Oxford Economics: Macro-modelling - capturing contagion & downside risks

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Introduction

- How should macro models be used to help stress testers?
- How can the model capture tail risk and contagion?
- Current risks – our Global Scenario Service shows risks still skewed to the downside
- A detailed look at the impact of a slowdown in China – what are the channels that the shock will operate through

About Oxford Economics

- **Oxford Economics is a world leader in global forecasting and quantitative analysis.** Our worldwide client base comprises over 850 international corporations, financial institutions, government organizations and universities.
- **Founded in 1981 as a joint venture with Oxford University, Oxford Economics is now a leading independent economic consultancy.** Our link to Oxford University is still present today through our management board, empirical research approach and access to Oxford scholars.
- **Headquartered in Oxford, with offices around the world, we employ more than 150 people, including 90 economists, and a network of 500 contributing researchers.** The rigor of our analysis, caliber of staff and links with Oxford University and other leading research groups make us a trusted resource for decision makers.

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Increased focus on stress testing around the world…

- Stress testing has become a critical component of the risk identification and risk management processes of financial institutions and has “a leading role to play in strengthening bank corporate governance and the resilience of individual banks and the financial system”.
- National supervisors have placed increasing emphasis on improved stress-testing procedures, such as the Comprehensive Capital Analysis and Review (CCAR) in the US, the Asset Quality Review (AQR) and subsequent EBA exercise in Europe, and the Bank of England in the UK.
- Using our models, Oxford Economics can run scenarios for domestic banks or for international banks that may need to comply with several different jurisdictions.
- We go deeper than other firms, providing stress testing and scenarios on a sub-national basis, as well as for countries and international regions.

…a focus that will only increase

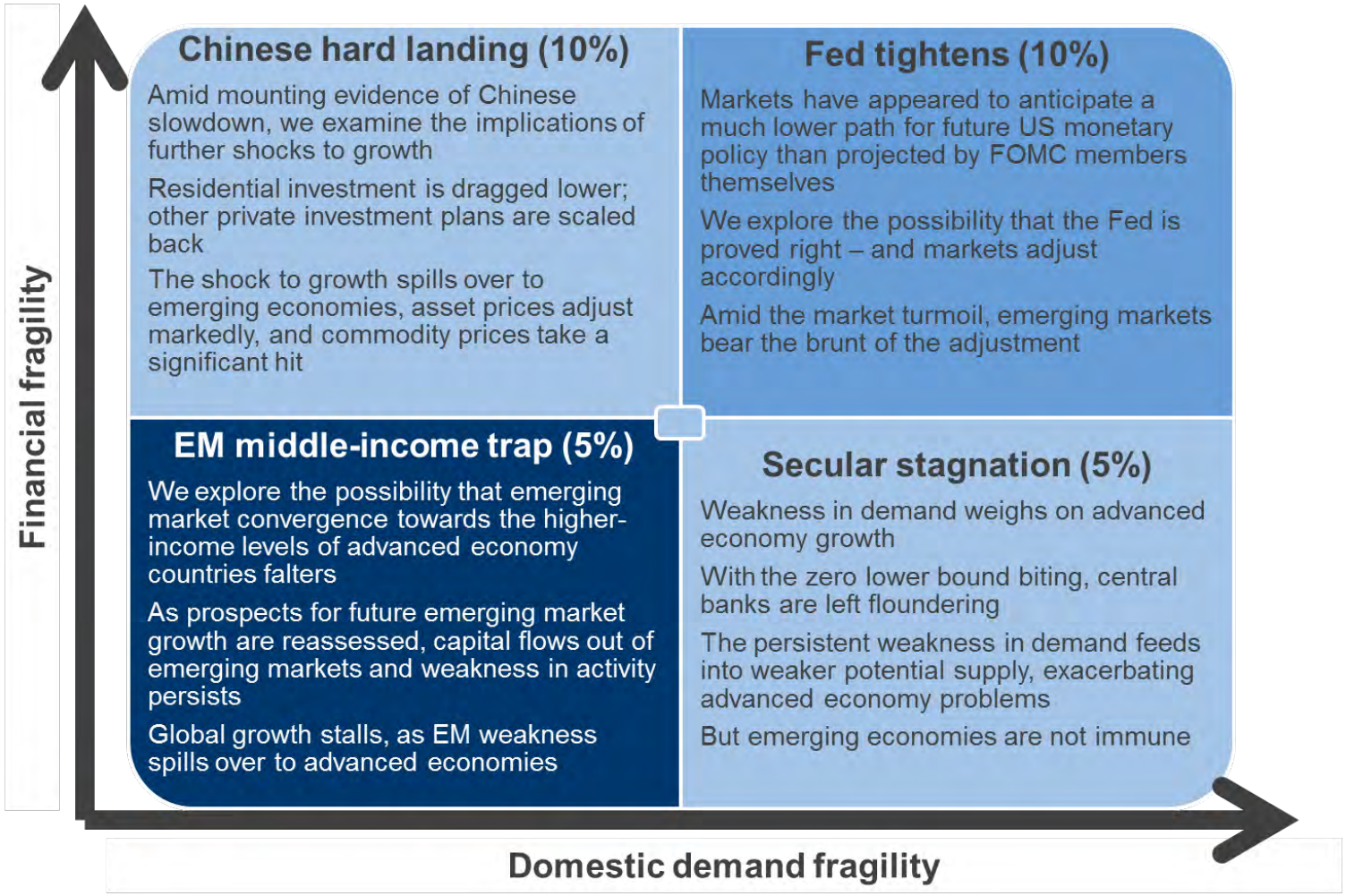
- New Bank of England stress testing framework will focus more on potential individual weaknesses in institutions through the ‘biennial exploratory scenario’ – this will probe risks from lending to particular sectors or exposure to regional issues.
- This complements a more traditional ‘annual cyclical scenario’ which will be flexed to be more severe in the good times.
- Our clients – prompted by regulators worldwide – are asking more questions about our models.
- Using models for stress testing is important – the recent report into the failure of HBOS drew attention to the lack of models underpinning its overly optimistic view of how its corporate loan book would perform under stressed conditions.
- When IFRS9 is introduced in 2018, institutions will have to book current losses based on a view of life time expected loss across a range of scenarios. With Risk and Finance Directors expected to sign off on the P&L, the provenance of these forecasts will be closely questioned.

Key linkages in the Oxford model

Key linkages

- Commodities channel
- Trade channel
- Policy channel
- Asset price channel
- Other channels – risk and confidence

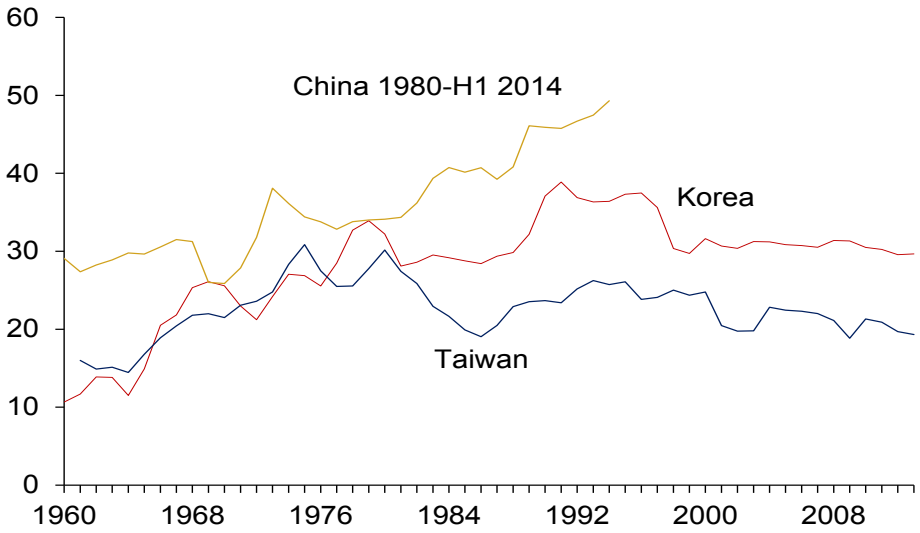
Risks very much skewed to downside…



Which risks should we incorporate?

