



Chaire Modélisation prospective
au service du développement durable



Funding low carbon investments in the absence of a carbon tax

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Introduction

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Intergenerational equity:
Need to pay now for remote future benefits

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Intergenerational transfers
(Rezai et al, 2009)

Shifting investments towards low-carbon projects

Significant investments required in energy, building, transport and end-use equipment:

	World Bank (WDR 2010)	IEA (WEO 2009)
Incremental investment costs	US\$ 140 – 175 billion/year by 2030	US\$ 11 trillion over 2008-2030, i.e. 3% of GFCF

Shifting investments towards low-carbon projects

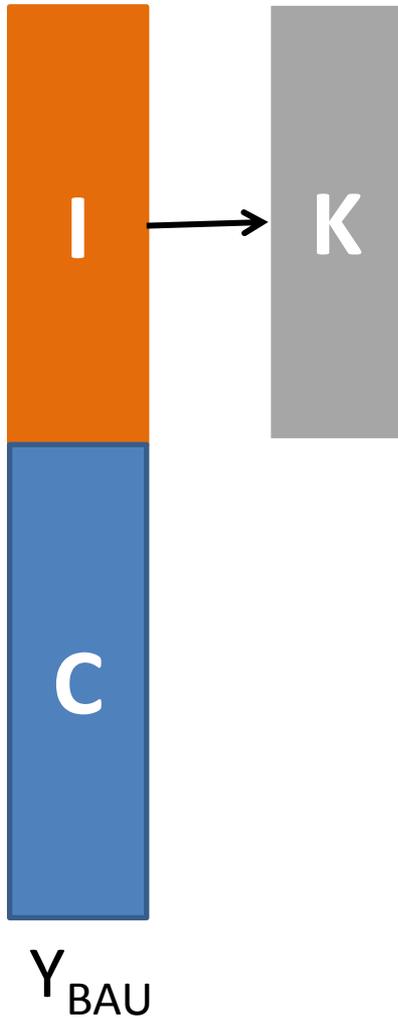
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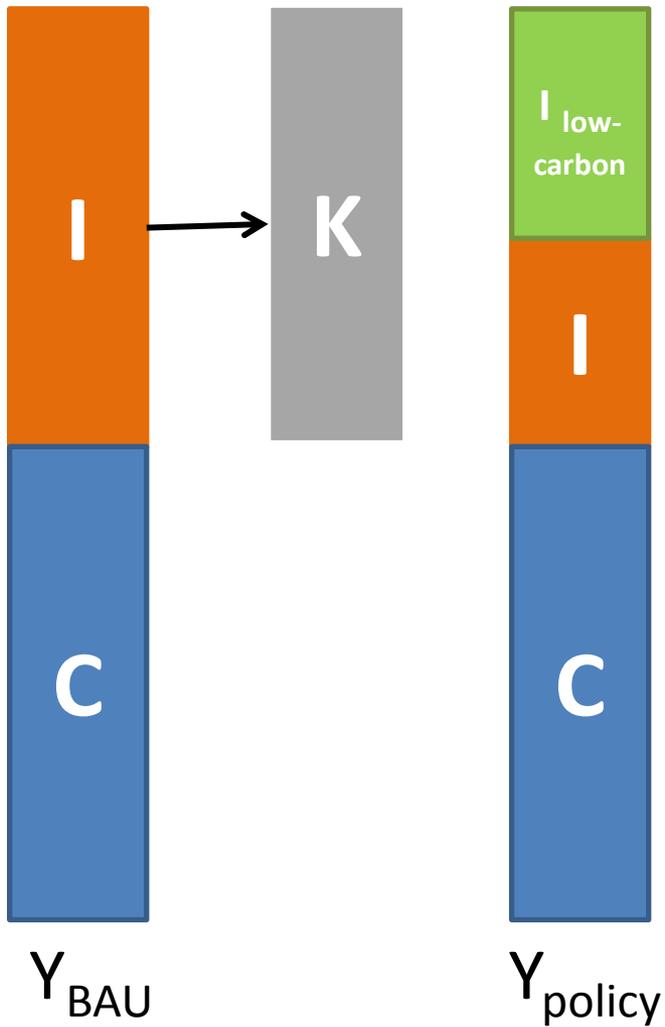
The challenge is not to increase investments but to shift them towards low-carbon projects.

