear to be marginally in the vanguard.
 - The linkages between the rules architecture, market behaviour and financial flows cannot be made quantitatively at this stage. For example, the quality of sustainability disclosure on stock exchanges is only partly determined by prevailing disclosure rules.
 - Measurement of flows of green finance can benefit from examining both absolute amounts and by placing these in country contexts to understand the relative effort being made. For example, among the 20 countries considered, the US and France lead in the absolute dollar value of green bond issuance over the past three years, while it is France and Germany that lead in terms of green bond as a proportion of total bond issuance.
- UN Environment will build on these initial findings and further enhance the indicator set and associated analytics to capture a broader spectrum of investment flows, explore measurements focused on resilience as well as fintech developments.
- Future iterations also need to extend the range of involved institutions to include key international financial organizations.

3. MEASURING PERFORMANCE²²⁰

3.1. THE NEED TO MEASURE PERFORMANCE

There is growing recognition that progress towards aligning the financial system with sustainable development must be measured. The positive momentum means that there are now many initiatives under way. Making sense of the comparative and absolute value of these activities is rapidly becoming a priority. During 2016, several measurement-focused initiatives were launched, including private initiatives,^{221,222} country-level initiatives,^{223,224,225} and international work such as the G20's Green Finance Study Group²²⁶ and other international organizations.²²⁷ Such initiatives are of critical importance, particularly those focused on building consistent, comprehensive data sets such as the G20-related work taken forward by the World Bank and others.²²⁸

The UNEP Inquiry also advanced further work during 2016 in exploring how best to establish a consistent basis for specifically measuring progress in aligning the overall financial system with sustainable development outcomes, and to map out how this basis can be improved over time. The objective of this work has been to add value by:

- Providing a map of the financial system dynamics that we need.
- Enabling country, and financial centre, progress to be measured.
- Highlighting areas for market and policy, and regulatory action to improve performance.
- Identifying steps needed to broaden and deepen the performance framework itself.

This section summarizes the emerging framework and presents the initial findings and recommended steps moving forward.²²⁹

3.2. TAKING STOCK OF CURRENT PRACTICE

The Inquiry in its first phase provided early signals of what might be considered in measuring the alignment of the financial system with sustainable development (see Figure 18). This highlighted the need to measure the workings of the system as a whole, alongside but not restricted to measures of financial flows and stocks, the latter being essentially the outputs of the system. From this perspective, it was proposed to frame any performance measurement with three core system characteristics: efficiency, effectiveness and resilience (see Box 15).

To date, there have been no consistent attempts to capture and analyse data across these key outputs and system characteristics. Some elements are available, including estimates of requirements and information on current flows, such as UNCTAD's widely used estimate that US\$5-7 trillion is needed in investments to deliver the Sustainable Development Goals, and some country data such as China's estimate of its green financing needs as US\$600 billion annually.²³⁰ Some flow data also exists, such as estimates of global investment in renewables – rising to US\$286 billion in 2015.²³¹ Similarly, some stock data exists, such as China's estimate that about 10% of bank lending in China is classified as 'green',²³² and the estimate of the Brazilian Federation of Banks, FEBRABAN, that 8.8% of corporate lending was allocated to green investment. Data availability is, however, limited to such leadership cases, and even in these cases is based on differing definitions.²³³

FIGURE 18: KEY FEATURES OF A PERFORMANCE FRAMEWORK FOR A SUSTAINABLE FINANCIAL SYSTEM

FEATURE	DESCRIPTION	COMMENT
Requirements	Capital required to finance sustainable development	Covering: (a) deployment of capital to fund incremental assets or activities; (b) elimination of “unsustainable” assets and activities previously funded by capital; and, (c) reserving capital against conditions that could challenge sustainability.
Flows	Flows of finance against such requirements	Providing a common approach for measuring actual flows, building on existing methodologies, accepting that flow analysis does not clarify the effectiveness or efficiency of securing such flows.
Effectiveness	Degree to which markets price sustainability factors into asset values	Core to assessing existence of market failures, although need to distinguish failures associated with real or financial economy market and/or policy weaknesses.
Efficiency	Costs of running the financial system that delivers financial flows against requirements	Includes both transaction-specific and comprehensive financial system costs.
Resilience	Susceptibility of the system to disruptions related to unsustainable development	Covering the direct impact of environmental stress as well as impacts of transitional effects. This is inherently future-oriented and requires (a) analysis over extended time periods and (b) distinguishing higher levels of resilience through externalization and internationalization of sustainability factors.

