NUS National University of Singapore | Energy Studies Institute

Climate Policy Initiative

Getting financial markets to work for climate finance

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Risks of climate change are becoming more evident

Three out of top four risks were climate risks in 2018

1. Extreme Weather Events
2. Natural Disasters
3. **Failure of Climate Change Measures.**

Source: World Economic Forum

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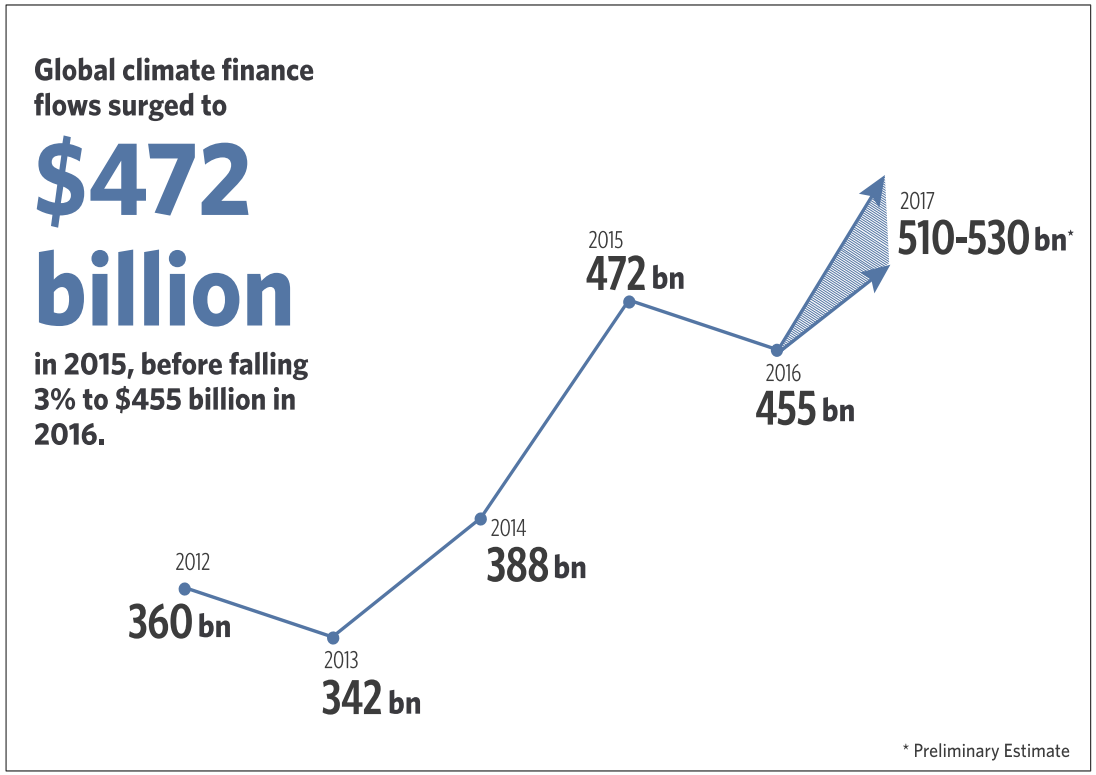
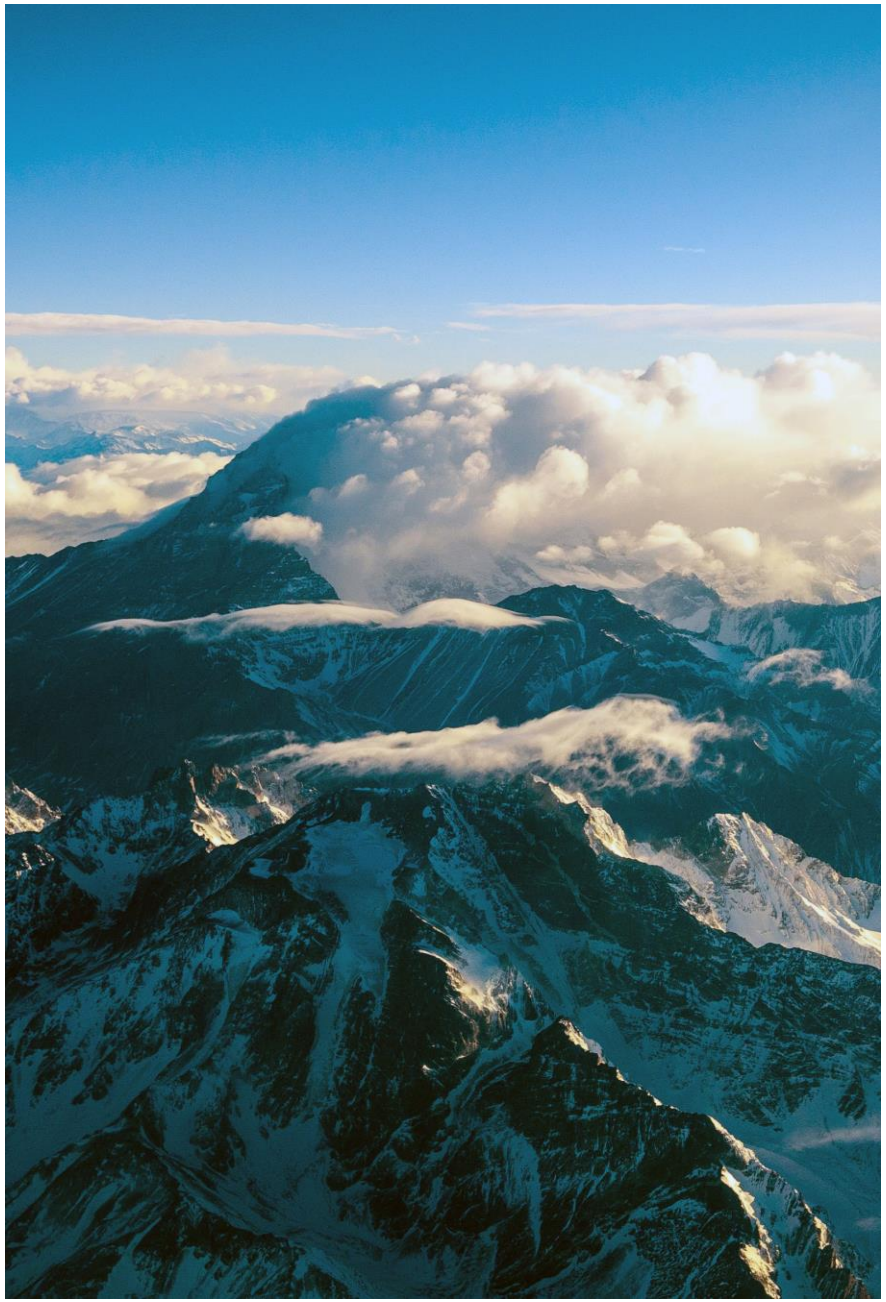
Current state of climate finance

- Meeting Paris Agreement commitments need over US$ 30 trillion of investments by 2030 of which over US$ 23 trillion is required in emerging economies (IFC).
- Current climate flows have though improved, is only a fraction of required capital at US$ 472 billion and 455 billion for 2015 and 2016 respectively (CPI).
- Failure to achieve the climate change mitigation targets could cost global economy US$ 150 billion each year (The White House).





