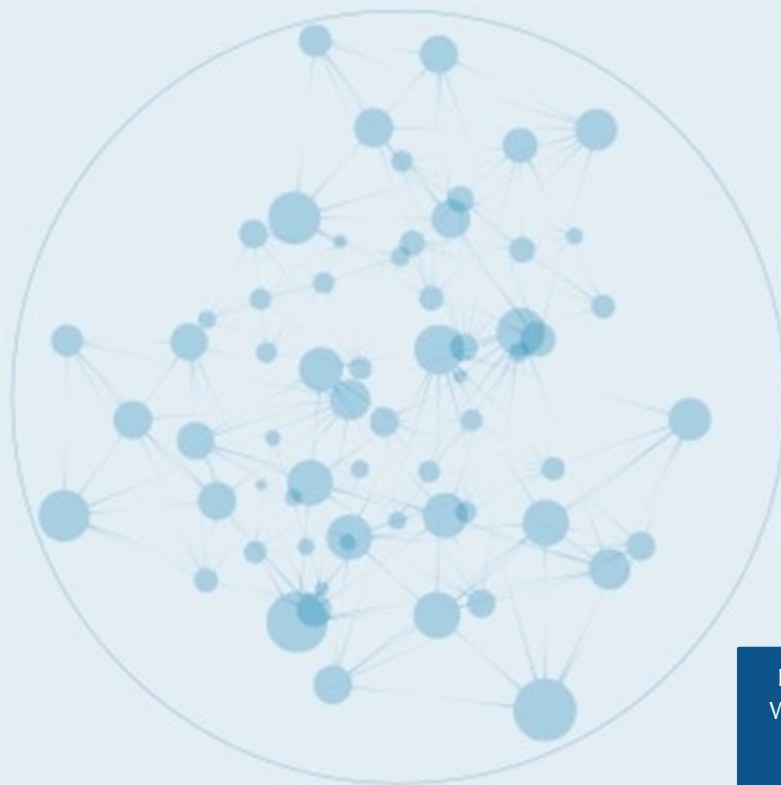




TOWARDS A PERFORMANCE FRAMEWORK FOR A SUSTAINABLE FINANCIAL SYSTEM



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The UNEP 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 published its final report, *The Financial System We Need*, in October 2015 and is currently focused on actions to take forward its findings.

More information on the Inquiry is at: www.unep.org/inquiry and www.unepinquiry.org or from: Ms. Mahenau Agha, Director of Outreach mahenau.gha@unep.org.

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Comments are welcome and should be sent to nick.robins@unep.org.

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Contents

BACKGROUND AND INTRODUCTION	4
1 PERFORMANCE FRAMEWORK SUPERSTRUCTURE	5
2 ANALYTICAL APPROACH – MARKET DESIGN.....	7
3 PRINCIPLES RELATED TO OUTCOMES: CAPITAL REQUIREMENTS, FINANCIAL FLOWS AND RESILIENCY	10
3.1 Capital Requirements	10
3.2 Financial Flows	11
3.3 Integration of Financial Flows with Capital Requirements	12
4 PRINCIPLES RELATED TO PROCESS: EFFICIENCY AND EFFECTIVENESS.....	19
4.1 Efficiency	20
4.2 Effectiveness	26
5 MARKET DESIGN.....	28
5.1 Outcome-based Principles	28
5.2 Process-based Principles	29
5.3 Liquidity	30
6 CONCLUSIONS	33
APPENDIX A.....	34
APPENDIX B.....	36
APPENDIX C	37
REFERENCES.....	39

Background and Introduction

The mandate of the *UNEP Inquiry into the Design of a Sustainable Financial System* is to identify and consider potential changes to the “rules governing the financial system” that would better align the system’s workings and consequences to sustainable development. These rules include financial and monetary policies, financial regulations and standards, financial system-facing fiscal measures and non-governmental standards and rules (such as those originating with credit rating agencies, the accounting profession and industry groups).

The Inquiry has grounded its work in country-level innovative practices, and is building on this and associated cross-cutting analysis and international engagement into a practical set of suggested actions, principally by central banks, ministries of finance, financial regulators and standard setters. The Inquiry’s operational research based on existing practice, albeit often at an early stage, provides a useful “proof of life.” However, a catalogue of existing practices can lead to a fragmented view of financial systems by focusing attention on the distinctions among different practices and on their idiosyncrasies. This paper is intended to provide a unifying set of principles for describing a “sustainable financial system”, one that is aligned to the long-term needs of a dynamic, inclusive, sustainable economy, and ideally a method for measuring the relative sustainability of different financial systems: a “Performance Framework”.

Aggregate performance measures are useful for analysis of financial systems but need to be treated with caution. This is particularly true in their application to large-scale and complex financial systems that are characterized by high levels of often unpredictable heterogeneity and dynamism. However, they do allow, with suitable caveats, system performance to be overseen, compared over time and between subsystems, and to some extent nudged and shaped according to implied and expressed normative criteria. With such complexities and nuances in mind, checks and balances that can ensure a sustainable global economy remain lacking; hence this paper seeks to establish a Performance Framework across a range of metrics that can be used to determine whether a given financial regime is moving toward or away from a sustainable financial system.