Source: Adapted from UNEP Inquiry (2015). *The Financial System We Need: Aligning the Financial System with Sustainable Development*.²³⁴

*“There is an opportunity for the G20 to create practical green financing models for the developed and the developing world. The good news is there is an abundance of capital globally, but governments need to create the proper conditions to attract this capital. They have an important role to play in setting the policies, regulations, incentives, and in ensuring that they are enforced - (...) Global capital markets are powerful forces. Directed properly, they can alleviate the burden on governments and unlock a sustainable economic future.”*²³⁵

Henry (Hank) M. Paulson, Jr., Chair, Paulson Institute

Estimates of financial requirements, flows and stocks do not provide a full picture of the efficiency, effectiveness or resilience of the financial system, given the challenges of sustainable development. The connection between efficiency and sustainable development remains unexplored, although the work of Thomas Philippon has pointed to the value of deepening this analytic lens.²³⁶ Equally, there is little data or analysis to help us understand which parts of the financial system are most effective in pricing and managing sustainable development-related risk. Forward-looking information on the resilience to emerging environmental factors such as air pollution, climate change and water stress is equally sparse. For example, the prudential reviews undertaken to assess climate-related risks have been limited in time horizon and constrained

by a lack of scenario-based risk modelling by financial enterprises.^{237,238,239,240,241}

As a contribution to filling this gap, UN Environment has developed an initial version of a performance framework based around these primary characteristics. Capturing the complex dynamics of sustainable finance will ultimately require extensive modelling of both the real and financial economies, including the public sector and covering nuanced interactions between domestic and international financing considerations and outcomes. Not only is such modelling beyond the scope of the UNEP Inquiry, but also any attempts at this stage would suffer from extreme data shortfalls, high costs and uncertain value. The key dimensions of the performance framework are set out in Box 15.

This work has only been possible through a series of formed partnerships to enable data to be acquired, recast, analysed, interpreted and communicated. Key data sources and partners have included: Bloomberg New Energy Finance, CDP, Corporate Knights, FTSE Russell, the Principles for Responsible Investment, Thomson Reuters and the Sustainable Stock Exchanges Initiative.

Support was also received from the Bank for International Settlements, Bloomberg, the Cleantech Group, the Climate Bonds Initiative, the IMF, SwissRe, UNCTAD, the United Nations Framework Convention on Climate Change and the World Bank. The performance framework is summarized in Box 15.

BOX 15: THE PERFORMANCE FRAMEWORK – IN BRIEF

Our initial approach has a limited scope and covers:

- Green aspects, but only of those for ‘finance for sustainable development’, although some indicators spill over into broader sustainability considerations;
- Country-based level, as this is the boundary for most policy and regulatory initiatives, recognizing the international nature of private financial flows; and
- Private not public finance, while recognizing the close linkages between them in practice, such as through public subsidies.

The performance framework is made up of four conceptual layers:

- Performance characteristics: efficiency, effectiveness and resilience;
- System pillars: rules architecture, market behaviour and financial flows;
- Segments: overall system, banking, bonds, equities, institutional investors and insurance; and
- Indicators: both ‘ideal’ and ‘proxy’ indicators, the latter used depending on data availability.

This framework has been applied to a range of developing, emerging and developed markets, including:

- Developing: Bangladesh, Egypt, India, Indonesia, Kenya, Mongolia, Morocco, Nigeria;
- Emerging: Brazil, China, Colombia, Mexico, Peru, South Africa; and
- Developed: France, Germany, Italy, Singapore, Switzerland, the UK, the US.

In this initial round, a total of 21 proxy indicators have been identified and developed, screened from an initial list of more than 70 choices, and selected through an extensive consultation process and related analysis.

3.3. DEVELOPING THE PERFORMANCE FRAMEWORK

Understanding the performance features of a highly dynamic system is challenging, but possible. Financial system performance cannot be assessed like a plane or football team. Its complex, adaptive nature makes for uncertain relationships between context, interventions, actors and outcomes, all the more so given its massive scale, volume of activities, and transboundary features. The multi-dimensional nature of sustainable development makes this task even harder. In spite of this, well-established frameworks do capture the traditional aspects of system performance, notably the Financial Sector Assessment Program²⁴² and the World Bank’s Global Financial Development Index.²⁴³