Share of climate finance in the overall capital flow has been limited

- In 2014, banks held over 40% of the total global financial assets, but only 15% of all syndicated loans are classified as climate finance. (IFC, 2014)
- Less than 1% of the $180 trillion managed by institutional investors are in climate investments (OECD).

Source: UNFCCC Standing Committee on Finance

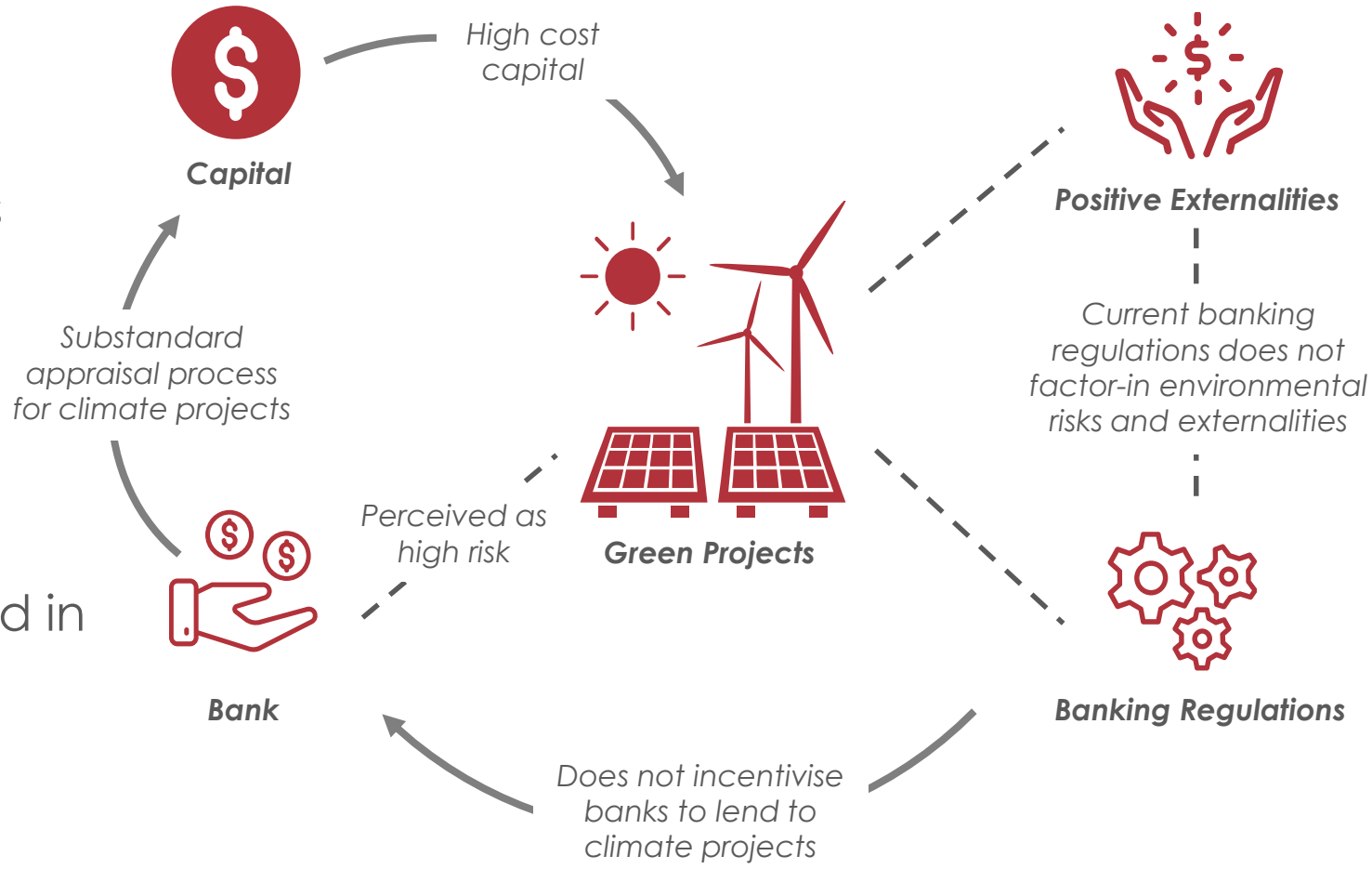
Challenges in Climate Finance

High Cost of Capital

- Early-stage technologies
- Untested business models
- Substandard appraisal of projects