This paper is intended to serve as a window on the Inquiry’s analytical approach, providing a deeper understanding of the unifying criteria for evaluation of multiple market designs for financial systems in a variety of economic, political and social settings. It is also intended to provide a foundation for investors and corporate management and policymakers, including central bankers, finance ministry professionals, market regulators as well as legislators, regulatory and executive officials, to shape consideration of the sustainability of their financial systems. Finally, it is hoped that this paper will inspire and inform further inquiry into the relationships between market designs and sustainability and inclusiveness by academics and other researchers. In short, this paper is intended to provide structure to an entirely new convention for understanding the relationships between financial systems and sustainability and inclusiveness.

While further work is required to definitively rank financial systems in the context of sustainability and inclusiveness, this paper is intended as the foundation for the construction of one or more indices. Each index would be similar to the financial development index used by the International Monetary Fund¹ (which assesses financial sectors across the dimensions of depth, access and efficiency) and, to a lesser extent the World Economic Forum² (that measures systems based on institutional and business environments, financial stability, banking and non-banking financial services, financial markets and financial access) and the World Bank (that measures inclusiveness based on broad interview sets).³ The performance framework is intended to prompt development of an index for sustainable finance and, as a complement to the World Bank Global Findex, inclusiveness.

1 Performance Framework Superstructure

The Performance Framework will consist of five related principles that, in concert, will be the bases for evaluation of a financial market system in terms of sustainability and inclusiveness:

- **Capital Requirements.** This is a time-based projection/forecast of the private capital investment volumes, weighted in accordance with the relevant consequences of such investments, needed to achieve goals for sustainability and inclusiveness by milestone dates. It is anticipated that capital requirements will be continuously recalibrated to account for changing circumstances and refinements of assumptions and factors that influence projections/forecasts. These capital investments occur in three distinct forms:
 - Deployment of capital to fund incremental assets or activities, either via (a) direct investment by aggregators of savers (including banks, insurance companies, shared and individual retirement savings and pooled investment funds), or (b) investment of corporate earnings in new or expanded undertakings ;
 - Elimination of assets and activities previously funded by capital; and
 - Reserving capital against conditions that could challenge sustainability, including insurance against the consequences of the realization of risks.
- **Financial Flows.** This represents flows of investment capital (both newly raised capital and retained earnings) deployed to fund capital requirements. It is anticipated that financial flows will be measured on an historic and current basis and will also be projected/forecast. Financial flows for an economy will be compared with capital requirements and actual financial flows will be a factor in forward-looking recalibrations of capital requirements. Existing stocks of capital assets are built into the concept of financial flows as integrated into the Performance Framework. The meaning of financial flow is a function of its adequacy to fulfil a capital requirement. Thus, existing stocks of capital assets form a basis for evaluation. Moreover, retirement of capital assets that negatively affect sustainable development is treated as type of positive financial flow, though its valuation may be somewhat differently calculated. Appendix A includes a conceptual measurement of the adequacy of financial flows to meet capital requirements for a given economy.
- **Resiliency.** The third related principle is resiliency, meaning the susceptibility of the system to catastrophic disruptions as a consequence of unsustainable development. This principle is the clearest driver of timescales and the diffusion among multiple entities of value and risk associated with sustainability and inclusiveness. Events and conditions that cause catastrophic disruptions may be projected or forecast to occur outside conventional business, finance and policy planning horizons, even after decades of time. These events and conditions are analytically very different from those typically considered by prudential regulatory authorities in connection with analysis of the susceptibility of financial systems to crashes, as occurred in the US markets in 2008. Those conditions are a function of short timescale fragility that can result in a relatively sudden crash with the occurrence of one or more events. Sustainability resilience is a function of linear deterioration of conditions that will inevitably lead to disruptions at some future point. This type of disruption can become practically or actually inescapable at one or more points along the timeline or could be triggered by a change of conditions. As a consequence, the analytical time horizon for sustainability resilience should be far further into the future.

- **Efficiency.** This is the measure of the transaction-specific and comprehensive costs generated within an economy's financial market system. Traditionally, transaction costs have been seen as the proper representation of the efficiency of the system, founded on the neoliberal economics tenet that so long as transaction costs are minimal, a high transaction volume will generate fundamentally sound pricing and therefore optimal capital allocation from a social perspective. The assumptions behind this tenet are that information relevant to price is generally available without material time lags among market participants and that market behaviours motivated by price and profit do not diminish optimal capital allocation. The Performance Framework will supplement this approach with alternatives from academic literature and challenge the sufficiency of the entire concept.
- **Effectiveness.** This is the measure of how effectively a specific category of information regarding value is transformed into the price of actual or potential capital investments. In the context of the Inquiry, the categories of information involve the greater or diminished value derived from sustainability or inclusiveness associated with the capital investments. Effectiveness is a different measure of the quality of a financial system from efficiency. Ineffectiveness could infer that information is not uniformly available (only some market participants are informed), that no market participants are informed of certain information or that certain types of information are systematically excluded from price formation. Several critical questions need to be considered in modelling effectiveness, for example: to whom does the referenced value accrue (e.g., investors, the financial sector or the public); the current and potential models for transforming value to price; principal/agent issues embedded in the process.