We have also drawn on earlier work supported by the OECD in building scenarios for sustainable financial systems,²⁴⁴ the ‘FAIR’ framework set out by the Bank of England’s Governor, Mark Carney,²⁴⁵ and the Citizens’ Finance Dashboard developed by a coalition of civil

society organizations convened by FinanceWatch.²⁴⁶ In addition, consideration has been given to specialized analytic perspectives, such as ongoing work on the dynamic relation between financial inclusion and financial system development.²⁴⁷

The scope of the performance framework is limited to developments within the financial system itself. Many factors influence the alignment of finance with sustainable development. This includes economic policy, notably the degree to which environmental outcomes are internalized into market prices and value creation, and the deployment of public capital, both through fiscal measures and the use of development finance to leverage private capital. This framework focuses exclusively on action and results within the financial system, while recognizing in practice the existence of important dynamics between these areas.

The proposed framework is grounded in core performance characteristics, which in turn cascade into proxy indicators. The framework is rooted in the three performance characteristics of efficiency, effectiveness and resilience:²⁴⁸

- **Effectiveness** – the degree to which the market prices sustainability factors into financial asset values (sometimes called ‘allocative efficiency’).
- **Efficiency** – the costs of running the financial system that delivers financial flows aligned with sustainable development.
- **Resilience** – the susceptibility of the financial system to disruptions related to unsustainable development, such as water scarcity, air pollution or climate change, including transition risks.²⁴⁹

Individual indicators may relate to one or more of these characteristics. Pricing in climate risk, for example, is clearly a matter of effectiveness, but also impacts on system resilience. Improved effectiveness, similarly, would tend to increase financial flows aligned with sustainable development (and reduce flows that are not), thereby increasing measures of efficiency and almost certainly resilience.

The framework rests on three analytical pillars – the architecture of rules, behaviour in markets and the flows of finance. Under architecture, we include all rules, regulations, policies, norms and standards in the financial system that might directly or indirectly enhance sustainable development outcomes. Here we measure whether the ‘rules of the game’ are aligned with sustainable development needs, drawing on the Inquiry’s global database of measures featured in Section 1, supplemented by specific indicators that seek to measure the quality of the governance architecture. Under markets, we identify the behaviours of market actors. Here, we measure how well market players, market makers, and financial services are aligned with sustainable development needs. And under flows we measure allocation of capital to sustainable (and unsustainable activities), both in terms of annual flows and overall stock of assets.

Ideal indicators would exactly capture these characteristics across all these pillars and market segments, but in practice rarely exist due to both conceptual problems and data availability. Proxy indicators have therefore been selected both on the basis of their ability to illuminate performance aspects, and on the practical matter of data availability. Even within a self-imposed ‘green finance’ limitation, almost 70 potential indicators were screened in depth, from which a total of 21 were selected for use in this cycle. Efforts were made to select proxies that would have relevance across as wide a possible range of countries, and to ensure that we had some measures for each of the selected financial

system segments. The current indicator set is illustrated in Figure 19.

3.4. LEARNING THE LESSONS

This initial phase of work provides useful insights into the dynamics surrounding system governance, the links between rules and behaviour, and ways to better understand green financial flows.

Understanding System Governance

The indicator for Financial System Governance and Leadership aimed to measure how sustainable development was being recognized in the overarching mandates of institutions such as finance ministries, central banks and regulators and also how leadership initiatives were interpreting these mandates in light of emerging sustainable development priorities.²⁵⁰ The results highlight that the linkages are still at an early stage and that a critical leadership role is being played by a small number of emerging, developing and developed countries to evolve the frameworks of overall system governance. From our sample, leadership countries include Brazil, China, France, Kenya and the UK. Emerging economies as a whole appear to be marginally ahead on this indicator, but less advanced in terms of specific sectors, such as institutional investment and insurance.

Linking rules, market behaviour and flows

The linkages between the rules architecture, market behaviour and financial flows cannot be made quantitatively at this stage. This is likely to be the result of multiple factors influencing ultimate behaviour, including those beyond the financial system. It is also unclear whether this is because of a material time lag between new rules, market behaviour and financial flows.

For example, the quality of sustainability disclosure on stock exchanges appears to be only partly determined by prevailing disclosure rules (see Figure 20). Brazil and South Africa lead in terms of the quality of stock exchange rules for sustainability disclosure, while France and the UK lead in terms of the quality of actual reporting. Disclosure rules and practice appear reasonably correlated, although with some notable outliers, including Switzerland, which scores high on practice and low on formal requirements. Other factors such as levels of investor commitment to responsible investment could help to explain these relationships.