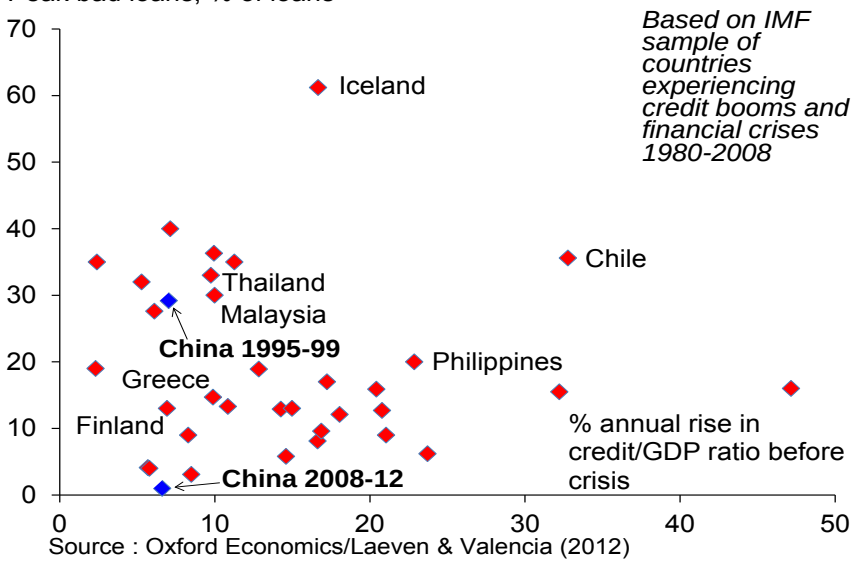
- Monitoring the key imbalances in the global economy is a good start. And expert judgement will be key.

Asia: Investment shares in GDP



Source : Oxford Economics/Haver Analytics

World: Bad loans and credit expansion



Source : Oxford Economics/Laeven & Valencia (2012)

Risks abound as Fed lift-off nears

- Oxford Economics *Global Scenario Service* report outlines key risks to our central forecast for the global economy
- Key themes:
  - Risks remain very much to the downside
  - Their impact would vary hugely across countries
  - Regions are not completely immune from shocks elsewhere
  - Different scenarios imply very different behaviour from the Fed
  - But conventional monetary policy is generally highly constrained

Our latest scenarios

Cyclical:

- **China hard landing** – a significant hit to investment
- **Fed tightens** – a severe market reaction
- **Global growth surges** – an oil production surprise

Structural:

- **Secular stagnation** – the zero lower bound bites
- **EM middle-income trap** – the convergence process falters

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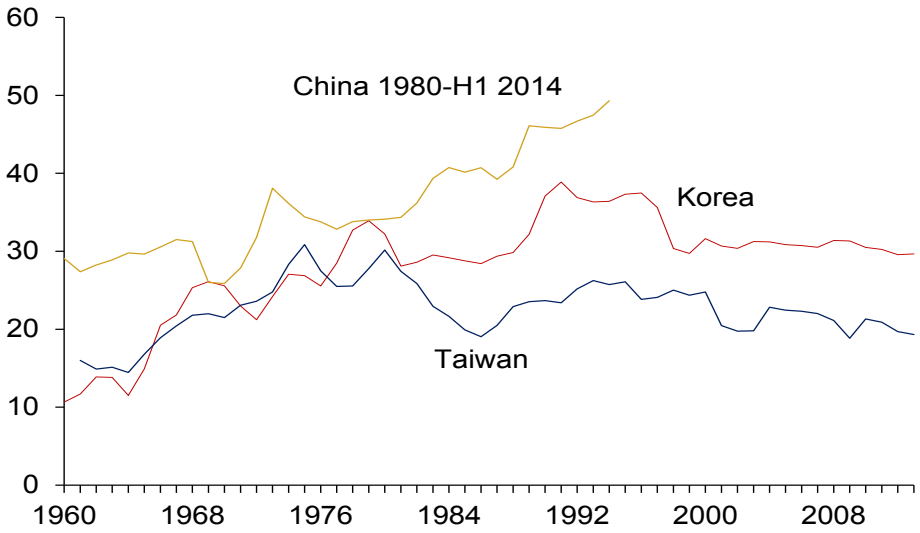

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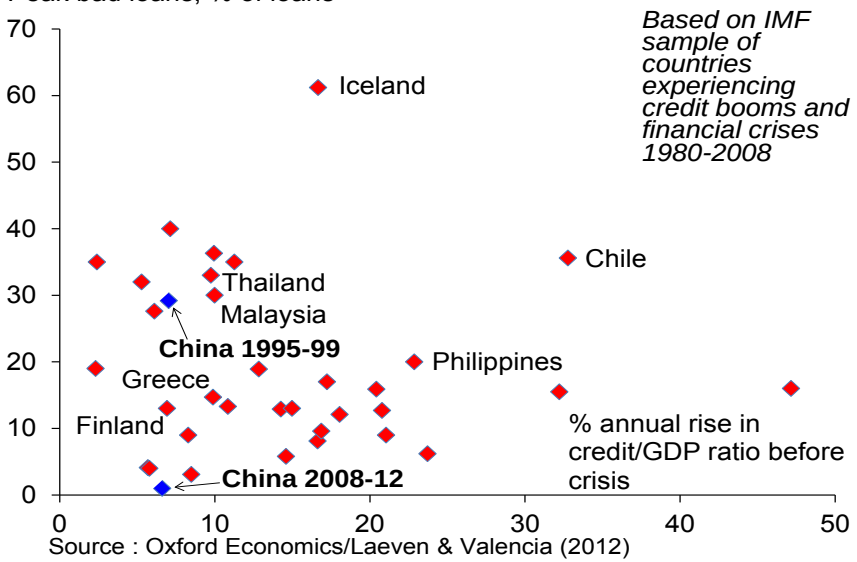

