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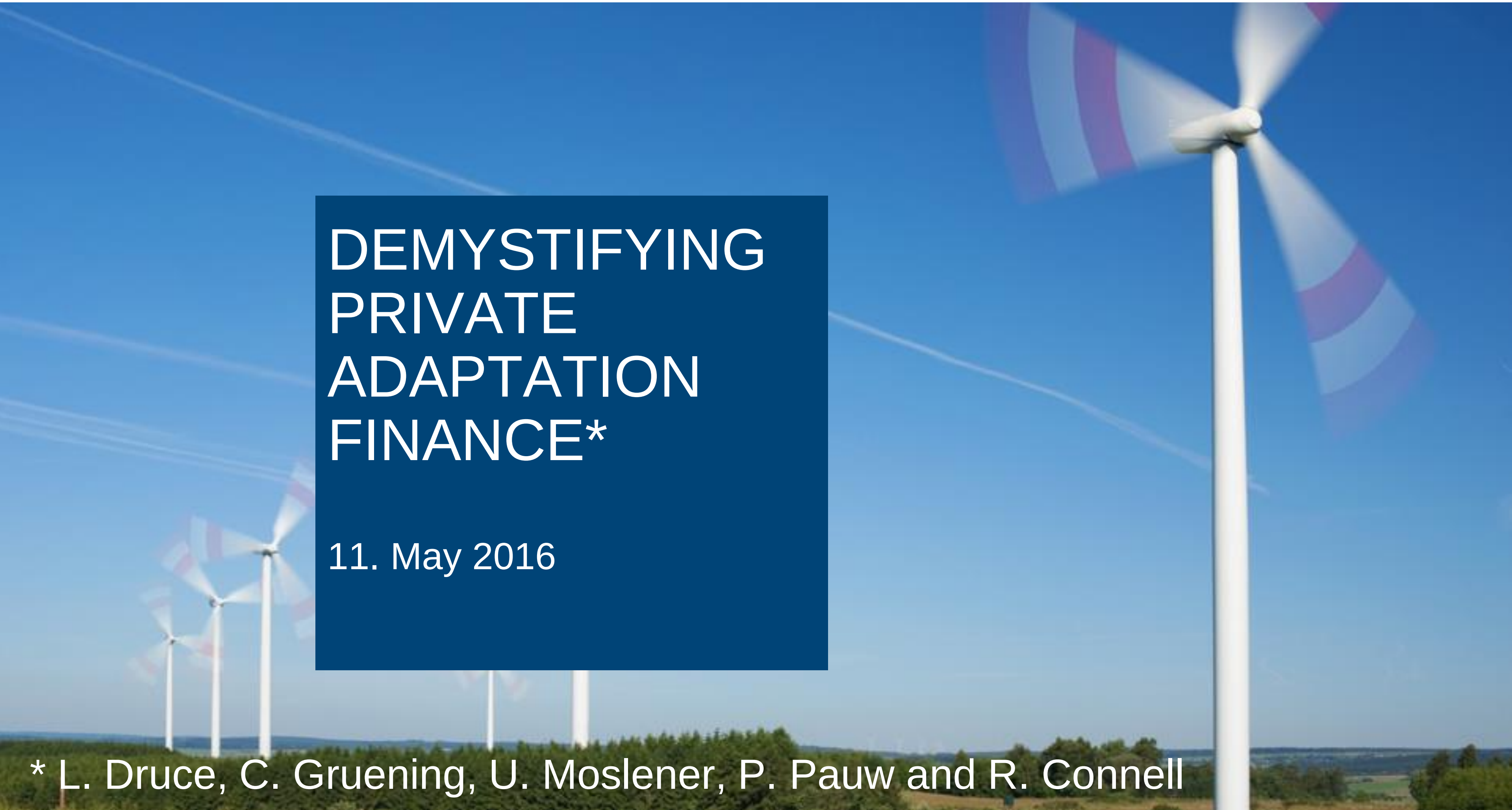
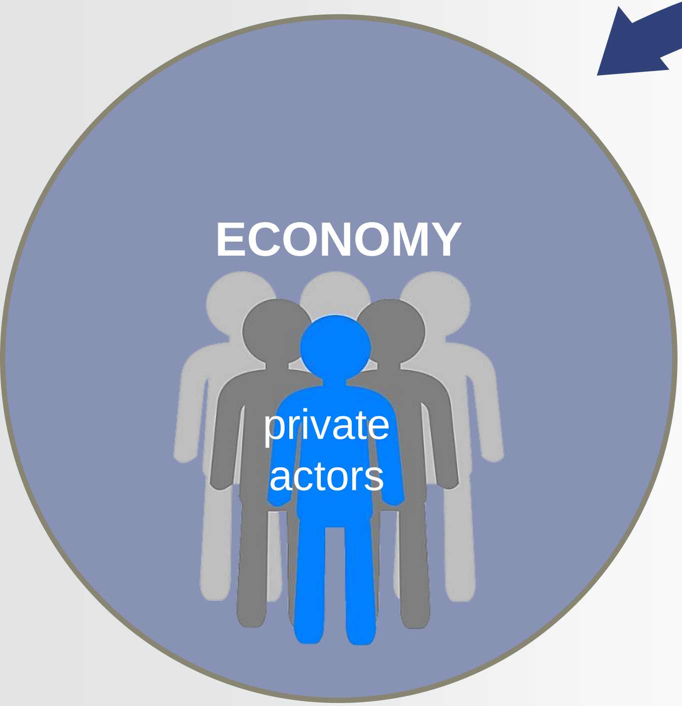