FIGURE 19: MEASURING PERFORMANCE: INITIAL SET OF PROXY INDICATORS

ACTORS/ASSET POOLS	ARCHITECTURE	MARKETS	FLOWS	
			STOCKS	FLOWS
SYSTEM LEVEL	<ul style="list-style-type: none"> Principles, policy and legal frameworks to align financial system with sustainability Integration of sustainability into Foreign Direct Investment (FDI) agreements 			<ul style="list-style-type: none"> Clean energy investment flows Water and sanitation investment flows Investment flows to cleantech venture capital
BANKING	<ul style="list-style-type: none"> Regulations, codes of conduct and voluntary initiatives regarding banking sustainability, including lender environmental liability 	<ul style="list-style-type: none"> Banking efficiency 		<ul style="list-style-type: none"> Real economy lending
DEBT CAPITAL MARKETS				<ul style="list-style-type: none"> Issuance of green bonds
EQUITY CAPITAL MARKETS	<ul style="list-style-type: none"> Regulatory and self-regulatory commitments to advance sustainability of stock exchanges 	<ul style="list-style-type: none"> Stock exchange ESG disclosure index Stock exchange carbon intensity Stock exchange efficiency 	<ul style="list-style-type: none"> Levels of low-carbon revenues on stock markets 	
INSTITUTIONAL INVESTORS	<ul style="list-style-type: none"> Regulations, codes of conduct and voluntary initiatives on ESG in investment 	<ul style="list-style-type: none"> Consideration of ESG factors in institutional investor decision making 	<ul style="list-style-type: none"> Environmental and social investments by large investment managers Portfolio alignment to clean energy and fossil fuels 	
INSURANCE	<ul style="list-style-type: none"> Regulations, codes of conduct and voluntary initiatives regarding insurance sustainability 	<ul style="list-style-type: none"> Insurance penetration rate Insurance density 		

Source: UNEP Inquiry and Ecofys (2016). *Developing a Performance Framework for a Sustainable Financial System* (forthcoming).

Evaluating green finance flows

To date, the rules governing the green bond market have been market-based and voluntary, notably the Green Bond Principles and the Climate Bond Standards; regulatory requirements have emerged relatively recently in China and India. Putting the data on country-by-country issuance is important. Among the 20 countries analysed, Figure 21 shows that the US leads, followed by France, in the absolute dollar value of green bond issuance for the three years to the end of 2015. However, France leads, followed by Germany, in terms of green bonds as a proportion of total bond issuance for the period in question.

A similar contextualization can be applied to understanding the exposure of different stock exchanges to revenues from low-carbon goods and services. Drawing on datasets generated by FTSE Russell, it is possible to calculate the total value of revenues linked to low-carbon goods and services on the world's equity markets.

Figure 22 shows that the US leads in terms of the absolute value of listed low-carbon revenues, but it falls to fourth when normalized as a percentage of free float market capitalization. On this measure, China leads.

More broadly, the indicators show that for institutional investors, not surprisingly, developed countries dominate. This leadership in large part reflects the country distribution of the institutional investor community, although the inclusion of state-run emerging and developing country national social security systems would reveal their lagging behaviour given their considerable size. So far, indicators covering banking and insurance have not offered particular insights, which is certainly more a function of data shortfalls than a reflection of their significance.

3.5. MAKING MEASUREMENT COUNT

Progress counts at both the national and international levels. Today's global financial system is underpinned by a network of financial centres, which are linked by financial flows, globalized financial enterprises, and international norms, standards and institutions. Actions within these financial centres in large part dictate the direction and pace of change in how the global financial system is configured. Most directly, policies