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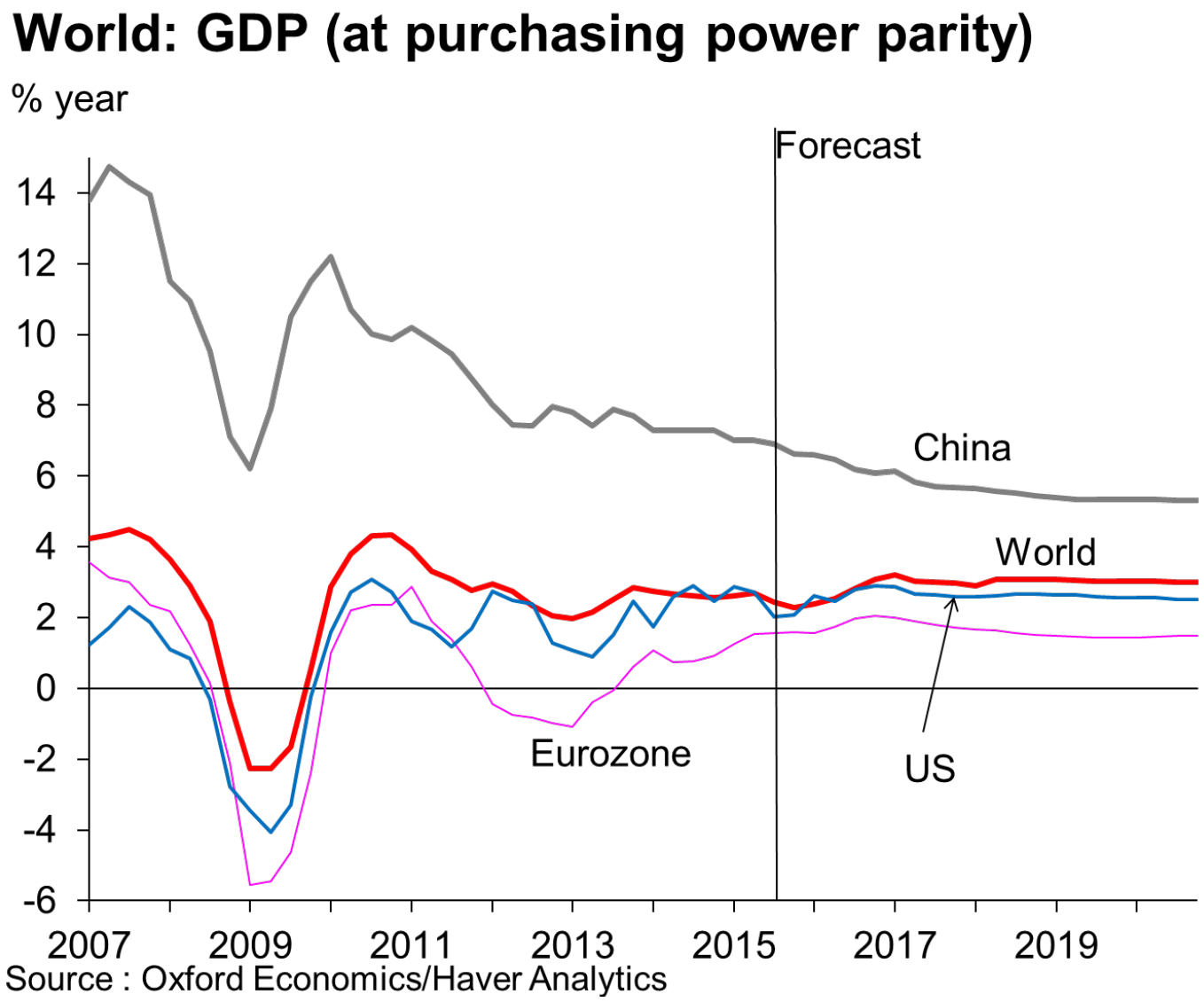
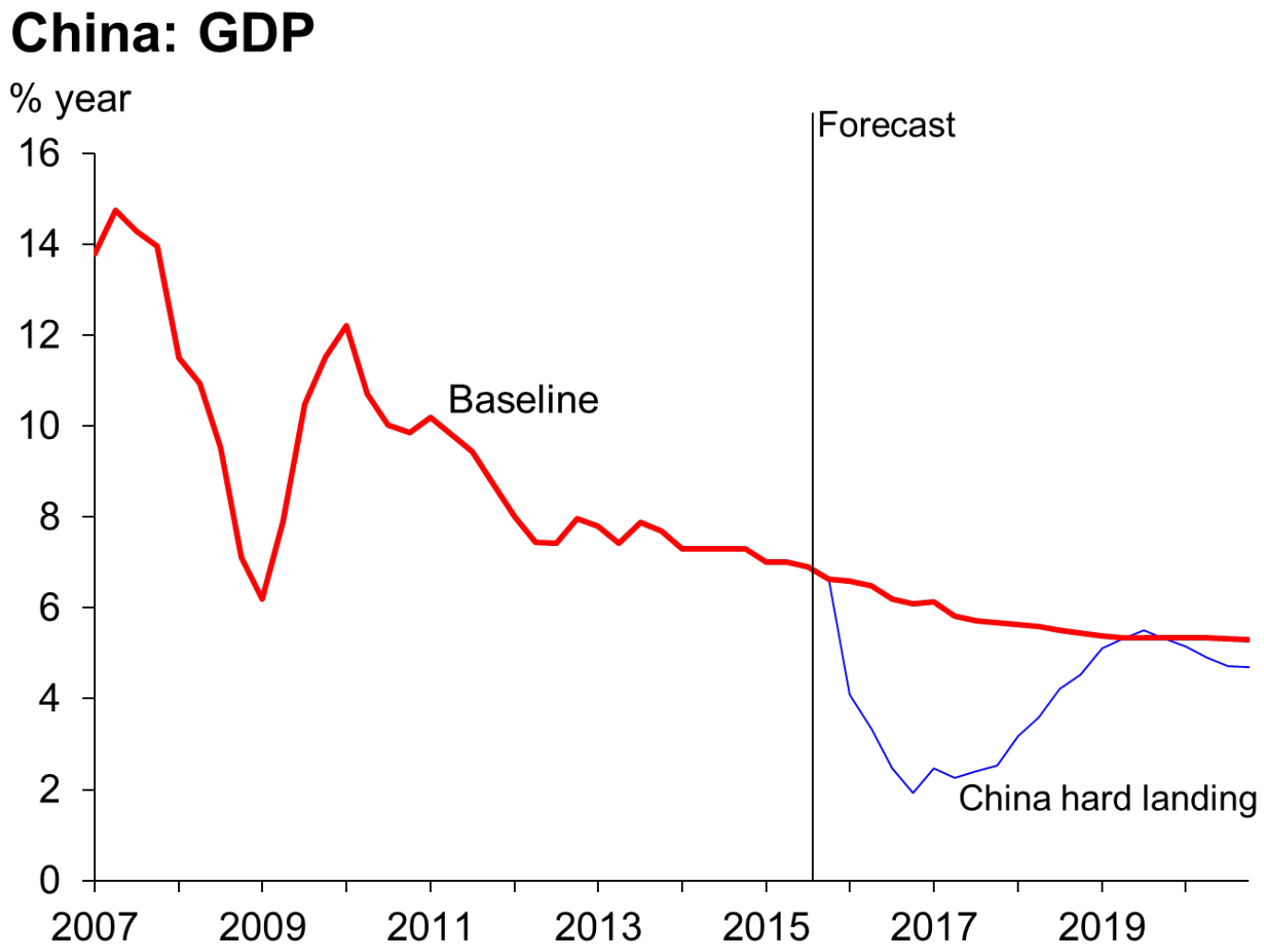
China slows gradually in the baseline…



…unlike in the hard landing scenario



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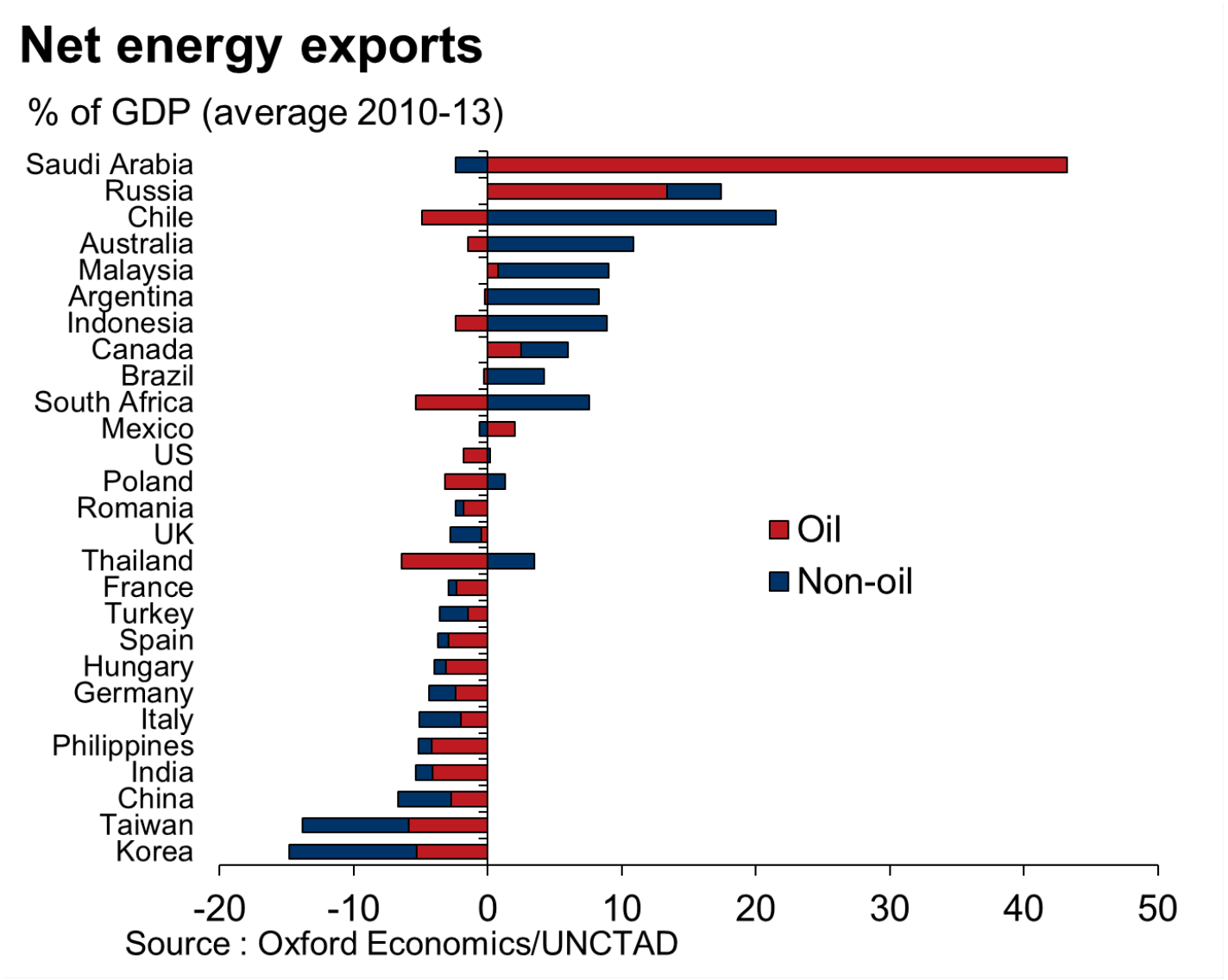
China's global links run deep…