Lack of Enabling Regulation

- Environmental risks and externalities – not factored in



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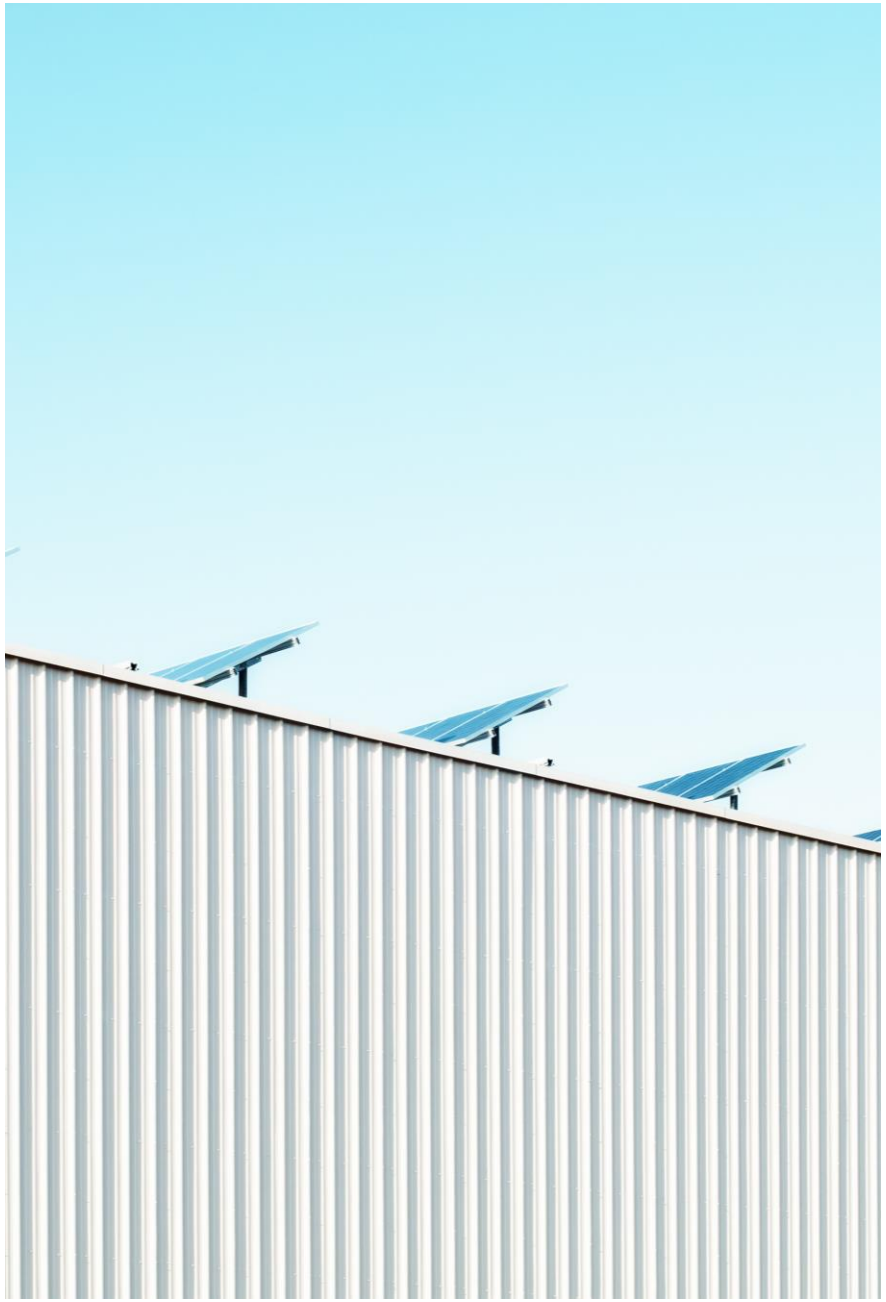

Credit Ratings: An additional barrier for climate investments

Overstated credit risks in long-term infrastructure and climate finance projects leads to limited capital allocation

Marginal investment grade ratings for climate projects – lack of convergence of credit and climate risk

Under investment in climate focused projects – inability to factor in the implicit costs and benefits of projects

Lack of large scale credit assessment framework for sustainable finance – results in inconsistency between risk management and sustainable lending

Regulations &Climate Finance

Banking regulations are designed to maintain financial stability, but they also play a vital role in directing or limiting finance flows to certain sectors.

Economists describe climate change as an 'externality' – market failure

- Asymmetric information and moral hazard of market participants lead to inadequate pricing of climate risks and externalities, resulting in market failure (LSE and Grantham Institute).
- Market participants lack incentives to invest in financial stability
- Addressing this market failure, therefore needs regulatory intervention to scale up the climate finance (Norton Rose Fulbright).

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How do current banking regulations fare in climate?

- **Basel Capital Accord** – Aim is to strengthen the regulation, supervision, and risk management of banks worldwide.

- Pillar 1 of Basel III regulations have a higher risk weighting for long-term projects. Research shows that it could result in a significant increase in interest rates, for climate projects like renewable energy, under different scenarios. (ORF)

- Pillar 1 of Basel III require the banks to address environmental risks, but this assessment is transaction specific with a focus on the borrower's ability to repay the loan. Thus, it fails to address the financial stability issues associated with systematic environmental risks

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Banking regulations: Disincentivising climate investments?

Unfavorable to climate investments	– Basel III discourages long-term financing requirements of green sector – High risk weightage to illiquid investment – Oversight of climate-change risk in credit rating methodology and overreliance on historical data
No impact on climate investments	– Basel capital account is overlooking systemic climate-change risk – Pillar 2 supervisory review process does not consider climate-change risk as a material risk, so banks exclude this risk in stress tests – Pillar 3 market discipline does not make it mandatory for banks to disclose their exposure to climate-change risk publicly

Climate Focussed Regulation

Changing bank capital and governance frameworks may be required for mobilizing funds for climate projects

Banking Regulations to Drive-in Climate Finance

Evolving bank capital and governance frameworks to include systemic environmental risks may ultimately lead regulators and banks to agree on different risk weightings for certain activities depending on their classification as environmentally sustainable or unsustainable.

Different capital and liquidity requirements under Pillar 1 for activities depending on whether they are classified as environmentally 'sustainable' (lower requirements) or 'unsustainable' (higher requirements).

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Bridging the information asymmetry: Climate disclosures

- **Market discipline:** Pillar 3 of the Basel framework is focused on risk management and other regulatory disclosures to ensure market discipline. This, however, does not include systematic environmental risks

- **Task Force on Climate-related Financial Disclosures (TCFD):** Provides recommendations for financial organizations to develop effective climate-related disclosure to appropriately assess and price climate-related risks and opportunities