→ Differentiated interest rates

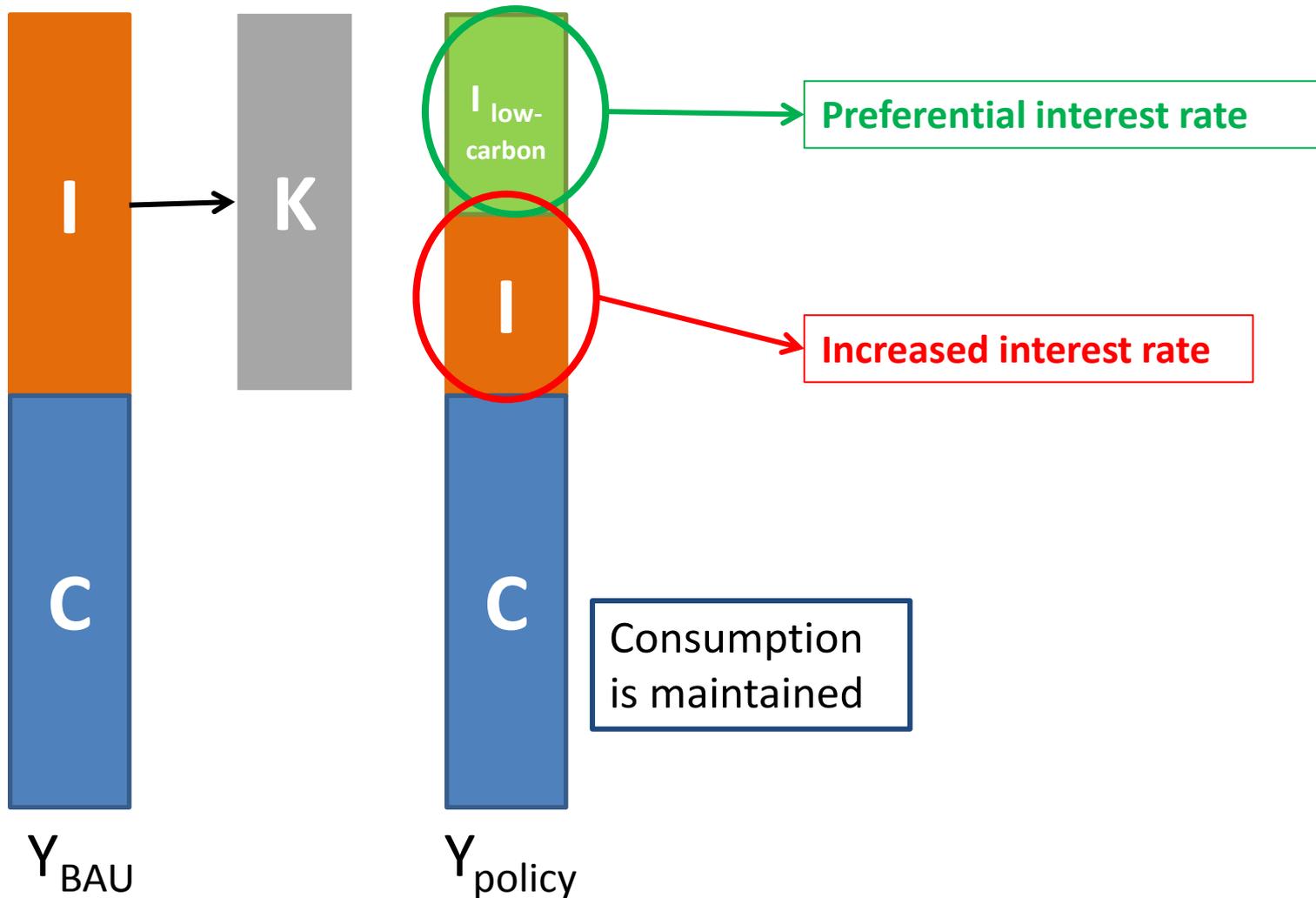
Intergenerational