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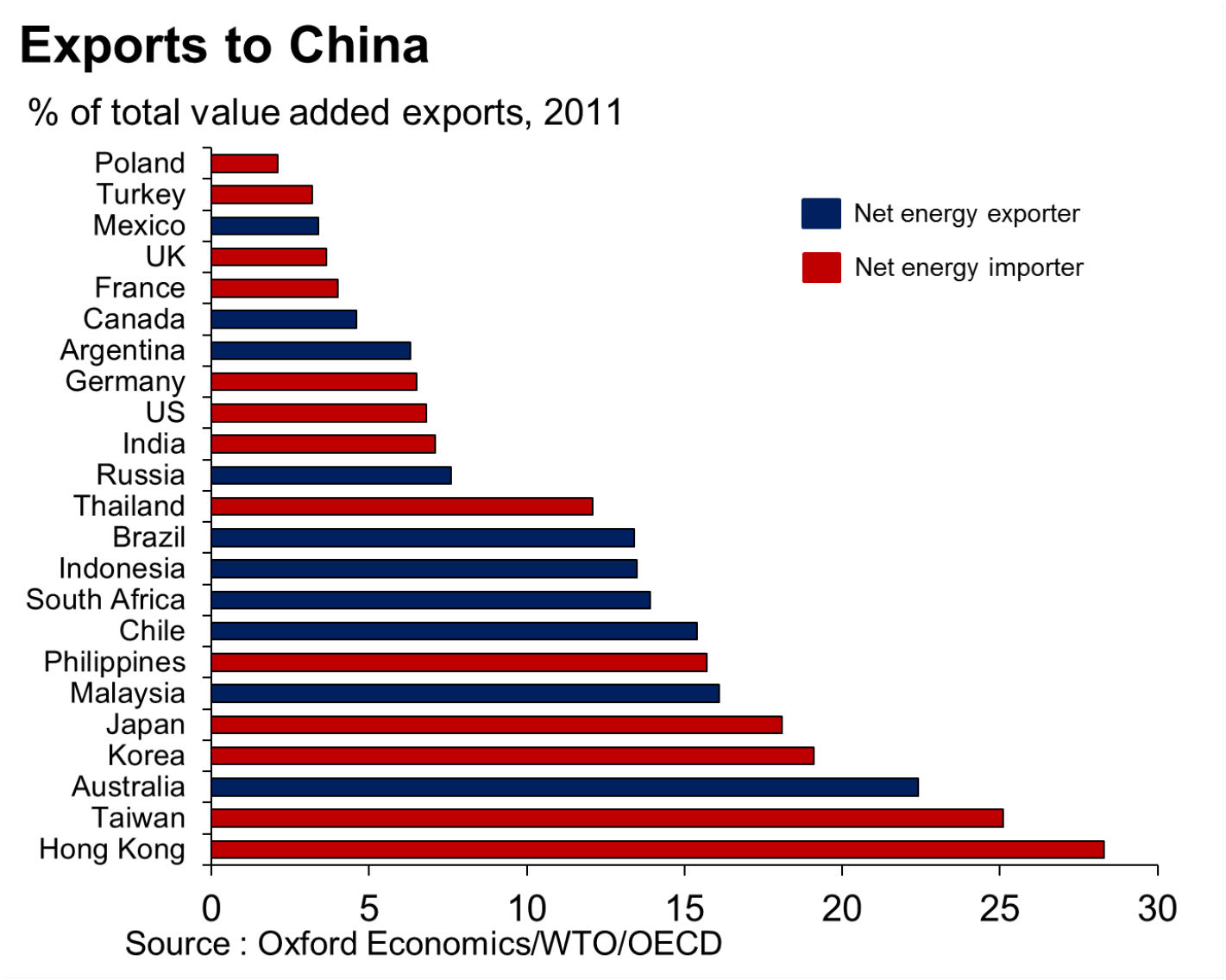

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Key linkages

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- Other channels

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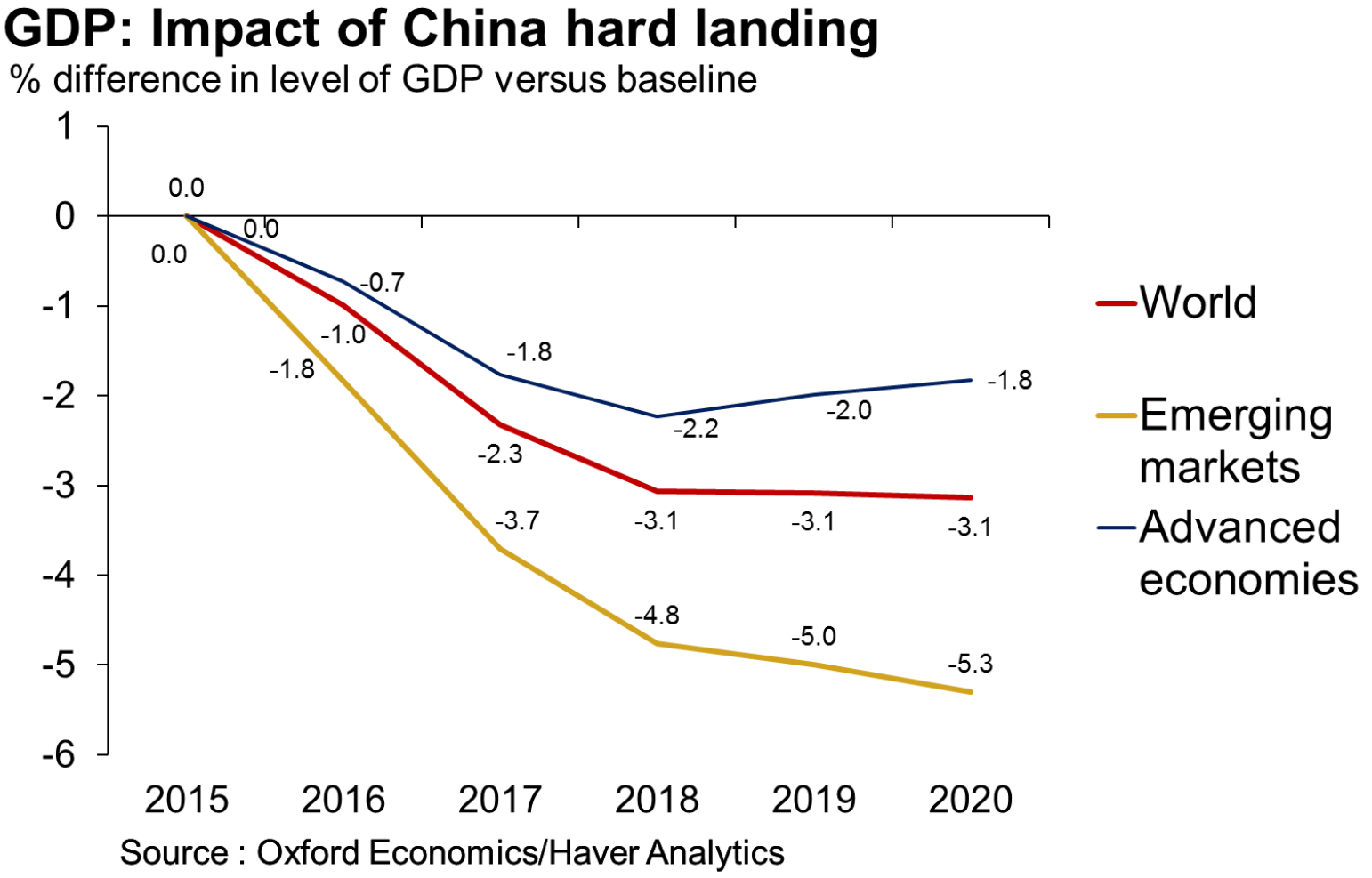