DEMYSTIFYING PRIVATE ADAPTATION FINANCE*

11. May 2016

* L. Druce, C. Gruening, U. Moslener, P. Pauw and R. Connell

Adaptation as Exogenous Structural Change



Adaptation related activities:

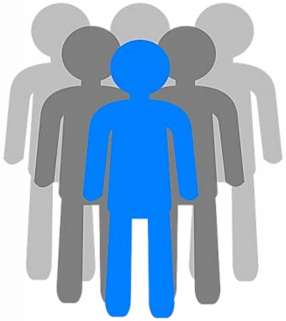
as any activity which a private actor pursues which is performed differently compared to a counterfactual world without climate change

Relevant Economic Actors

Governments

Public Finance Institutions

PUBLI
C



Enterprises
e.g. SMEs, Corporates, Infrastructure

Private Financiers

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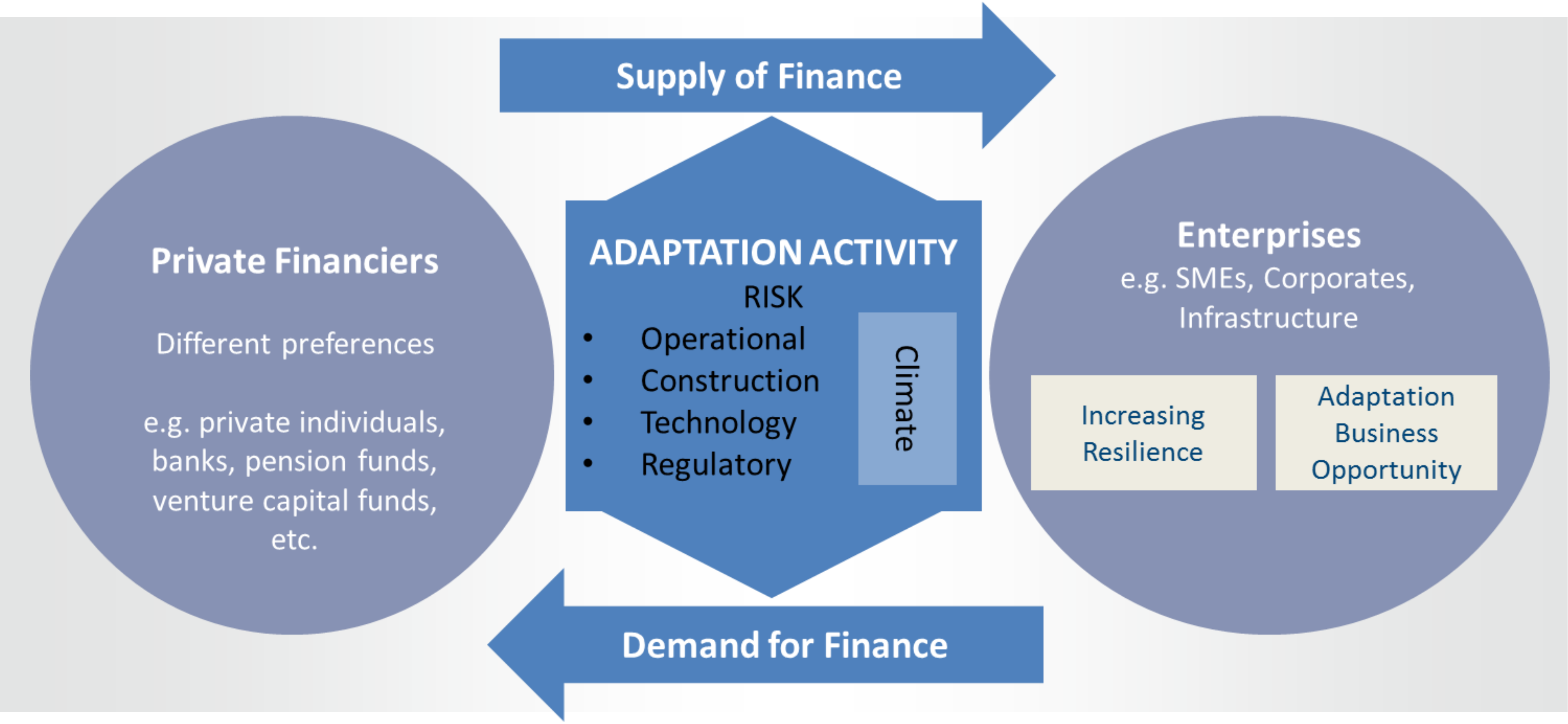
Climate Adaptation Finance – towards an Actor Based Perspective



