EUROPEAN CENTRAL BANK

EUROSYSTEM

Impact of climate change/protection, digitalisation and (de)globalisation on r*

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European Central Bank

15 September 2021

SUERF/BAFFI/OeNB event “How to raise r*?”

Overview

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Focus of this presentation

- r* is typically analysed as a function of factors of production (capital, labour, productivity), and preferences (risk aversion/savings).
- These, in turn, are affected by structural factors – **those structural factors and their effects on r* are the focus of this presentation.**

- The **key focus is on climate change/protection, digitalisation, (de)globalisation.**
- The presentation also covers **demographics and distribution**, and the effects of the **COVID-19 pandemic.**

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Key messages

- Climate change/protection, digitalisation, (de)globalisation are **major structural factors impacting on r*.**
- The **size/sign of the impact is uncertain**, interactions complex, so policy prescriptions have to be handled with care.
- Climate change/protection, digitalisation, (de)globalisation are **not the only major structural factors impacting on r*.**
- Others include **demographics, distribution**. Moreover, and not least, episodes such as the COVID-19 pandemic may be impacting on r*.

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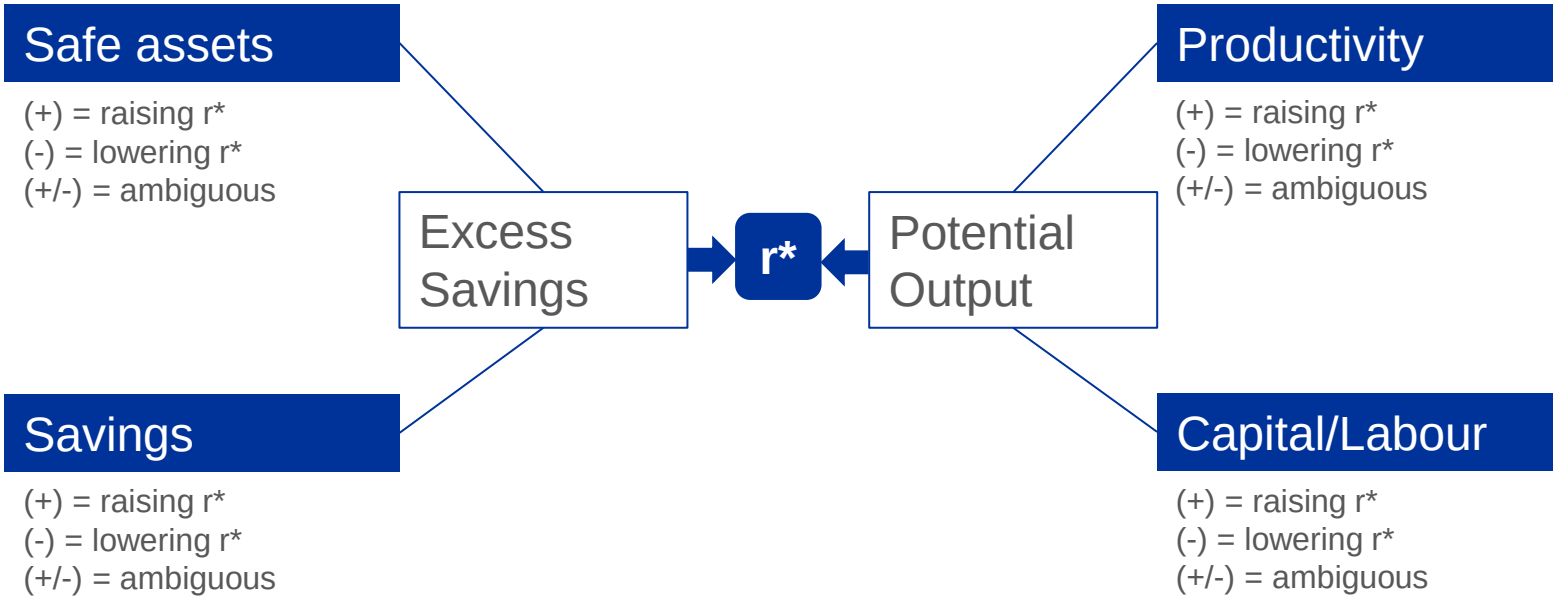
Overview