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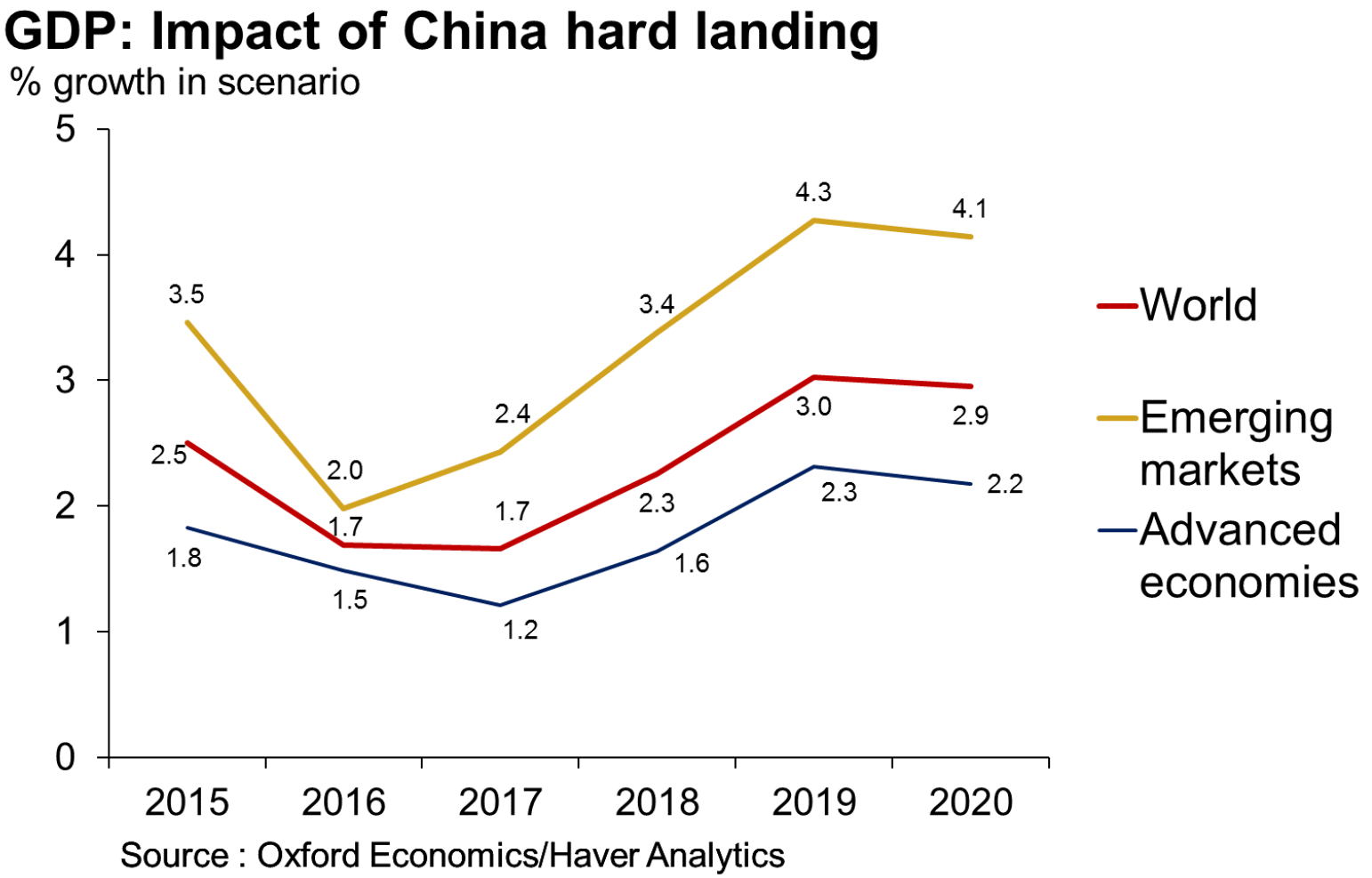

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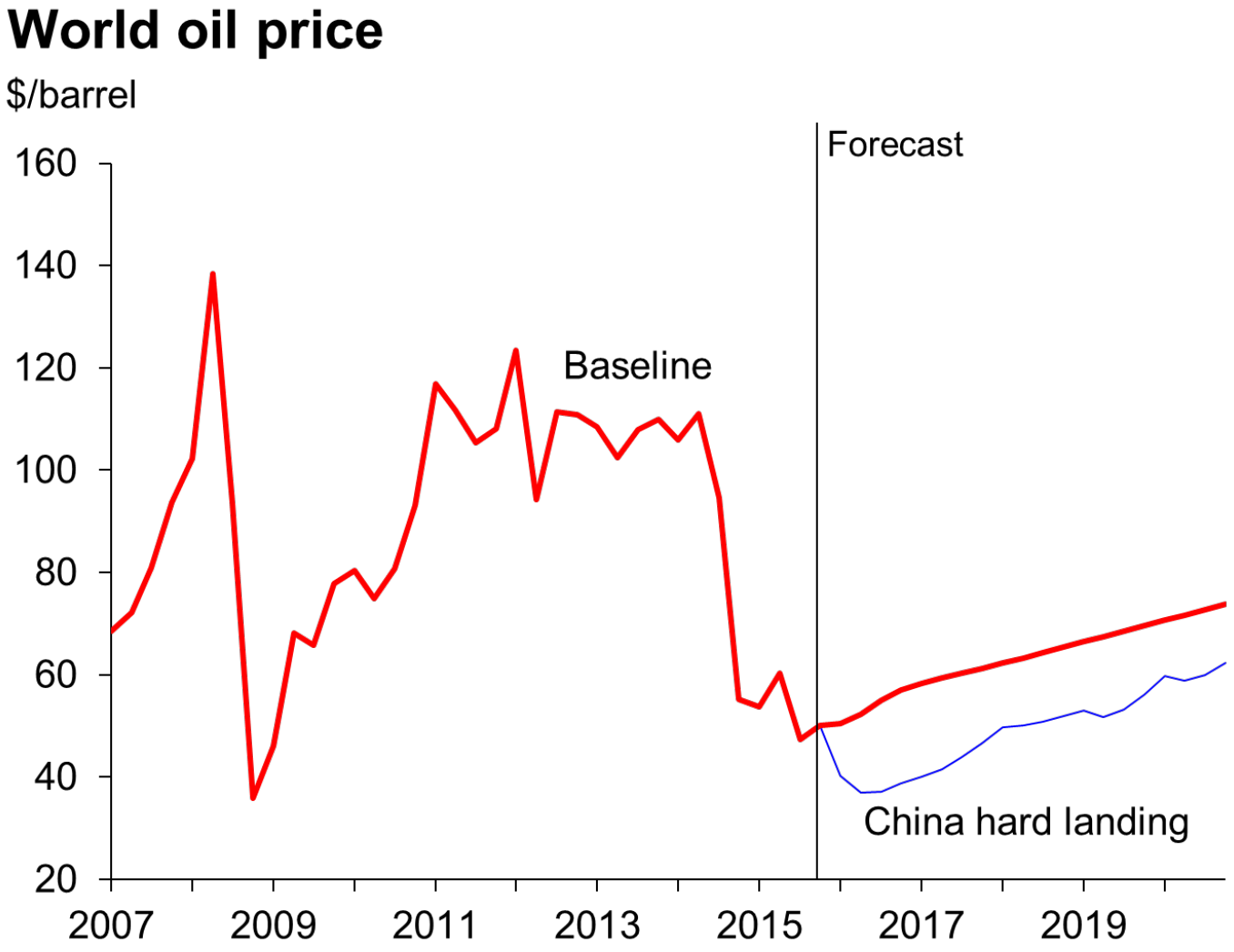