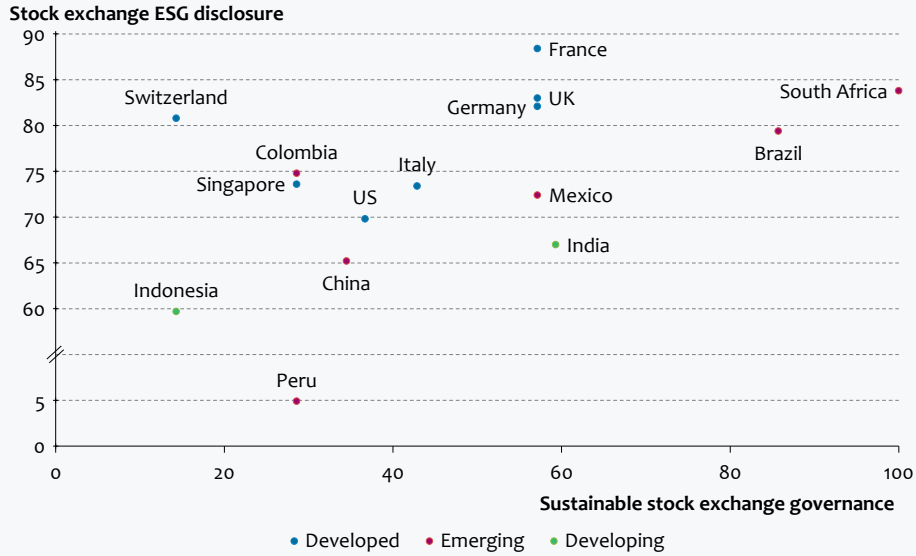
and regulations, but also standards, norms and to a degree culture, operate at a national, or occasionally sub-national or super-national, regional level. Indeed, international action on finance depends significantly on national leadership.

- Brazil and South Africa's leadership has underpinned the subsequent development of the Sustainable Stock Exchange initiative now covering 57 exchanges.²⁵¹
- As part of its COP21 presidency, France developed a broad finance agenda including the development of domestic policies, as well as the encouragement of public and private financial flows consistent with the climate transition.²⁵²
- Indonesia's innovative sustainable roadmap championed by its financial regulator has resulted in the establishment of an ASEAN-wide sustainable finance forum.²⁵³
- The Bank of England's leadership in connecting climate risks and financial stability²⁵⁴ has triggered other central banks to follow suit and resulted in the FSB Task Force on Climate-related Financial Disclosures being established.²⁵⁵
- China's systematic assessment of how to advance green finance domestically subsequently led to the G20 under its presidency taking on the topic.^{256,257}
- Kenya's breakthrough leadership in advancing financial inclusion through the rapid diffusion of fintech, with Bangladesh and Peru, has inspired the Alliance for Financial Inclusion.²⁵⁸

Measuring countries' progress therefore makes sense, and needs to be relevant to policymakers and financial regulators, market makers such as stock exchanges, financial institutions themselves, and the wider public. Policymakers and regulators, primarily with national mandates, need to know if domestic financial systems are aligned with sustainable development.

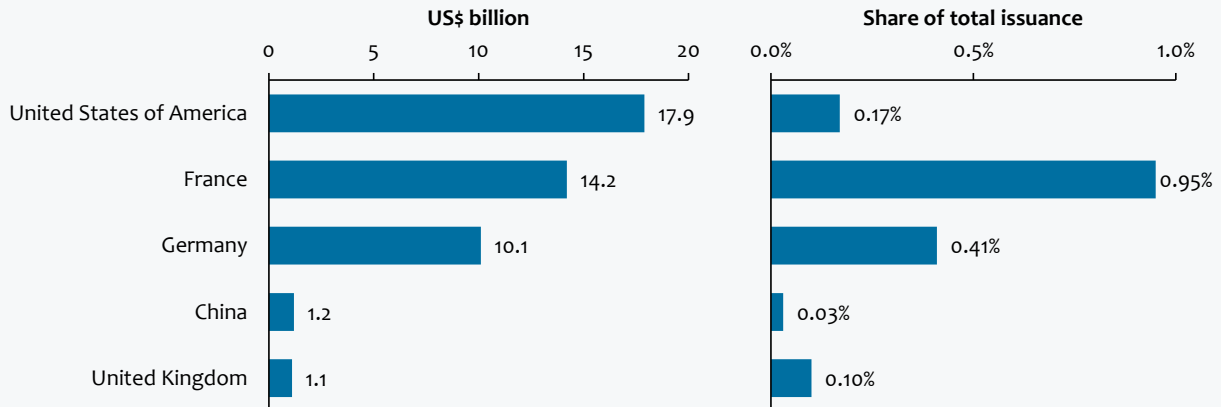
- First and foremost, financial systems need to be developed in ways consistent with countries' sustainable development and climate commitments.
- Second, financial and monetary authorities need to ensure that financial and monetary stability and practices are resilient to challenges posed by unsustainable development, and can evolve in an orderly fashion as sustainable development and climate commitments translate into market signals and developments.