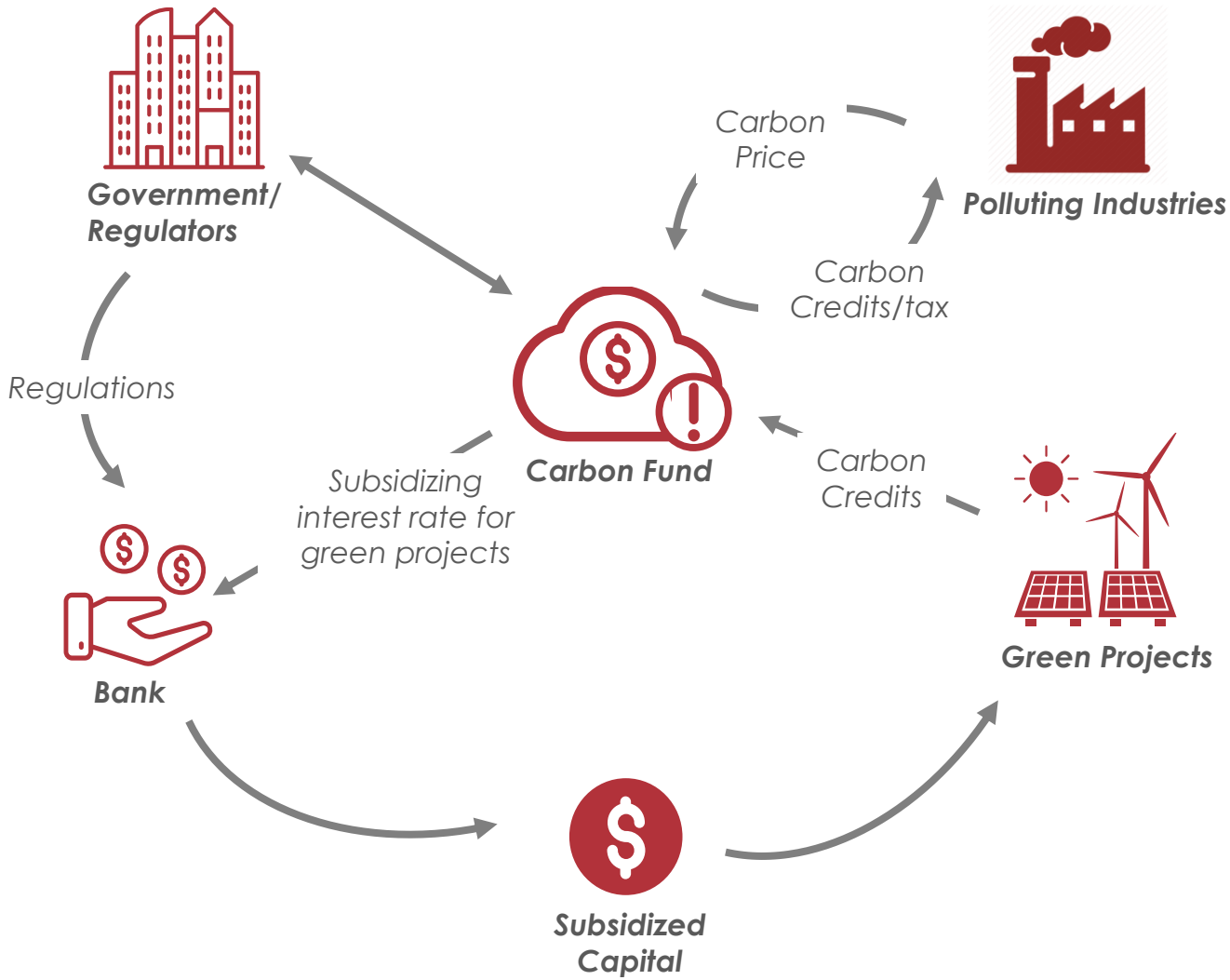
- **Improved practices and techniques:** To improve the quality of climate-related financial disclosures and, ultimately, support more appropriate pricing of risks and allocation of capital in the global economy.

Carbon Pricing – Making Financial Markets Work

Climate focused projects have positive externalities while carbon intensive projects come with negative externalities. Internalizing these externalities can help to lower the cost of capital for climate projects

Carbon Pricing: Carbon Markets/Carbon Tax

- Carbon pricing captures the external costs of greenhouse gas emissions and ties them to their sources through a price, usually in the form of a price on CO_2 emitted. (The World Bank)
- It shifts the social costs of climate change to the source of the pollution, encouraging polluters to reduce emissions and invest in clean energy and low-carbon growth.
- Article 6 of the Paris agreement establishes the foundation for a post 2020 carbon market.



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Climate Investments: Risk-based Pricing

- The essential elements of price lending are base rate, credit risk premium and capital charges for a given exposure.

Lending Rate = Base Rate + Credit Risk Premium + Capital Charges

Credit risk premium is a function of credit risk. For climate projects the technologies and business models are evolving which adds-on a climate project specific credit risk to overall premium

Capital charges are in the form of regulatory capital to be kept aside for unexpected losses. The regulator often uses credit ratings for risk weights which leads to higher capital adequacy allocation for climate projects

- The Risk Adjusted Return Over Capital (RAROC) framework is

Risk Adjusted Return = (Margin – Expected Losses)/Economic Capital

- Both expected losses and economic/ regulatory capital are financial risk elements, often given by credit ratings. As a result, allocation to climate investments remain constrained unless these frameworks are modified.

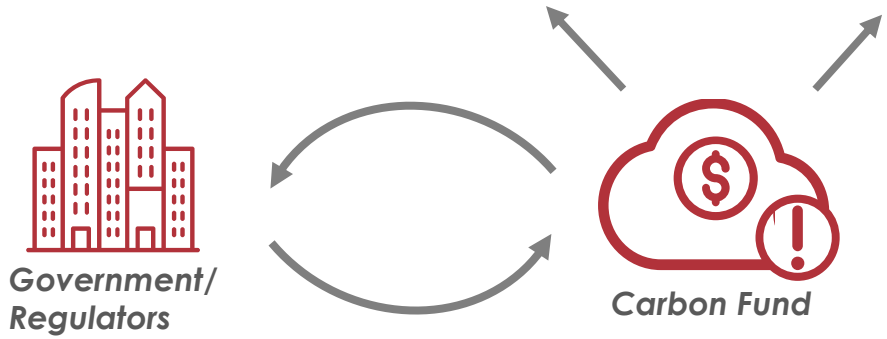
Carbon Pricing to Lower Cost of Climate Finance

- Mobilizing capital for climate projects would need lower cost of capital and addressing climate projects specific risks.
- Carbon pricing and more specifically carbon tax can be used to reduce both credit risk premium and capital charges for climate projects.

Lending Rate = Base Rate + Credit Risk Premium + Capital Charges

Direct climate risk subsidy to lenders can lower the interest rates for climate projects.

Using carbon tax funded guarantees could be an effective mechanism to reduce risk weights for climate exposures.



Conclusion

Coherent financial regulations are required to drive long-term climate investments.