Channels of impact



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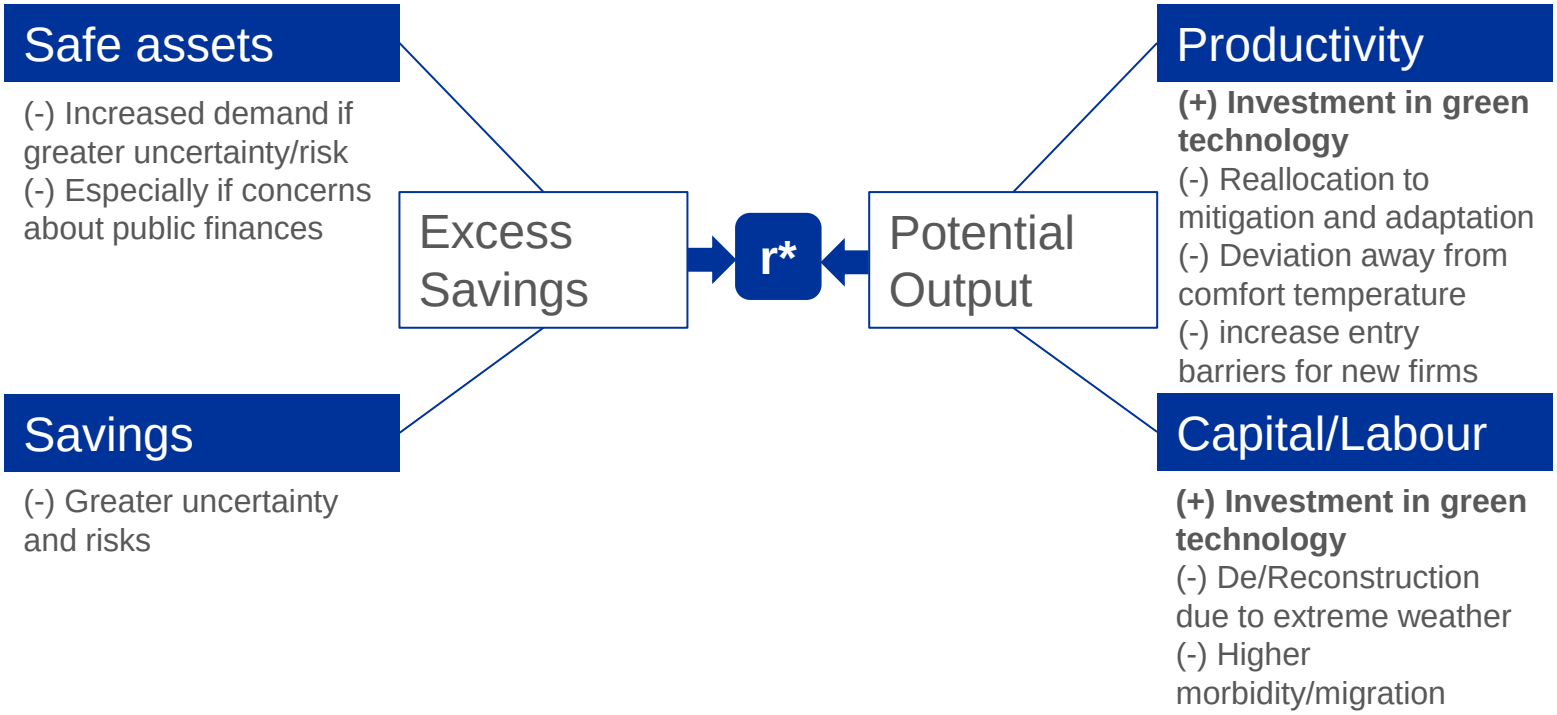
Channels of impact: climate change