FIGURE 20: STOCK EXCHANGE: COMPARING RULES AND MARKET BEHAVIOUR IN TERMS OF DISCLOSURE



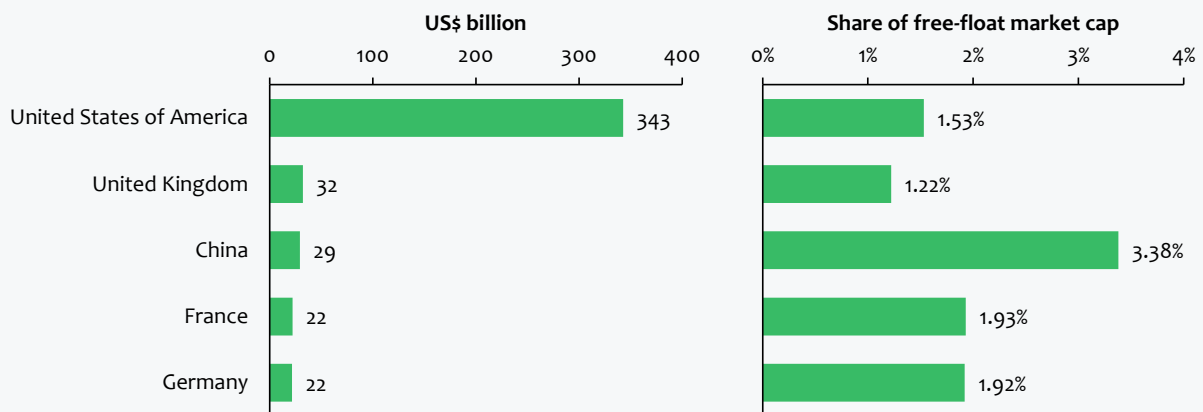
Source: UNEP Inquiry and Ecofys (2016). Developing a Performance Framework for a Sustainable Financial System (forthcoming). Stock exchange ESG disclosure values provided by Corporate Knights. Sustainable stock exchange governance analysed and processed by Ecofys based on Sustainable Stock Exchanges initiative data.

FIGURE 21: GREEN BOND ISSUANCE 2012-2015, ABSOLUTE AND RELATIVE AMONG THE 20 COUNTRIES



Source: UNEP Inquiry and Ecofys (2016). Developing a Performance Framework for a Sustainable Financial System (forthcoming), Based on data from Climate Bonds Initiative and Bloomberg.

FIGURE 22: STOCK EXCHANGE: LOW-CARBON REVENUES, ABSOLUTE AND RELATIVE AMONG THE 20 COUNTRIES



Source: UNEP Inquiry and Ecofys (2016). Developing a Performance Framework for a Sustainable Financial System (forthcoming). Based on data from FTSE Russell Low Carbon Economy data model.

- Third, nations need to be enabled to evolve the competitiveness of their financial centres as growing numbers of capital-seekers and financial institutions are attracted to markets responsive to a new generation of sustainability-aligned businesses and financial products.
- Fourth, financial policymakers and regulators, as well as financial institutions themselves, are increasingly required to account for their handling of social, environmental and economic considerations, requiring demonstrable responses at the national level as well as through international cooperation.

Even with all its inevitable weaknesses at such an early stage, the performance framework can already serve such diverse users:

- Some aspects of financial system reform and development can be benchmarked against comparative international performance.
- Financial institutions and capital-seekers can begin to see which financial centres are taking serious leadership in being configured for a new generation of businesses and financial products.
- The wider public can be better informed and in turn more influential.

That said, there is a long way to go in developing a robust performance framework. The initial results show the importance of, and initial benefit from, this exercise. But they also reveal the need for a more comprehensive effort. Moving to the next level requires some practical steps to be taken, including:

- *Increasing data:* most obvious is the need for improved data and convergent definitions across all segments, and across architecture, market behaviour and financial flows and stocks. While all areas would benefit from data improvements, the most obvious and important gaps are probably in banking, debt capital markets and insurance segments.
- *Broadening the sustainable development lens:* the initial focus on green finance is understandable, but only as an interim step, with the need now clearly to incorporate broader aspects of sustainable development, including underlying, enabling aspects of market integrity, such as illicit financial flows and market structure.
- *Expanding the number of countries:* there is a clear need to extend the number of countries, perhaps embracing existing country groupings such as the G20 and the G7, or ASEAN countries or EU members.
- *Integrating the performance framework:* while the performance framework can play a useful role as a stand-alone methodology, it would be more effective if linked and so fed into to existing national assessment frameworks, such as the Financial System Assessment Program.

Finally, the UNEP Inquiry, in taking forward this work to a second phase and outputs, sees the critical need for a coalition approach that includes key international financial organizations with core statistical analysis and coordinating functions.