transfers



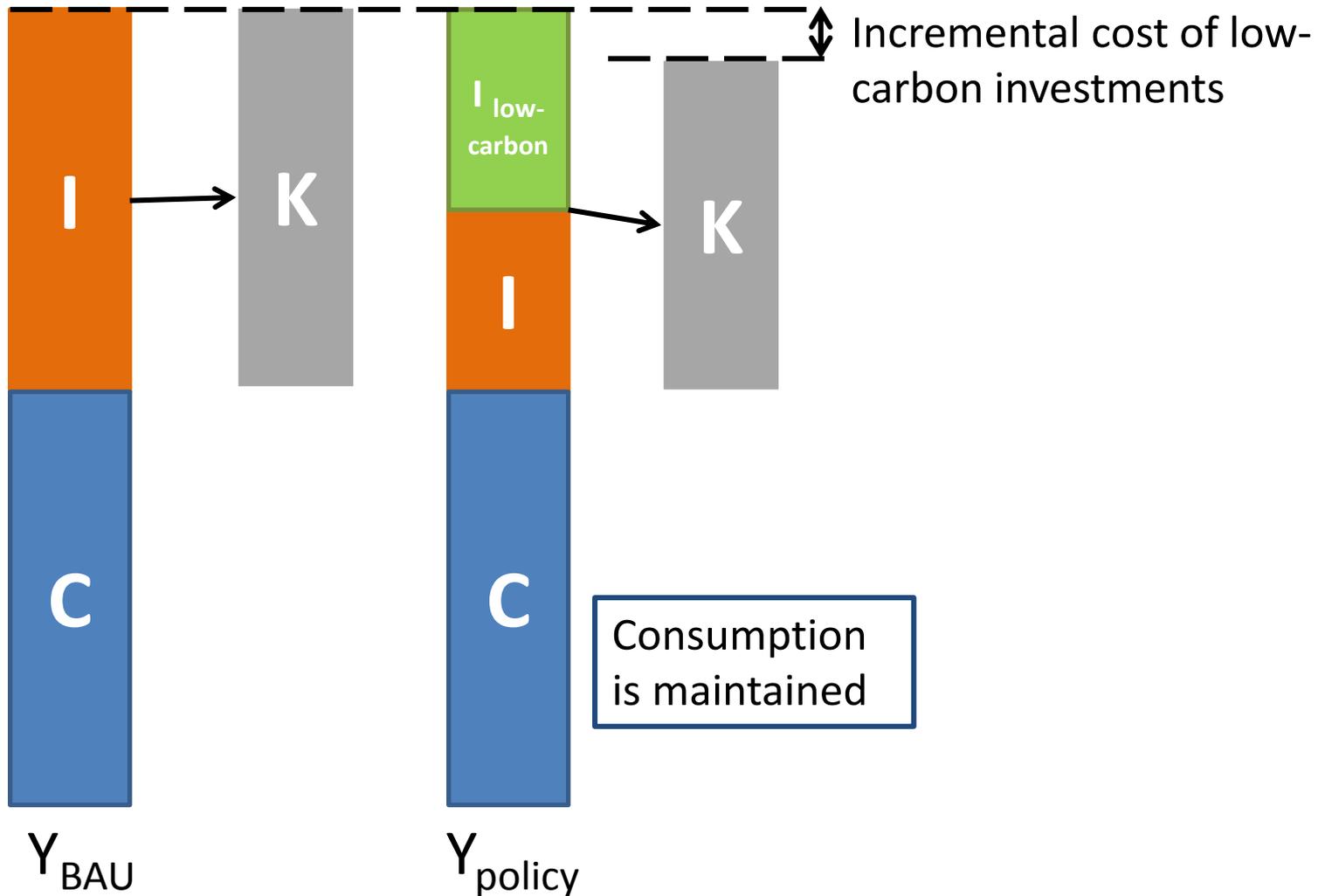
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