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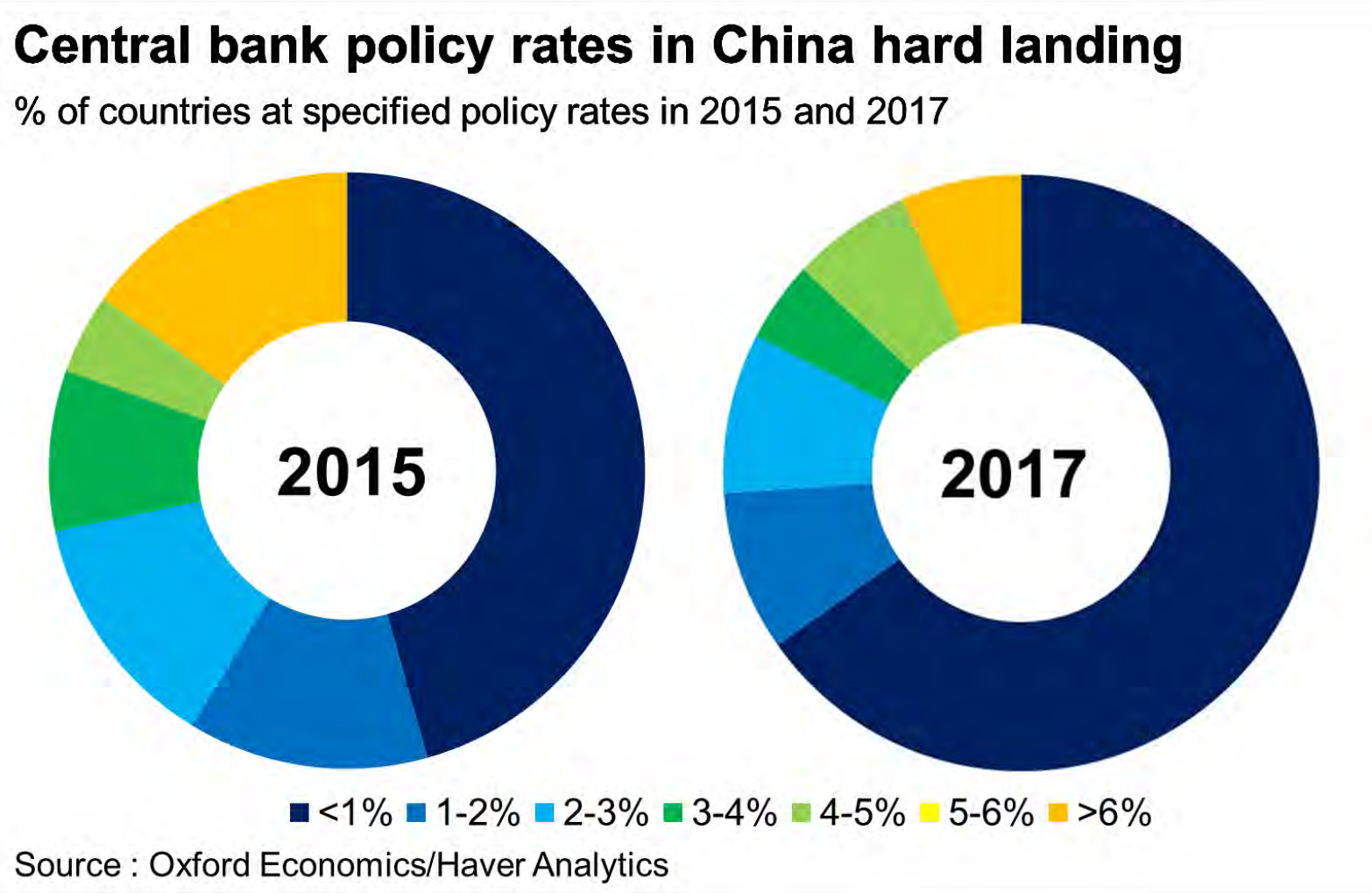
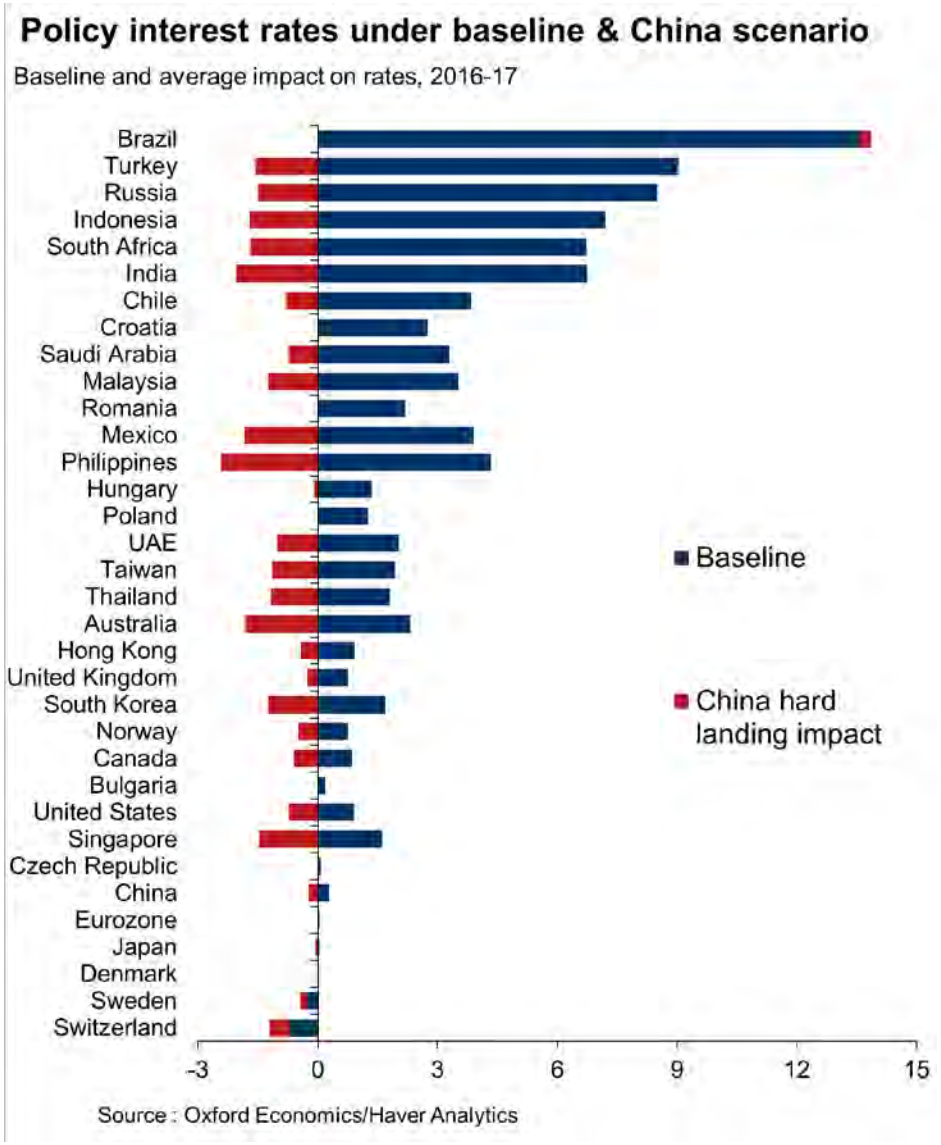
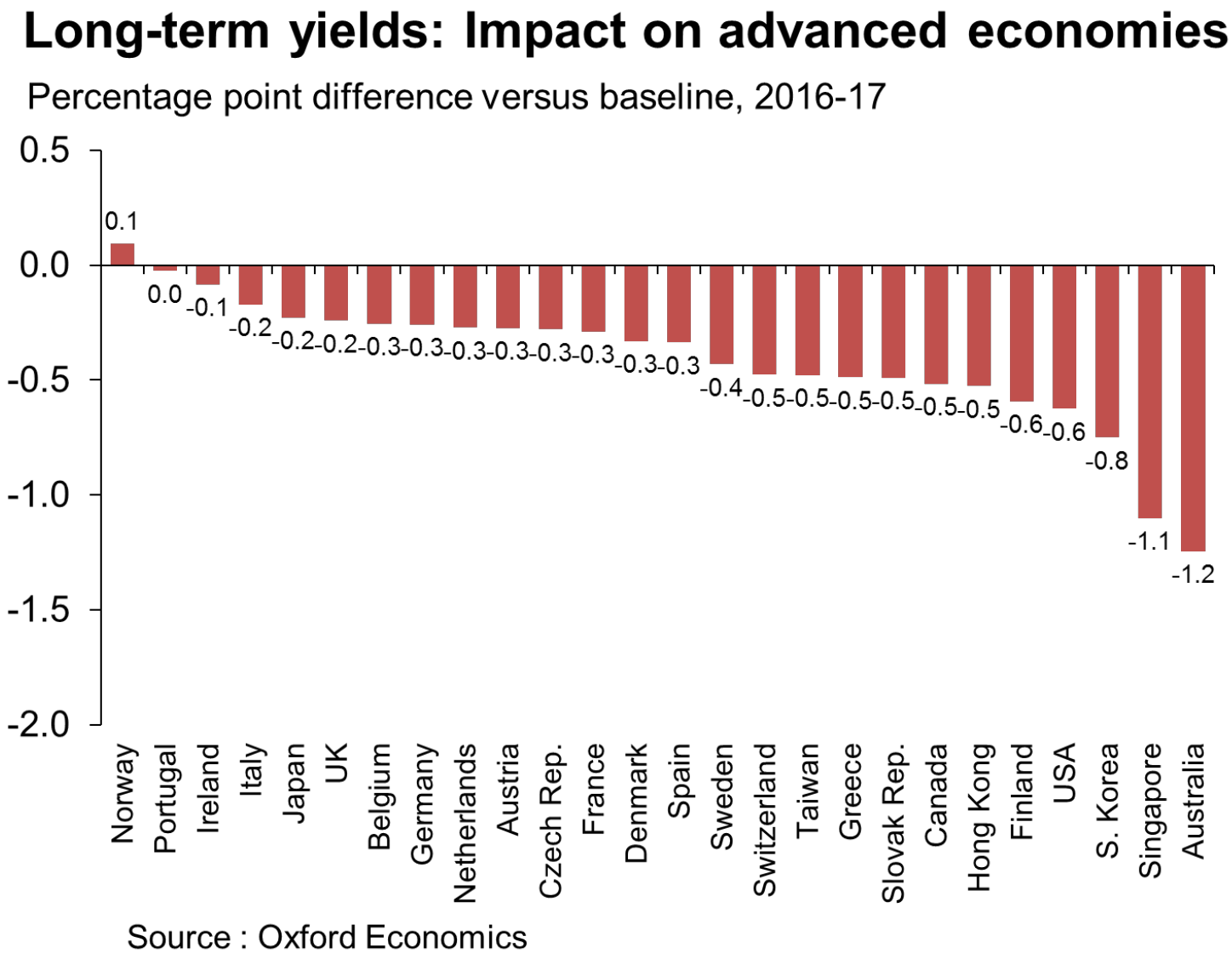