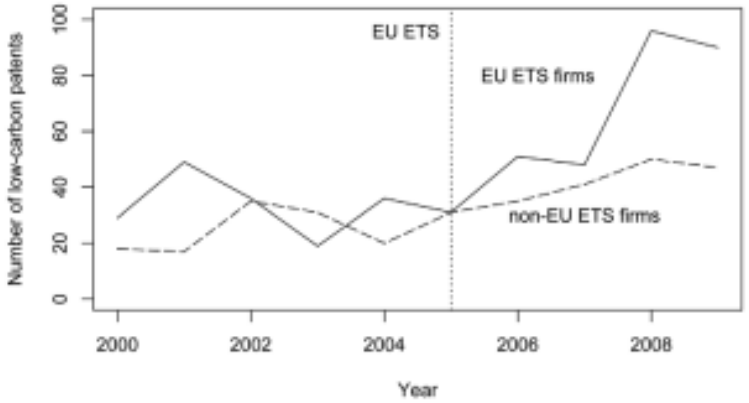


Channels of impact: climate change (ctd.)

Green regulation might increase incentives for firms to invest in green technologies and thus increase innovation and productivity,

its impact **may, however, be heterogeneous across firms**, with small, less technological advanced, firms being at disadvantage.

The impact of the EU ETS on green patents



Source: Calel and Dechezlepretre (2016), “Environmental policy and directed technological change”, The Review of Economics and Statistics, March 2016, 98(1): 173–191

Notes: Diff-in-diff exercise looking at the evolution of green patents of firms affected by the EU ETS (solid line) relative to similar firms according to observable characteristics not covered by the EU ETS (dashed line)

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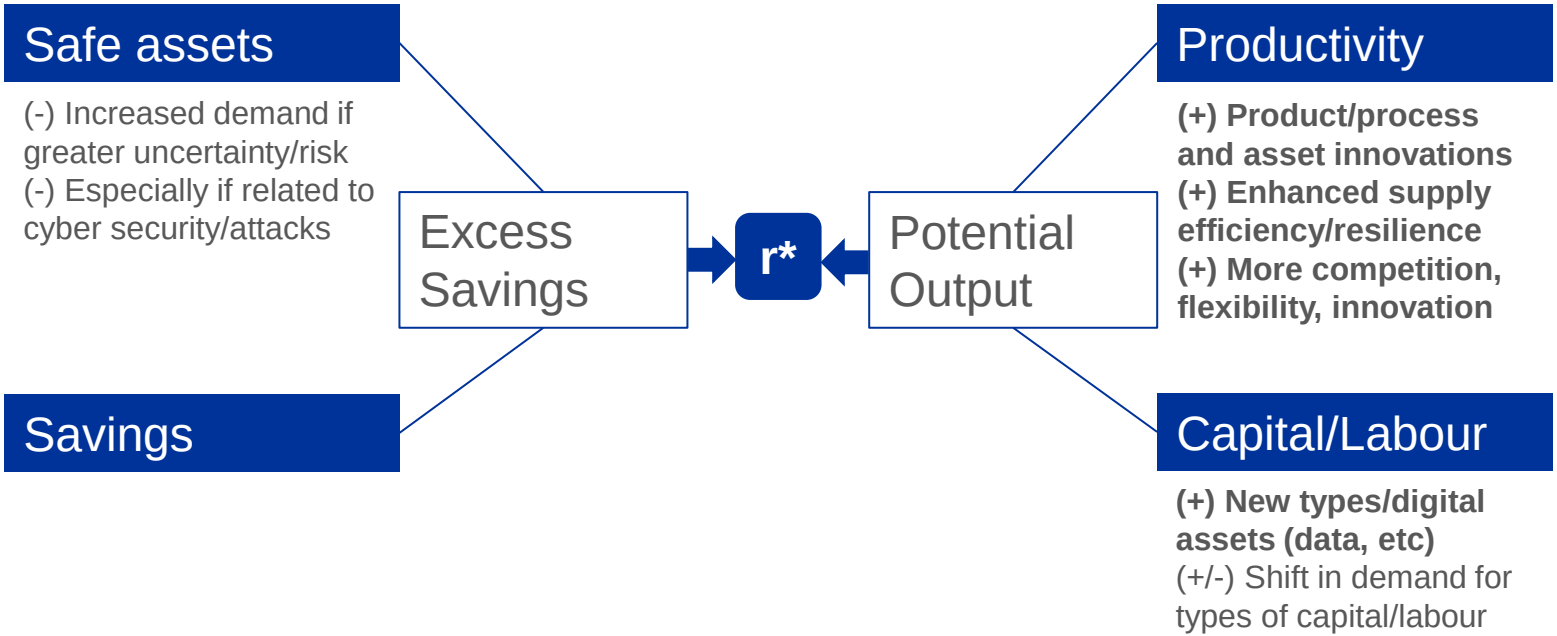
Channels of impact: digitalisation