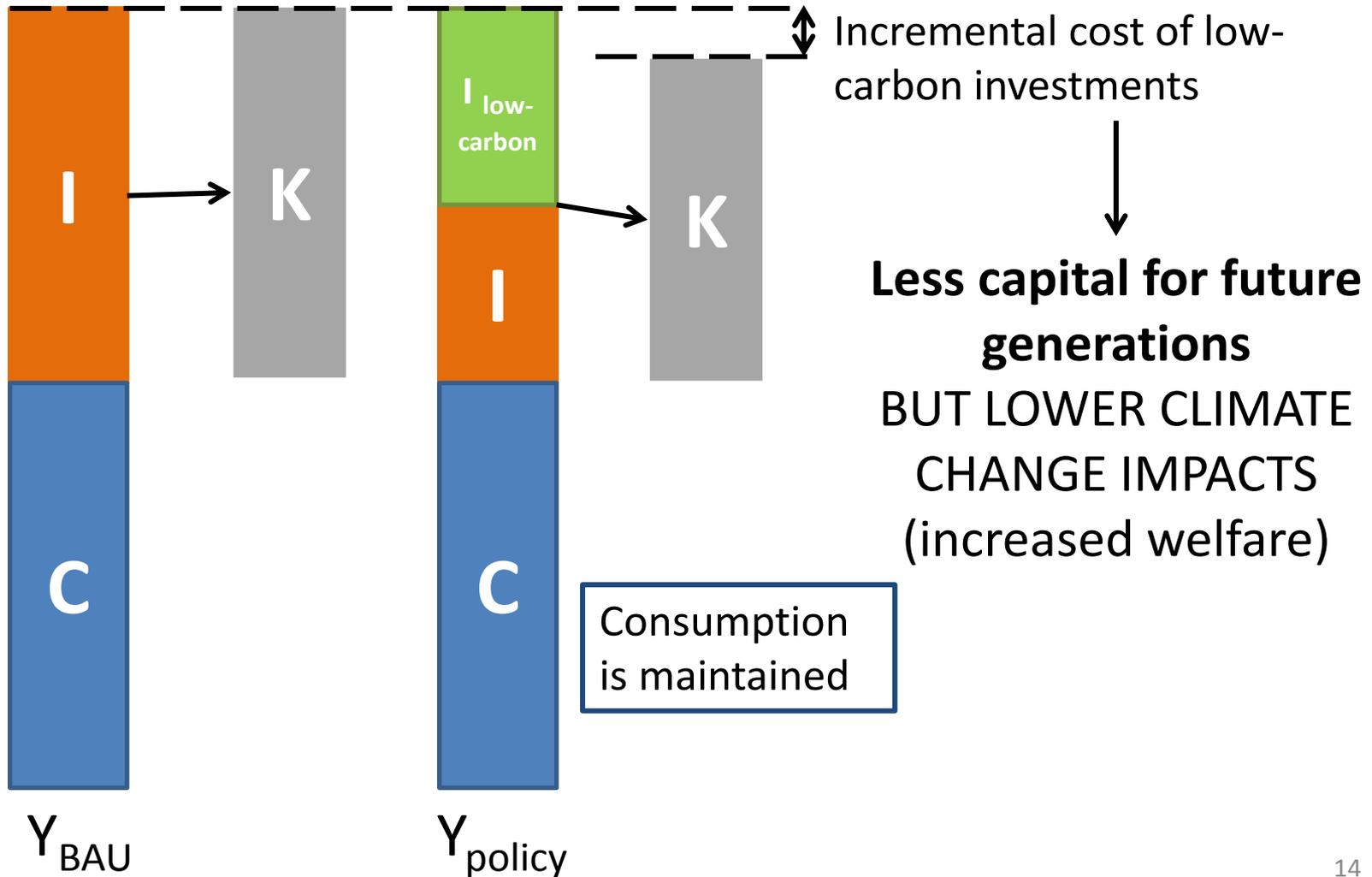
Intergenerational transfers