Cross-country impact: policy rates



Cross-country impact: long-term bond yields



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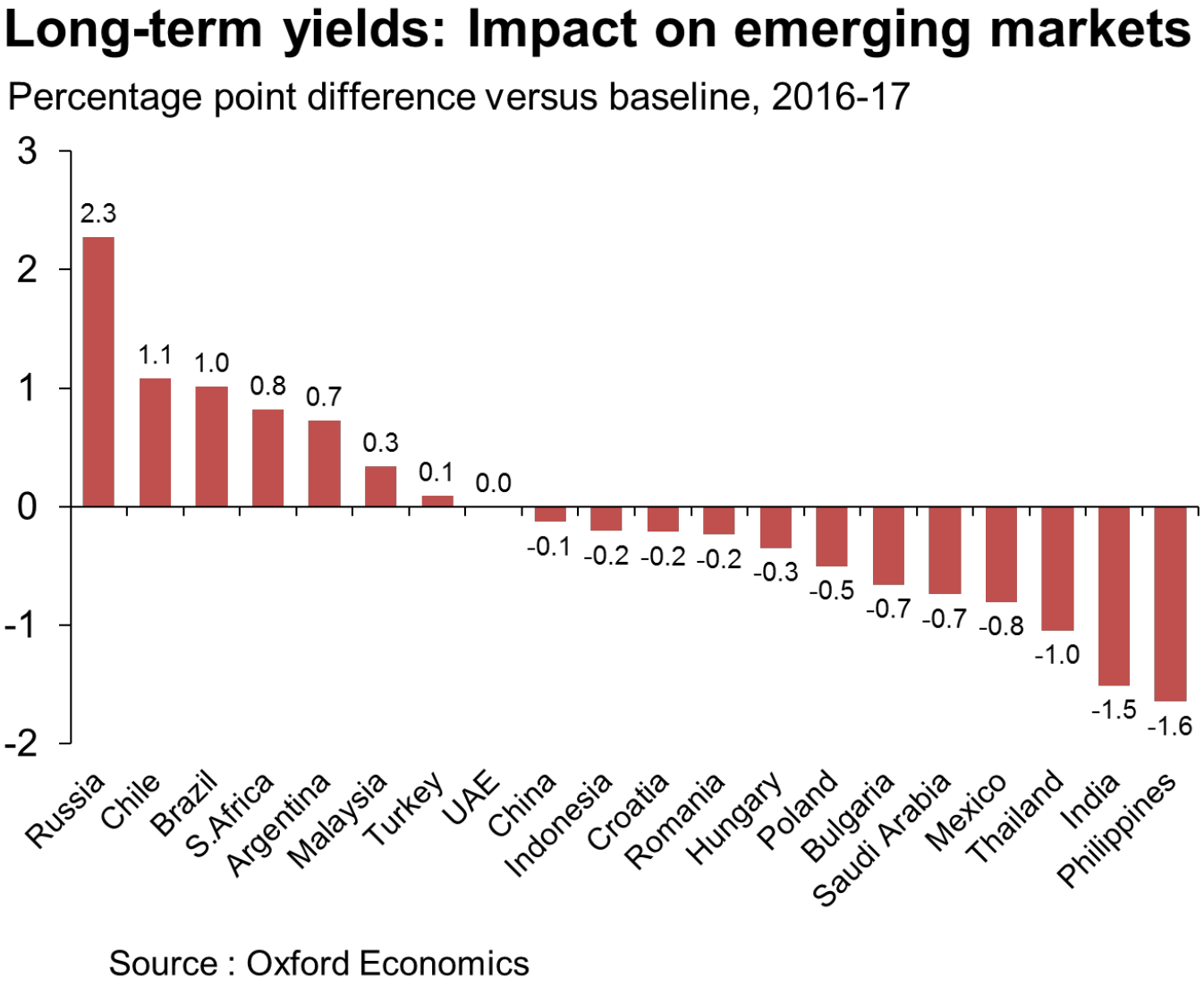
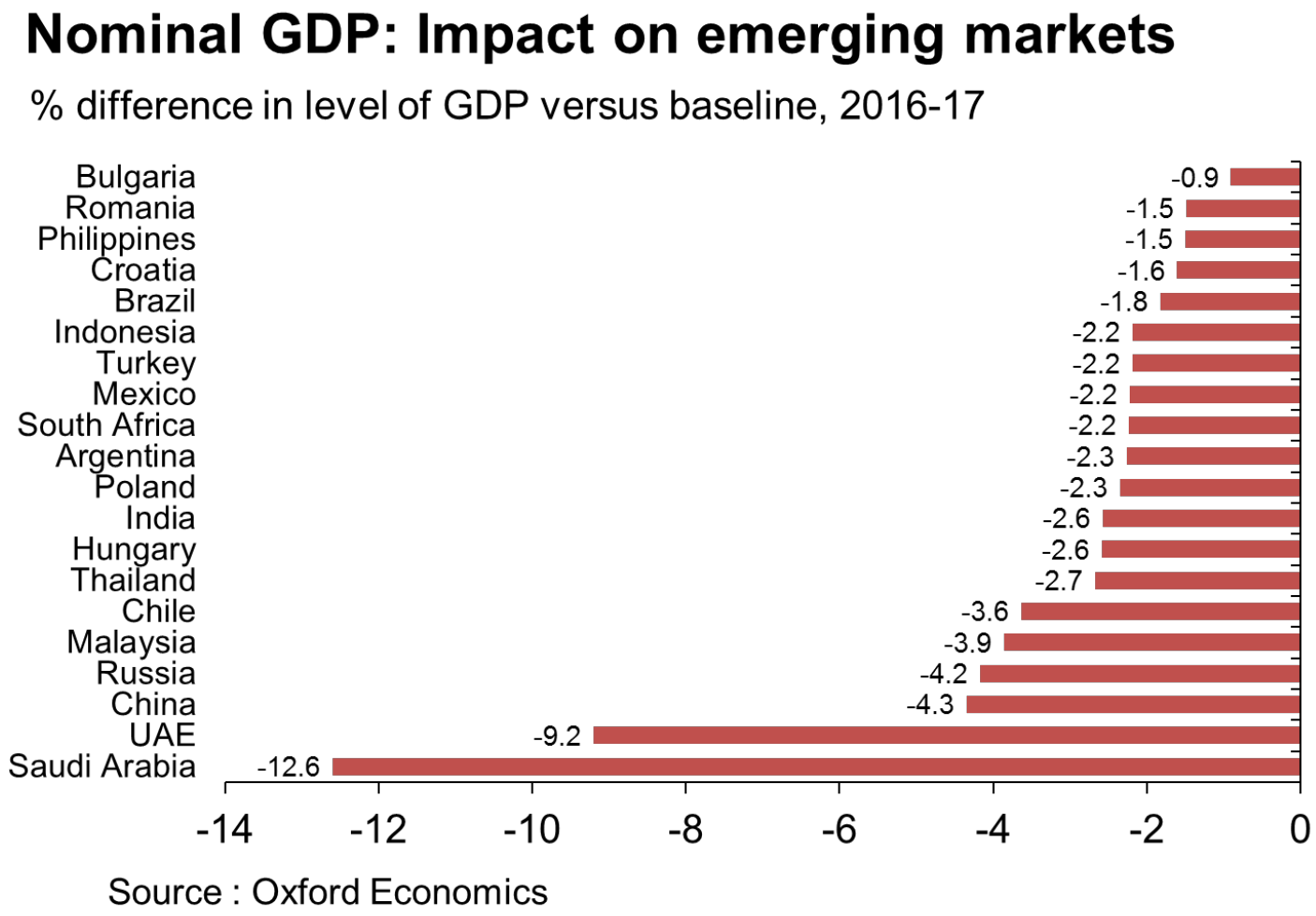