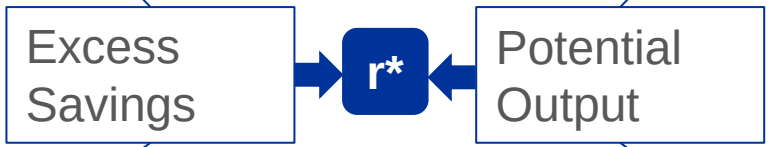
Channels of impact: globalisation

Safe assets

(-) Increased demand if greater uncertainty/risk
(-) Especially if linked to politics/terrorism
(-) Official demand for safe assets

Savings

(-) channeling of savings from EMEs



Productivity

(+) More competition / learning by exporting
(+) Greater variety and quality of inputs
(+) Better resource allocation

Capital/Labour

(+) Greater demand for (certain) capital/labour

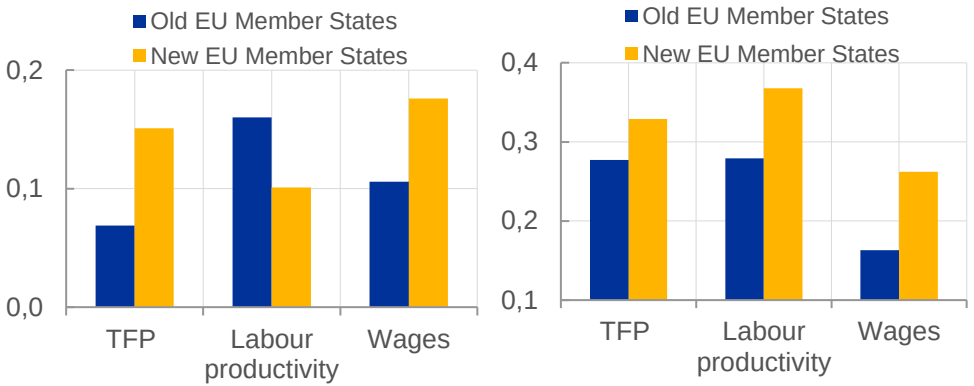
Channels of Impact: globalisation (ctd.)