Intergenerational transfers



Intergenerational transfers



Carbon certificates

- Fixed face value: carbon value
- Legal reserve assets that can be used by commercial banks to respect legal reserves regulatory constraints
- Created and allocated by an independent monitoring unit

CC are allocated to the project according to its contribution to emissions mitigation

Independent monitoring unit

Carbon certificates

Project investor



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No « additionality »

- Taxonomy of low-carbon projects
- Number of CC conventionally attributed to each project category
- Lifetime of the CC also depends on the project category



CC can be exchanged for a concessional loan

Independent monitoring unit

Carbon certificates

Project investor

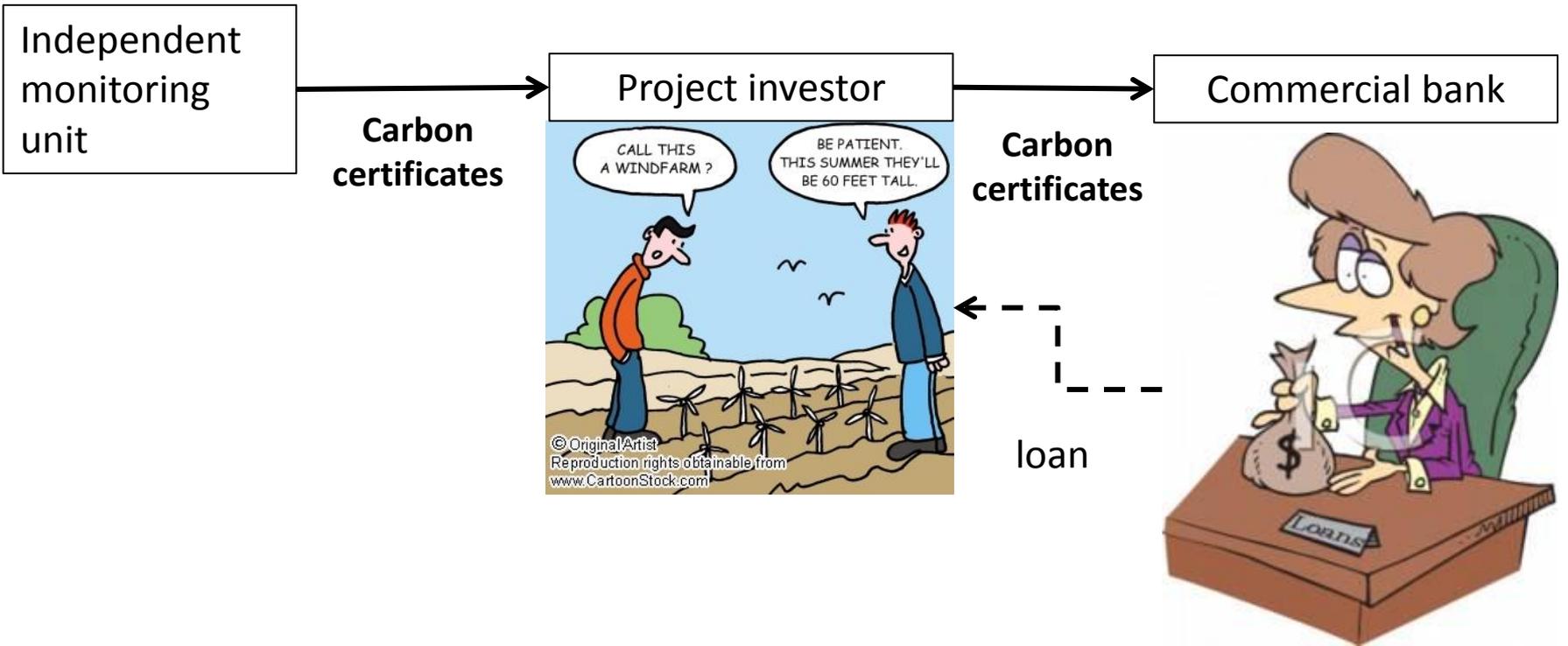


Carbon certificates

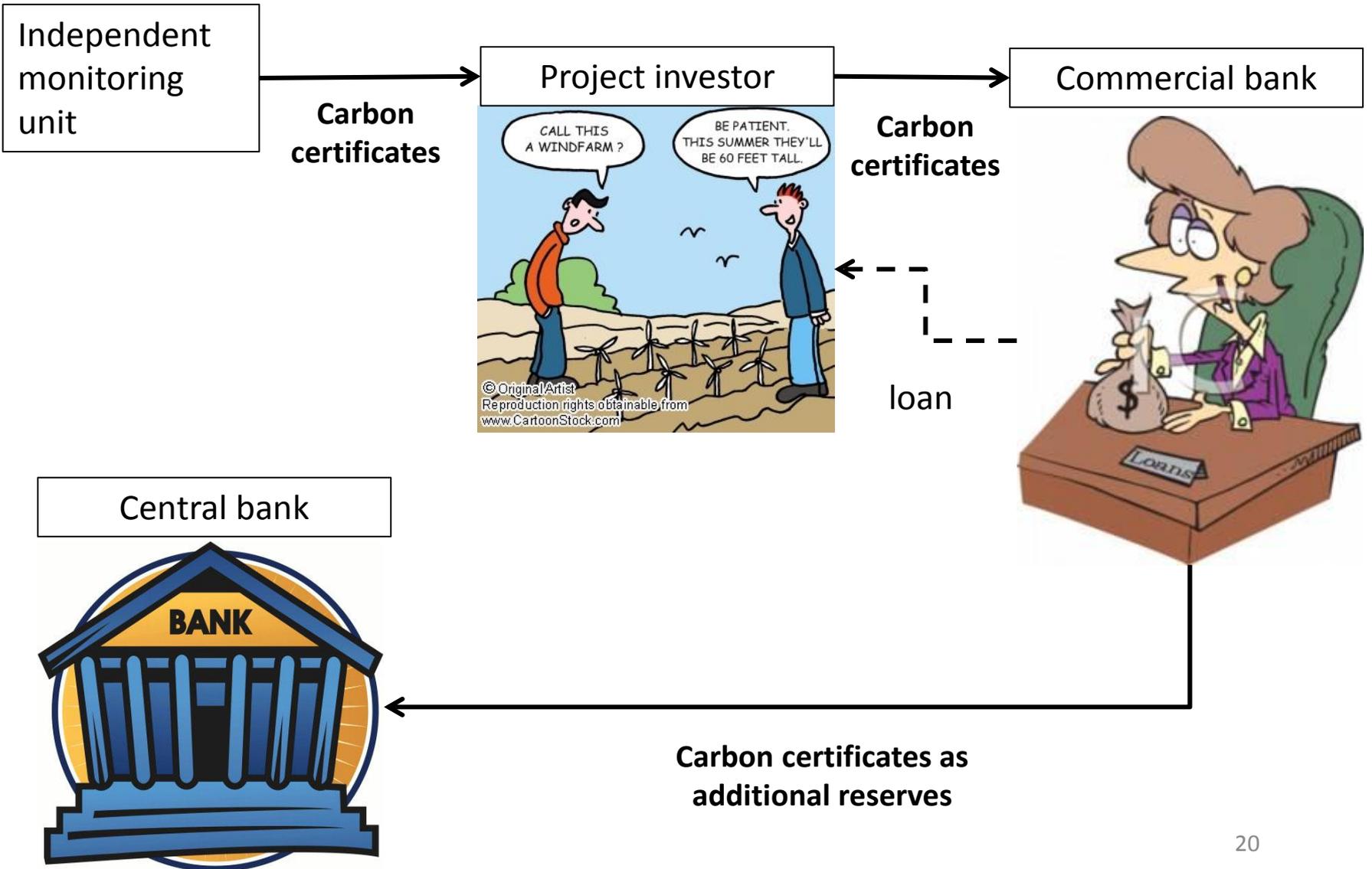
Commercial bank



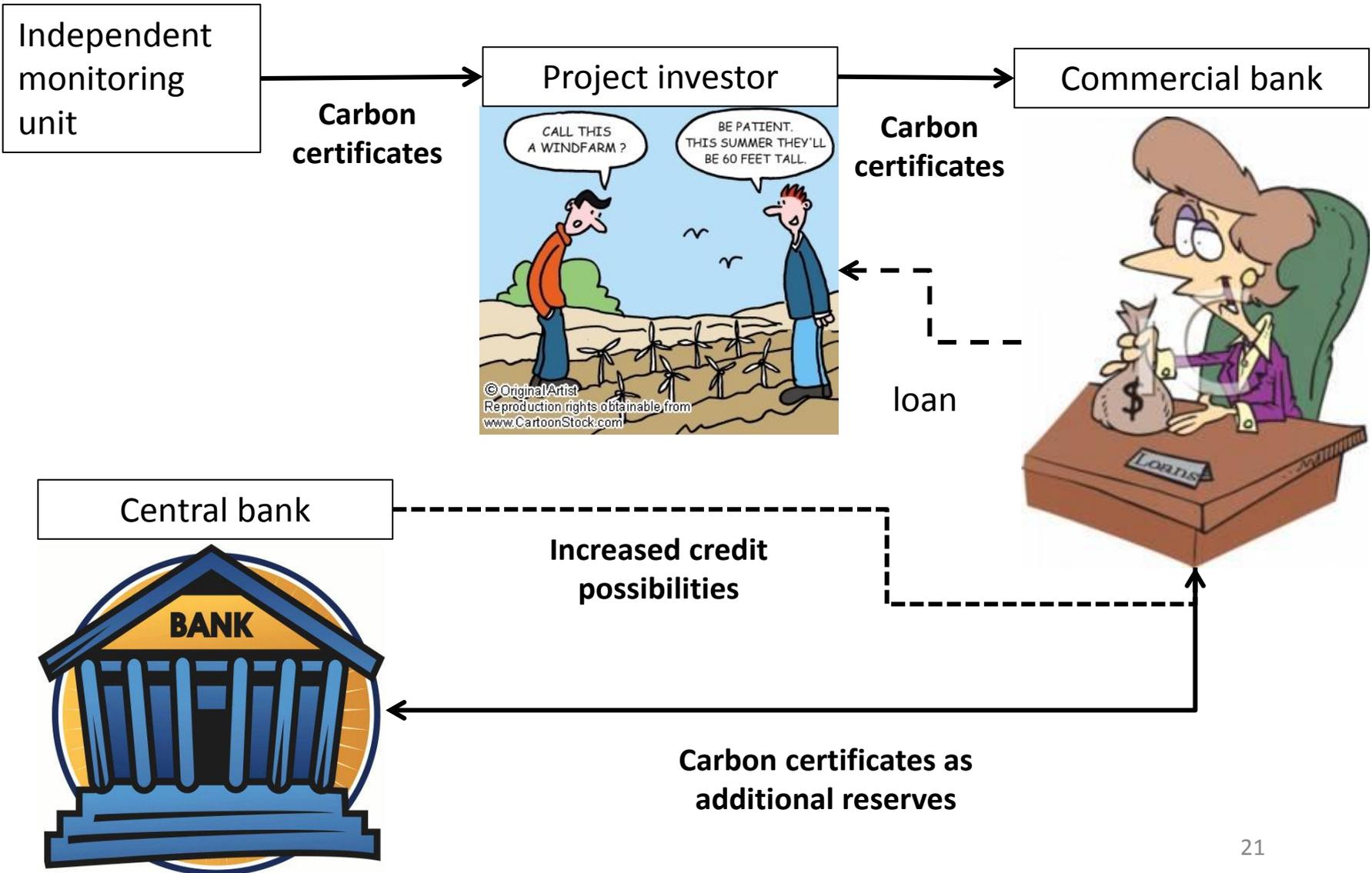
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Banks can use the certificates as legal reserves assets



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Legal reserve requirements

- M1 = currency + chequable deposits
- MB = monetary base

$$M1 = \frac{1 + c}{r + e + c} \cdot MB$$

c = currency-deposits ratio

r = legal reserves-deposits ratio

e = excess reserves-deposit ratio

Legal reserve requirements

- M1 = currency + chequable deposits
- MB = monetary base

$$M1 = \frac{1 + c}{r + e + c} \cdot (MB + CC)$$

c = currency-deposits ratio

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What reaction of the Central Bank?

Increase the inflation
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Fight inflation

- **Increase r** (legal reserves-deposits ratio) to reduce M1 → banks have to reduce loans

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Fight inflation

- **Increase r** (legal reserves-deposits ratio) to reduce M1 → banks have to reduce loans
- **Increase nominal interest rates**

→ higher rates for regular investments

Conclusion

- The creation of CC is not as efficient as a carbon tax but it is more politically acceptable because it uses the wealth of future generations to pay for mitigation policies

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- In time of economic crisis, money creation through CC could act as a “green stimulus” policy