Financial Systems are Changing – First Comprehensive Report from NGFS (April 2019)

"Climate Change is a source of structural change in the economy and financial system and therefore falls within the mandate of central banks and regulators"

- Network for Greening the Financial System

Contact –

CPI: www.climatepolicyinitiative.org

The Lab: www.climatefinancelab.org

USICEF: www.usicef.org

Global Landscape of Climate Finance:
www.climatefinancelandscape.org

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Thank You

Annexure Slides

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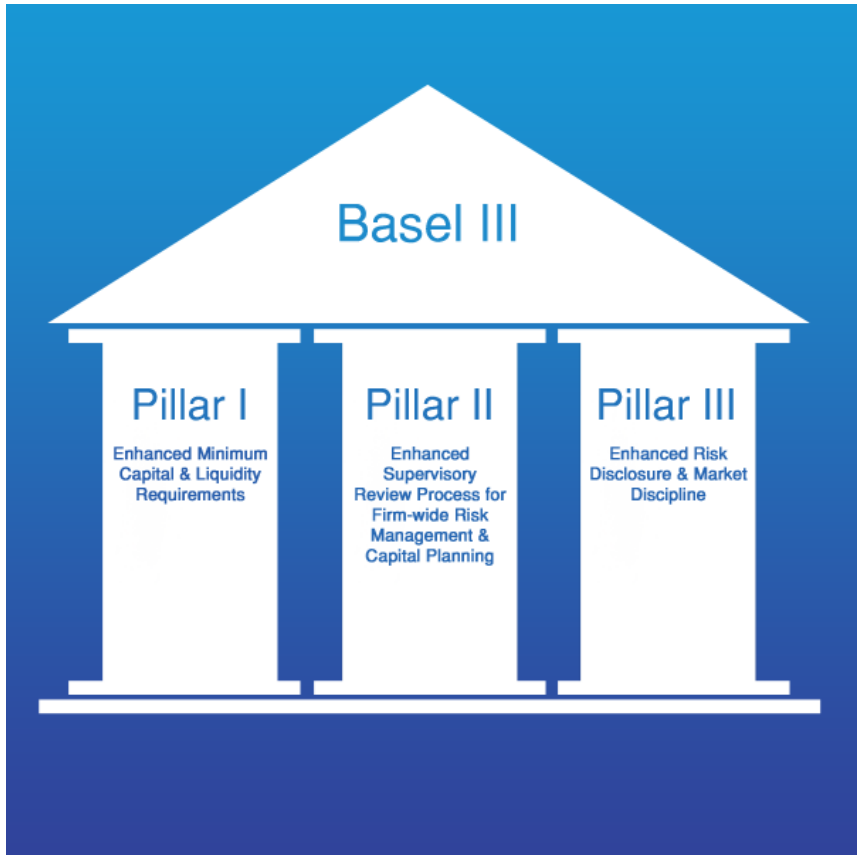
Some recent studies supporting the case for regulatory intervention

UNEP: Aligning the financial system towards sustainable investments is important. While real sector interventions and incentives for private finance are desirable and are being done, it may be useful to consider intervening through the financial system.

Network for Greening the Financial System (NGFS): Climate risk is source of financial risk and that financial sector regulators and supervisors have a significant role in in ensuring that the financial system is resilient to these risks.

2 Degree Investing Initiative: Approaches such as 'Green Supporting Factors' and/or 'Brown Penalties' in risk weights are important for tilting banking regulation towards green investments.

Basel III



Basel III proposes a three pillar framework for banks to improve their risk measurement and management.

- Pillar 1 is **minimum capital requirement** that defines the regulatory capital and liquidity requirements as well as standardized approach for calculating different risks.
- Pillar 2 is **supervisory review process** and addresses firm wide governance, risk management and provides guidance on bank's expectations on interest rate risk on banking book.
- Pillar 3 is **market discipline** and puts forth the additional disclosure requirements and introduces a dashboard of banks' key prudential metrics.

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Pillar 1	Pillar 2	Pillar 3
Minimum Capital Requirements	Supervisory Review Process	Market Discipline
Additional/Refined Capital Basis - Liquidity Coverage Ratio (LCR) - Net Stable Funding Ratio (NSFR) - OTC Derivatives Charge - Quality and Level of Capital - Leverage Ratio - Capital Conservation Buffers - Countercyclical Buffers - Enhanced Loss Absorption Clause (Write-Off or Debt Conversion)	**Supervision (Dialogue)** - Firm-wide Corporate Governance - Managing Risk Concentrations - Alignment of LT Incentives - Sound Compensation Practices - Supervisory Colleges - Capital (ICAAP) - Firm-wide Risk Management - Valuation Practice, Stress Tests - Supervisory Review Evaluation Process (SREP) - Capital - Governance	**Additional/Enhanced Disclosure** - Risk Management • Market • Credit • Operational - Regulatory Capital components - Detailed Reconciliation of Capital - Regulatory Capital Ratios - Securitisation Exposures

The management of certain transaction -specific environmental risks on credit and operational risks is already required by paragraph 510

ICAAP and SREP can be used to assess portfolio risk exposures to systemic environmental risks

Standardised or harmonised disclosure of information about exposure to, and management of, systemic environmental risks could form part of additional or enhanced disclosure requirements