Firms that have exported/imported for at least 3 years show higher TFP growth rates than firms that just started exporting/importing;

The gains are particularly large for firms importing production inputs

The impact of globalization on firm TFP growth

(annual TFP growth premia in p.p. of continuous exporters (left panel) and importers (right panel) relative to new exporters/importers)



Source: Giordano, C. and Lopez-Garcia, P. (2019), "Firm heterogeneity and trade in EU countries: a cross-country analysis", ECB Op 225, June 2019.
Notes: The TFP premia is estimated controlling for country, sector and time fixed effects

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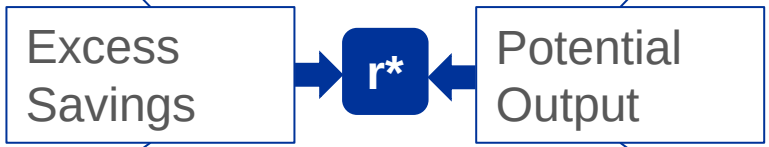
Channels of impact: demographics/distribution

Safe assets

(-) Increased demand if greater uncertainty/risk
(-) Especially if concerns about public finances

Productivity

(+/-) Depending on institutions (pensions)



Savings

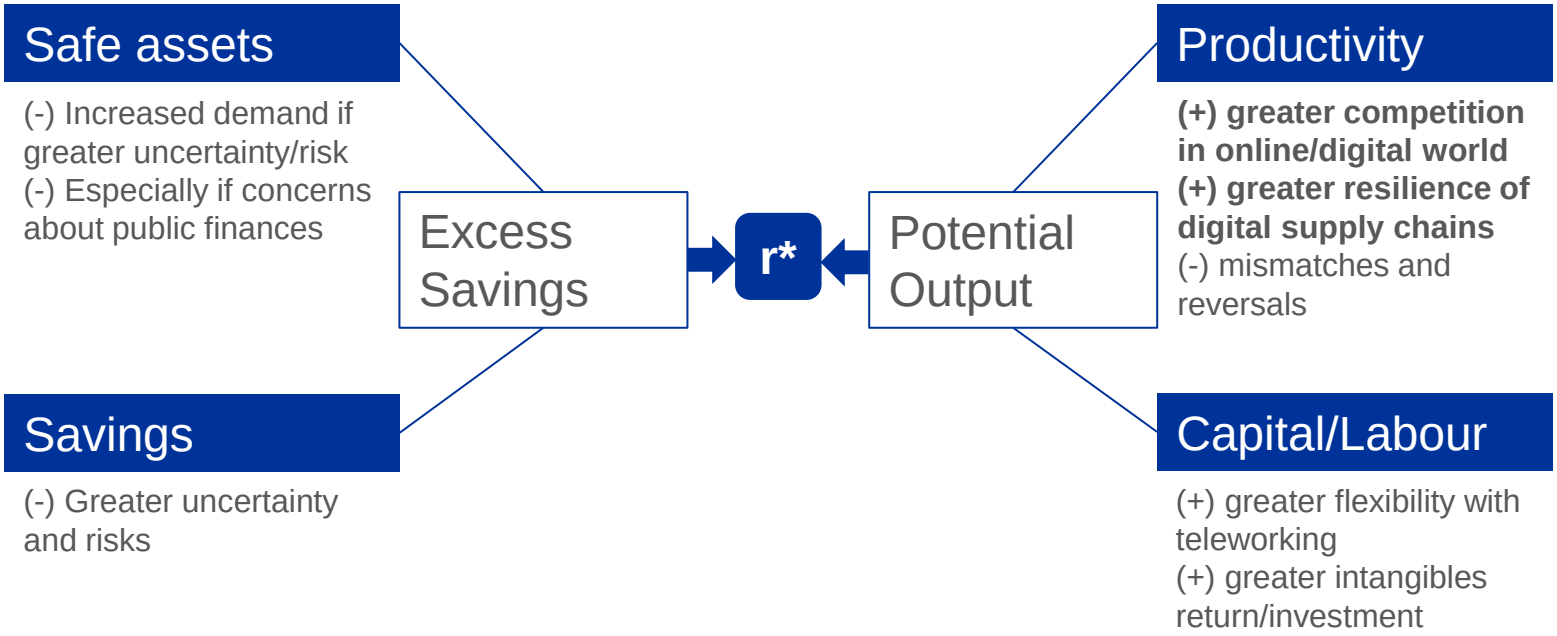
(+) Increase in ratio of dissavers to saver
(+) More equal income and wealth distribution