Topics addressed in the study

- **How are private actors affected ?**
  - **Adaptation measures ➔ financing demand**
  - **Financing supply**
- **What keeps finance from flowing ? (barriers)**
- **How can the barriers be overcome ? (corrective policy instruments)**

(Based on 28 case studies.)

Climate Impacts

Water scarcity and drought

Increased flooding (including coastal flooding)

Extreme heat events (including heat stress in urban areas)

Health-related climate risks

Adaptation-related Activities: Cases

Activity Type		Water scarcity and drought	Increased flooding	Extreme heat events	Health-related risks
	SME/Corporate				
	Upstream Supply Chain	Pest resistant crops	Index insurance	Planting shady trees	Medical equipment
	Internal Processes (incl. employees)	Water efficient technologies	Seed banks	Energy efficient equipment	Manufacturing health products
	Downstream market	Agriculture inputs	Early warning technologies	Landscape and urban design	Medical information
	Infrastructure				
	Public infrastructure	Terracing	Coastal development	Spatial planning	Research facilities
	Private infrastructure	Rainwater harvesting	Flood defence barrier	Green roofs	Mobile clinics

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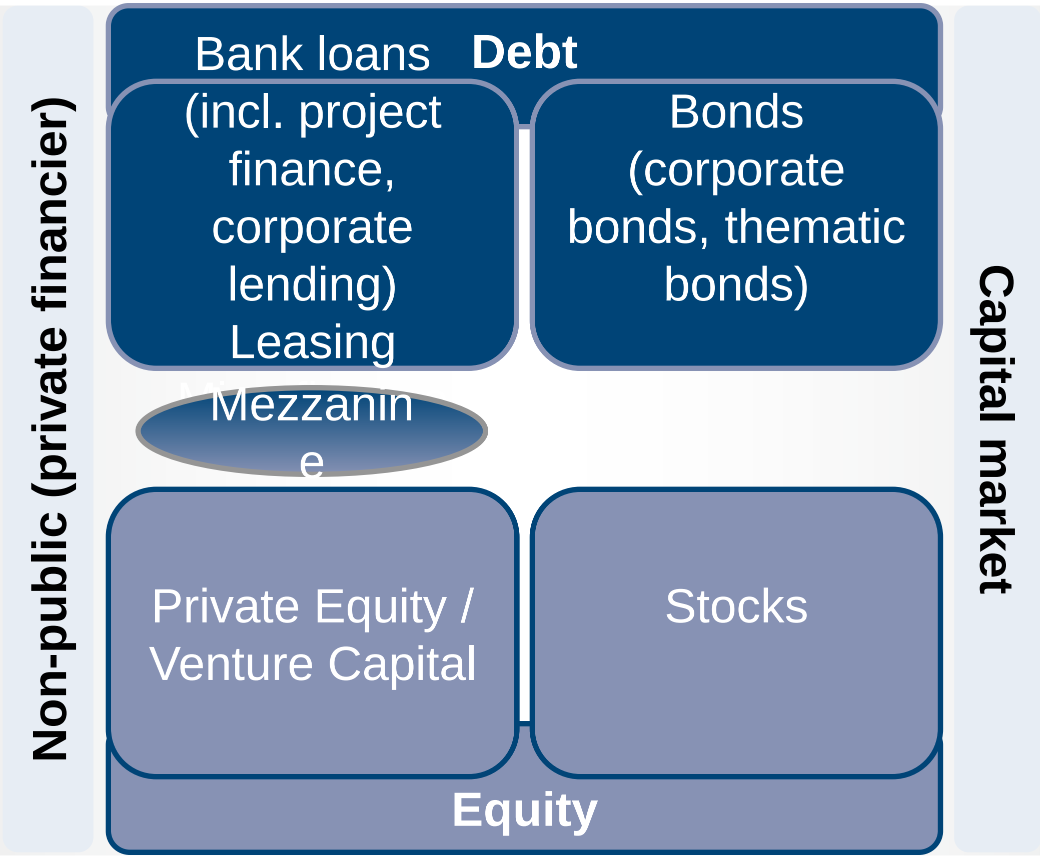
Adaptation related activities are financed using standard financing instruments