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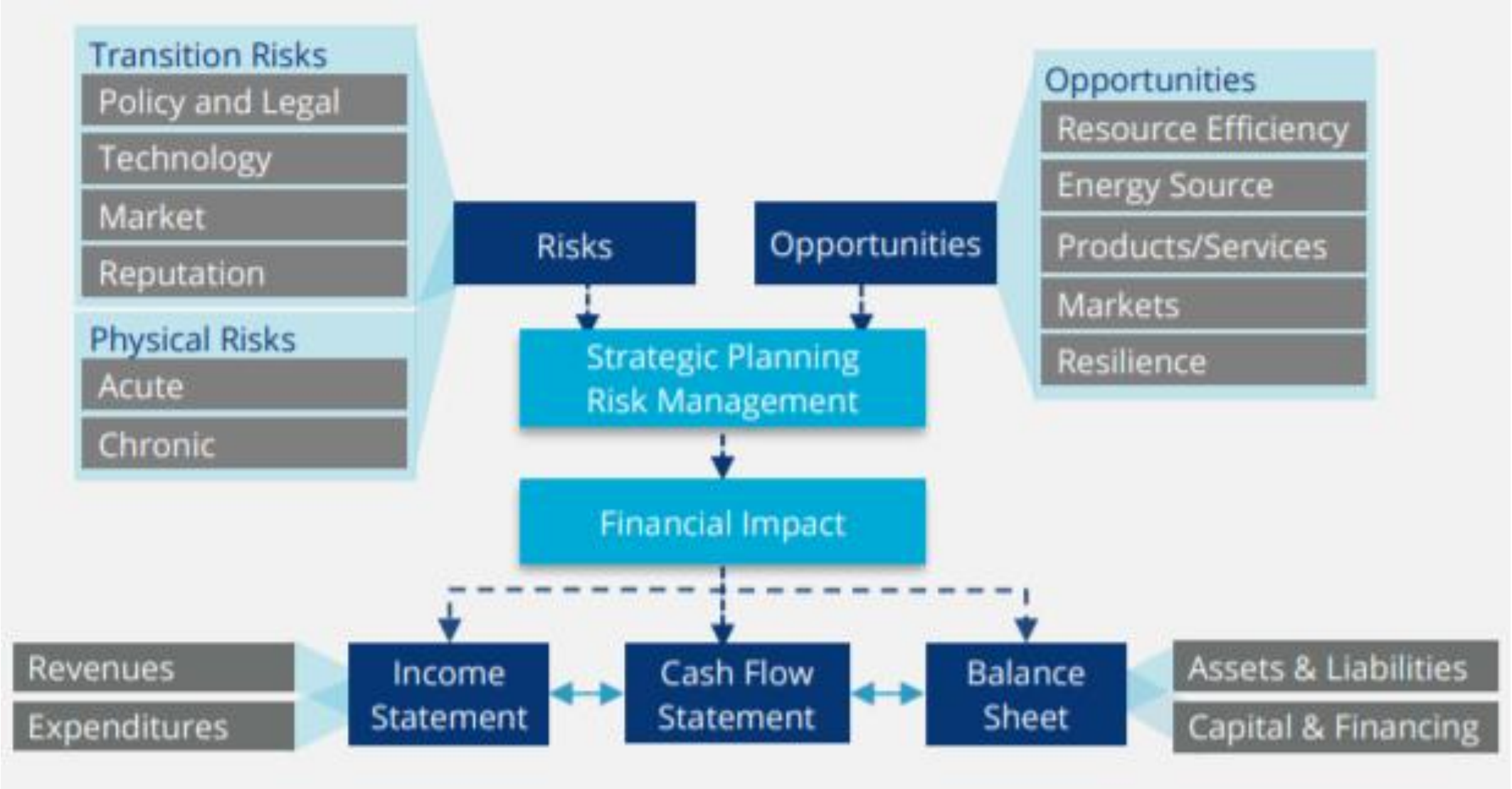
TCFD - Climate-Related risks, opportunities, and financial impact



Source: TCFD

About CPI

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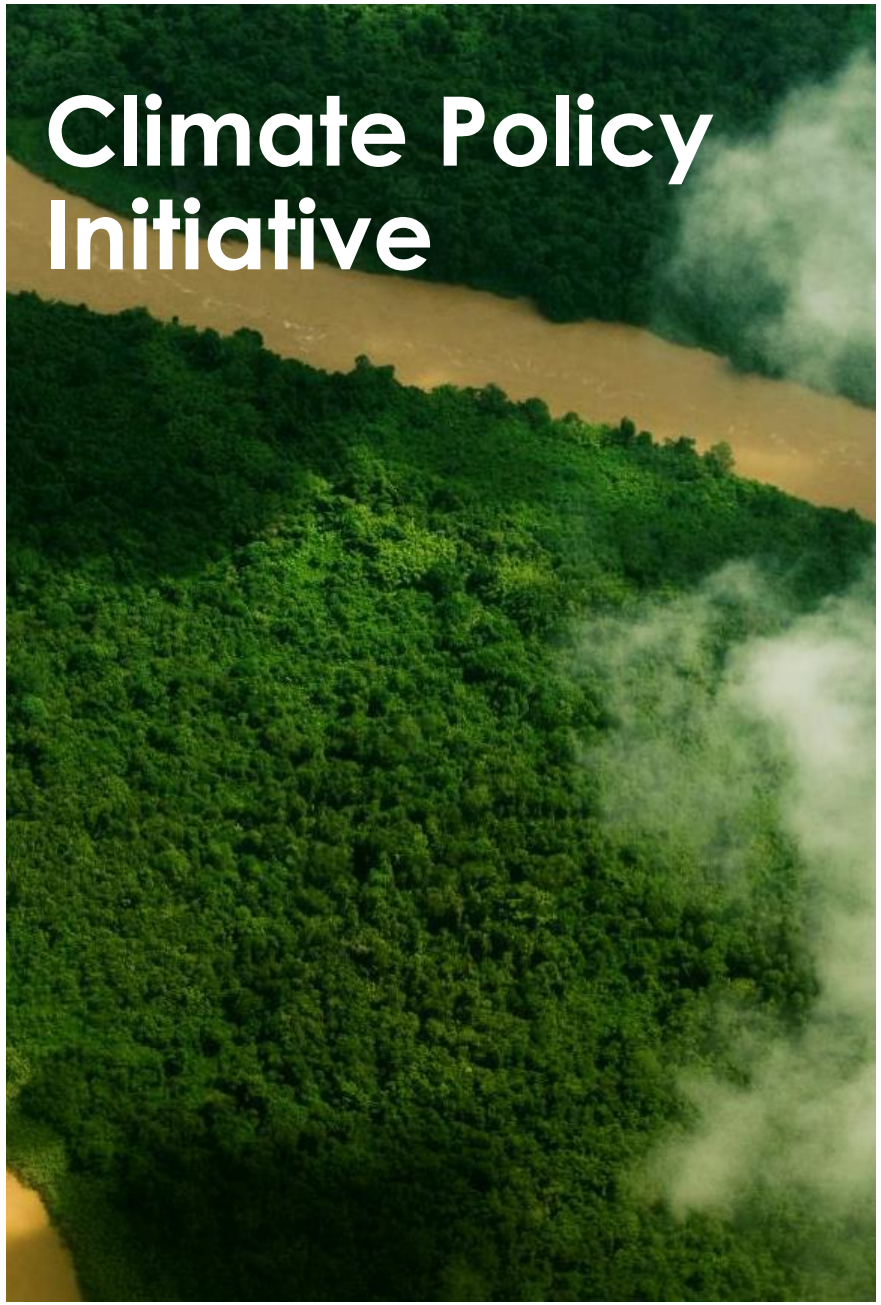

We are analysts and advisors with deep expertise in policy and finance.

We help governments, businesses, and financial institutions drive economic growth while addressing climate change.

We are unique in our focus on finance, our ability to get the right people to the table, and our analytical rigor.