Capital/Labour

(+) Higher labour supply/labour force

Overview

Channels of impact: COVID-19 pandemic



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Key messages

r* might be supported by:

- **climate change/protection**, if they lead to investment and innovation and not to an increase in uncertainty or risks.
- **digitalisation**, in a technologically-optimistic scenario, in which productivity is enhanced, and COVID-19 leads to an acceleration of digitalisation, investment in intangibles, and resilience in supply.
- **globalisation/integration**, if they are conduits to greater competition and innovation, winner-takes-all dynamics limited, and COVID-19 does not lead to deglobalisation.
- **demographics**, if labour supply/labour force, and the ratio of dissavers to savers increase, and do so despite COVID-19.
- **distribution**, if it becomes more equal and savings of the affluent less excessive; and COVID-19 stimulates redistribution.

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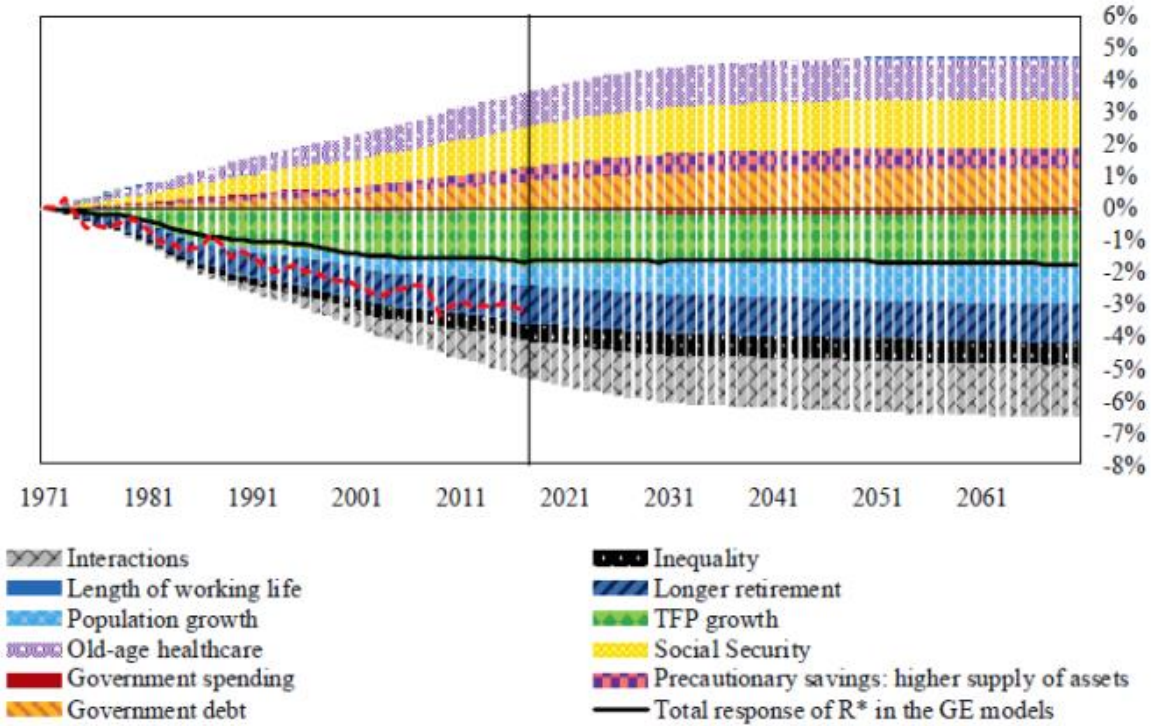
The factors contributing to r*

Figure: Changes in the equilibrium real interest rate as a result of policy, demographic and technological shifts



- The challenge of raising r* is well illustrated by some of the estimates in the literature (eg Rachel and Summers, 2019)

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