A specific view on barriers

A lot of comprehensive work on barriers

e.g. CPI 2015; Vivid Economics 2015; Islam et al 2014; Barnett 2015; Jones 2010; PCIR 2012; Stenek 2013

Our working definition: Barriers to (adaptation-related) investments

"A friction that prevents ***socially optimal*** *(adaptation-related) investments from materialising."*

Mapping barriers to the investor perspective

Economic / Investor	Externality		Imperfect capital market	Asymmetric information	Other market imperfections
	Public good provision	Technology externality			
Reduced return	X				
Risk / return				X	
Output risk			X		X
Input factors risk					
Labour force (input factor)					
Liquidity risk			X		
Regulatory & policy risk					

Illustrating the use of the mapping: Example – Lack of a market (price) for water

- Assume a country where demand for water exceeds supply for water due to bad water pipes

No market price for water → market imperfection

Option 1

- Introduce a market price for water

→ Investment in water infrastructure will be more attractive

Option 2

- Keep ‘subsidised’ low water price

→ Investment in water infrastructure can be made more attractive

(e.g. through concessional finance)

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Information asymmetry

No climate data available → reduced demand & supply of adaptation related activities

Corrective policy instrument: Technical assistance grants for data collection, research or capacity building

SME / corporate

Technical assistance was provided as grant support for climate risk data collection and implement low-cost, no-regret adaptation measures

Infrastructure

IFC financed a feasibility study on climate risks to a port, creating demand for investment in resilience

Public good provision (externality) of adaptation activity

Maximisation of the own utility has a positive impact (externality) on the utility on another actor

Corrective policy instrument: Internalising the positive externality through incentivising the corresponding positive externality; subsidise efficient technologies

SME / corporate

→ Urban heat island effect: increased use of green roofs in cities has positive effects on others

Note: Negative externalities are also possible.

Imperfect capital market: Lack of liquidity in long-term debt market

Adaptation activities may face substantial payback periods → lack of a liquid market for long term debt (supply of finance)

Corrective policy instrument: DFIs directly providing long-term debt; on-lending, in combination with senior debt to improve security for senior lender.

Infrastructure

→ A flood prevention barrier built around a private Industrial Estate: Government supplied a 15 year concessional loan

Imperfect capital market (insurance)

High (perceived) risks → Limited credit availability for new innovation/R&D

→ Limited insurance availability

Corrective policy instrument:

(i) Risk management tool that shares in credit risk; debt facility targeting innovation at different levels of development (e.g. targeting the classical SME financing gap).

(ii) providing guarantees; subsidising commercial (climate) risk insurance

SME / corporate

→ SMEs facing financing problems (mixture of capital market imperfections)

→ Not all climate risks are insurable. For some public institutions might provide insurance

Summary

- Adaptation is one example of exogenously imposed structural change
- Financing adaptation-related activities is typically done using standard financing instruments
- Public money for adaptation should be used to moderate and facilitate the structural change by tackling the barriers for financing supply and demand that stem from the market imperfections

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