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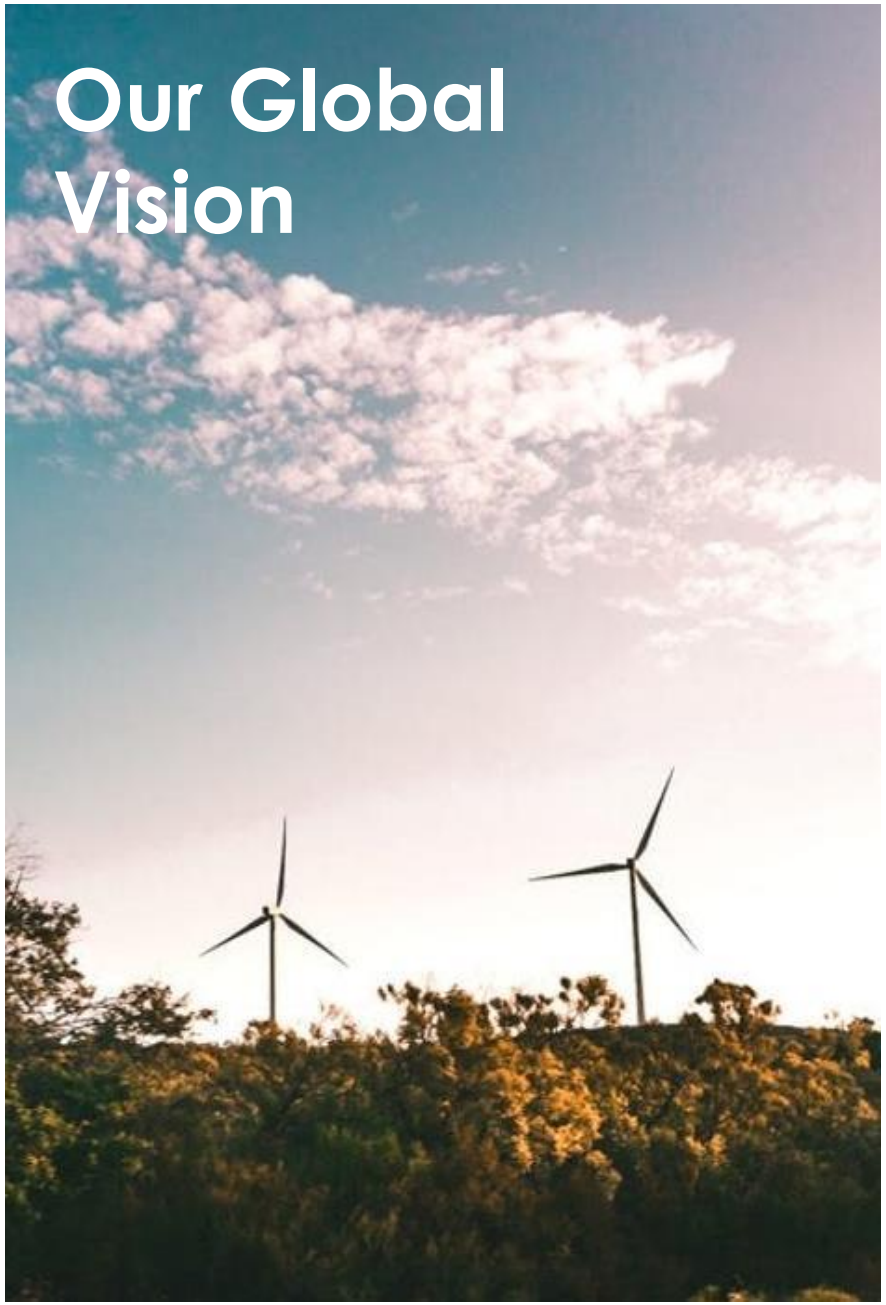
Our Global Vision



1. Global temperature rise stays below 2°celsius while achieving inclusive economic growth through sustainable development

2. A global shift to a low-carbon, climate resilient economy that includes trillions in new investments in clean business models

3. **Effective use of both public and private resources to enable these changes is needed.**

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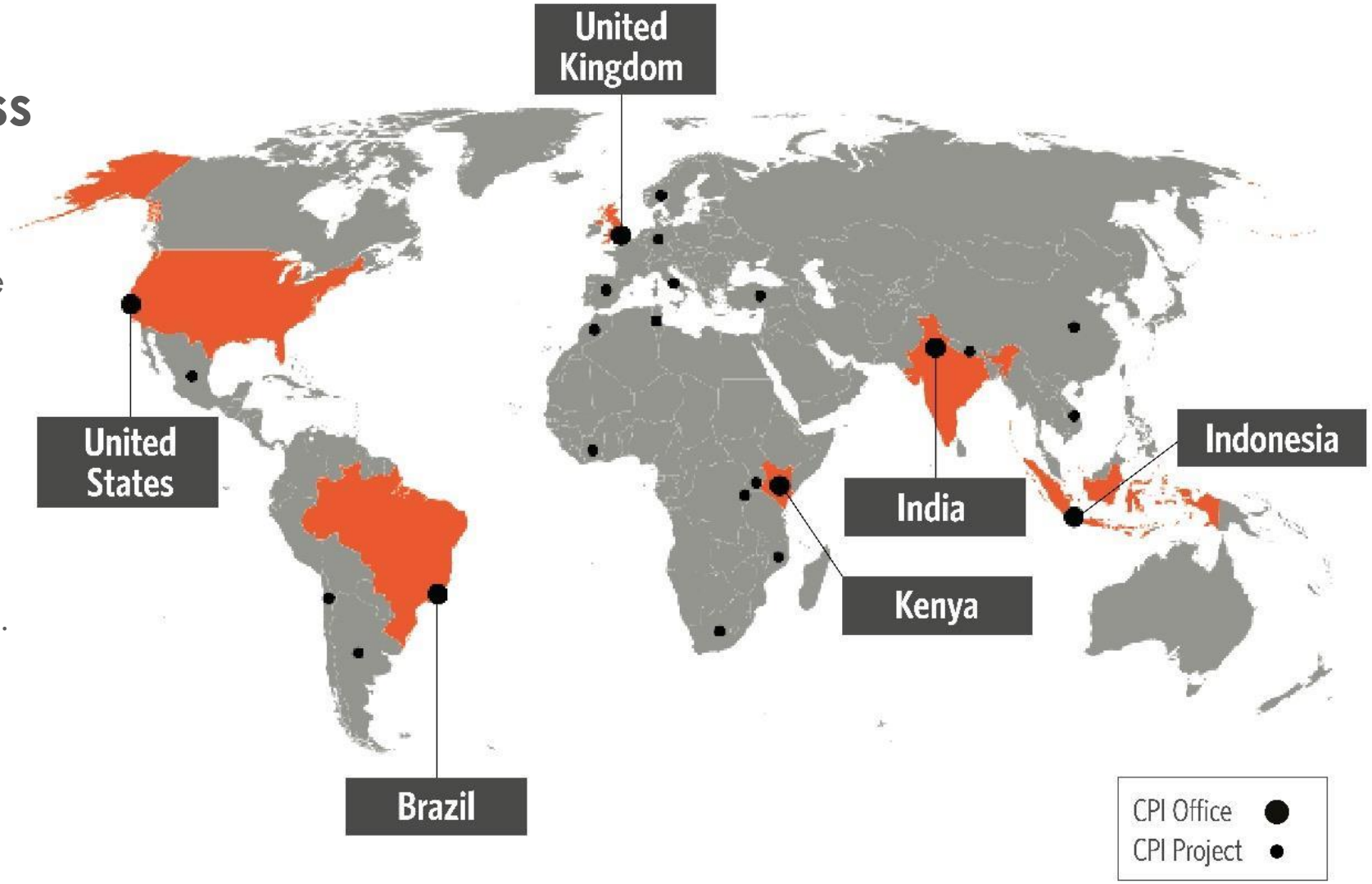
Our experts bring global perspective