Basing the Performance Framework on these five principles should not suggest that measurement of each of the five is wholly independent. In particular, *efficiency and effectiveness* interact with each of the other principles. For example, an inefficient or ineffective financial system, measured in terms of pricing that reflects values that contribute to the long-term economic well-being of the population, will probably have poor results in the pricing and allocation of capital (even though individual agents operating as intermediaries within the system are very efficient in their operations and remain profitable). Thus, *financial flows* are likely to be inadequate to fulfil *capital requirements*. And such inefficiencies and ineffectiveness are also likely to affect asset pricing processes, inducing asset price bubbles through imbalanced recognition of value that can precipitate problems of *resiliency*.

2 Analytical Approach – Market Design

Underlying the analytical approach described in this Performance Framework is that we are indeed inquiring about *systems*, consistent with the usage of that term by economists, physicists and mathematicians: defined environments in which interdependent components interact dynamically with results that can be measured as an integrated whole. The Performance Framework is to evaluate how effective, efficient and resilient systems are and how well they deliver financial flows that meet capital requirements, all in the context of sustainability and inclusiveness. This requires an understanding of the dynamics of each system.

Inclusivity is an issue that has been examined in the past. The Framework proposes the integration of data points from central banks that will enhance the existing World Bank survey data by focusing more on financial system characteristics. This is outlined in Appendix B.

The particular type of system that the Framework is most focused on relative to sustainability broadly is the capital intermediation system. This is the system in which capital that has been accumulated by investors is allocated among potential users of that capital, businesses governments and households. Investors include holders of debt and equity interests and companies that deploy or have deployed self-generated capital or capital raised in private or publicly traded markets. Capital intermediation is broadly defined for purposes of the Performance Framework, including

- Deposit taking and lending by banks;
- Processes for public offerings of shares or debt securities;
- Direct investment in equity via private, less liquid interests or other forms;
- Reinvestment of retained earnings within enterprises
- Secondary market trading environments and venues that provide price signals to investors engaged in market activities;
- Analytical agencies that are integral to pricing (such as credit rating agencies); and
- Contractual arrangements that are used to price disaggregated elements of securities or other investments, such as insurance and derivatives;

The capital intermediation system can be viewed as a subsystem of the larger financial system or as a separate system, but such a specification is not relevant to the Framework analysis. The Framework inquiry views components of the capital intermediation system as including

- Shareholders and other asset owners (e.g. pension holders),
- Savers/lenders,
- Holders of tradable debt securities,
- (somewhat unconventionally) derivatives counterparties of consumers of capital,
- Insurance and reinsurance companies,
- Corporate boards of directors and managers,
- Intermediaries in the primary and secondary markets for debt and equity (described more fully within),

- Providers and analysers of information in particular credit rating agencies, accounting firms and index providers,
- Providers of system infrastructure, such as exchanges, trade matching venues and clearing houses, and
- Market regulators and prudential regulators that can affect behaviours within system components.

These components interact to generate investment at prices determined by the process. The outcomes of these interactions are expressed within the Framework as capital requirements, financial flows and resiliency while the quality of the interactions is expressed in terms of efficiency and effectiveness.

The diversity of possible market designs is, for practical purposes, infinitely large. Each element of a given market design can affect the quality of a financial system in terms of outcomes, and the Inquiry will not shy away from addressing individual elements of market design.⁴ However, a far simpler measurement is needed for comparison among financial systems and for overall evaluation of a given market design. The Framework will propose a conceptual methodology based on an independent and a dependent variable. This methodology is not sufficiently developed to generate a functional real world model, but it is hoped that the Inquiry will inspire this development. The methodology's independent variable is a concept of capital liquidity, similar to a concept previously used in evaluation of development of financial markets and economies. Capital liquidity includes the aggregate savings of an economy that are, or are intended to be, invested in non-governmental capital assets. As a subset, capital liquidity includes the amount of capital devoted to the process of intermediation between savings based on widely available data. The characteristics of this capital liquidity are qualitatively different for different financial systems and are closely related to its size (relative to the economy), complexity and development stage. Indeed, it is conceivable that an index based on weighted values for capital liquidity (and within that factor, financial sector capital liquidity), size, complexity and development stage could be created. Individual elements of market design will be considered separately. The dependent variable will be the adequacy of financial flows to fulfil capital requirements based on criteria to assure resiliency. The interaction of the variables will be a function of efficiency and effectiveness in that an efficient and effective system should, within a range, generate fully adequate financial flows and assure resiliency.

Outcomes can be relatively predictable in financial systems that are smaller and less complex. In these systems, available capital is inadequate for current demand: capital liquidity within the system is often a constraining factor on all potential investments. As liquidity increases, competition for liquidity is often an important condition as governments may intervene to prioritize investments generating high

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