6 Offices across the world

in Brazil, Kenya, India, Indonesia, the United Kingdom, and the United States.

We also have projects in other places with high potential for impact.



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We work with a diverse range of partners whose decisions matter

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How we are unique:

01.

Focus on finance

We bring deep expertise in policy and finance, and prioritize both economic growth and action on climate change in our work. These are rare attributes in a mission-driven organization.

02.

Get the right people in the room

We bring stakeholders from the public and private sectors together to help them make impact on the ground.

03.

Analytical rigor

We work closely with our partners to develop analysis and solutions that are grounded in the real world and implementable.

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We work on enabling finance for climate action

CLEAN ENERGY

LAND USE

ADAPTATION

CITIES

NDC IMPLEMENTATION

ENERGY ACCESS

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Our Capabilities

Analysis & Advisory

Primary research & data analysis

Risks and barriers assessment & gap analysis

Finance and policy advisory & design

Case study development

Convening & Partnerships

Neutral intermediation between

- Public and private actors
- Projects and investors

Management of high impact initiatives

Cross Cutting: Designing and supporting transformative solutions

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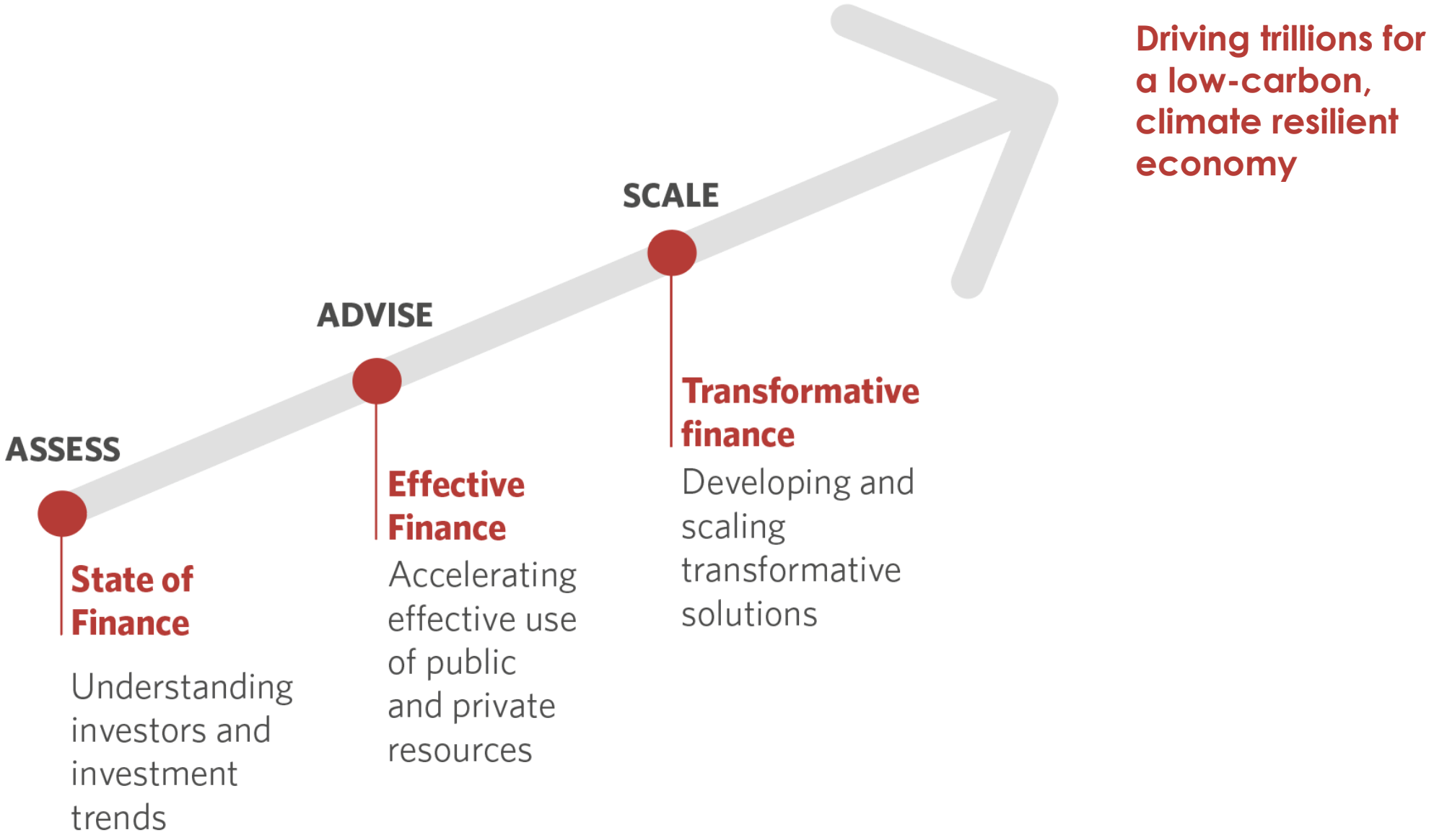
Our areas of work:



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