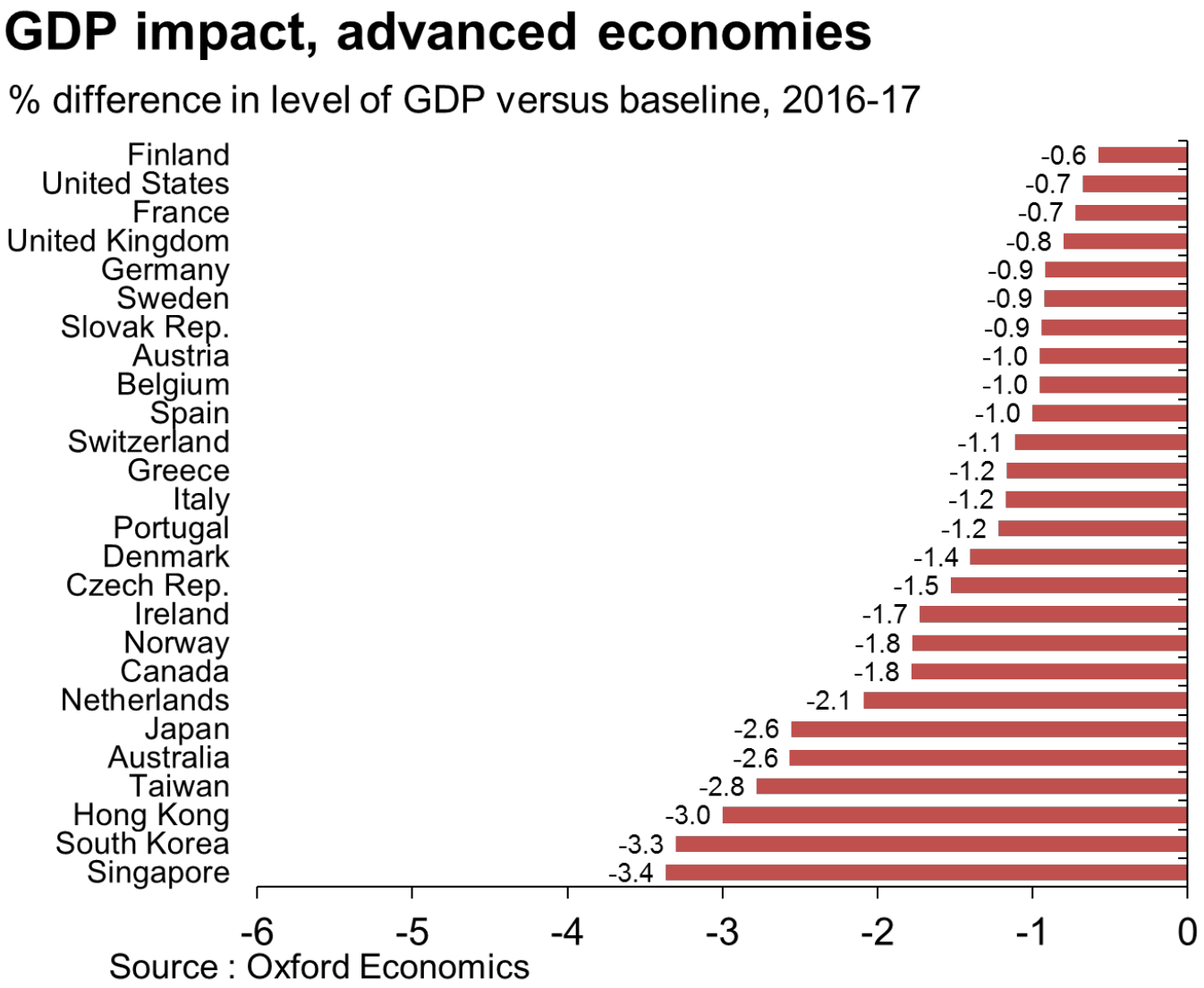


Source : Oxford Economics

Cross-country impact: nominal GDP



Cross-country impact: real GDP



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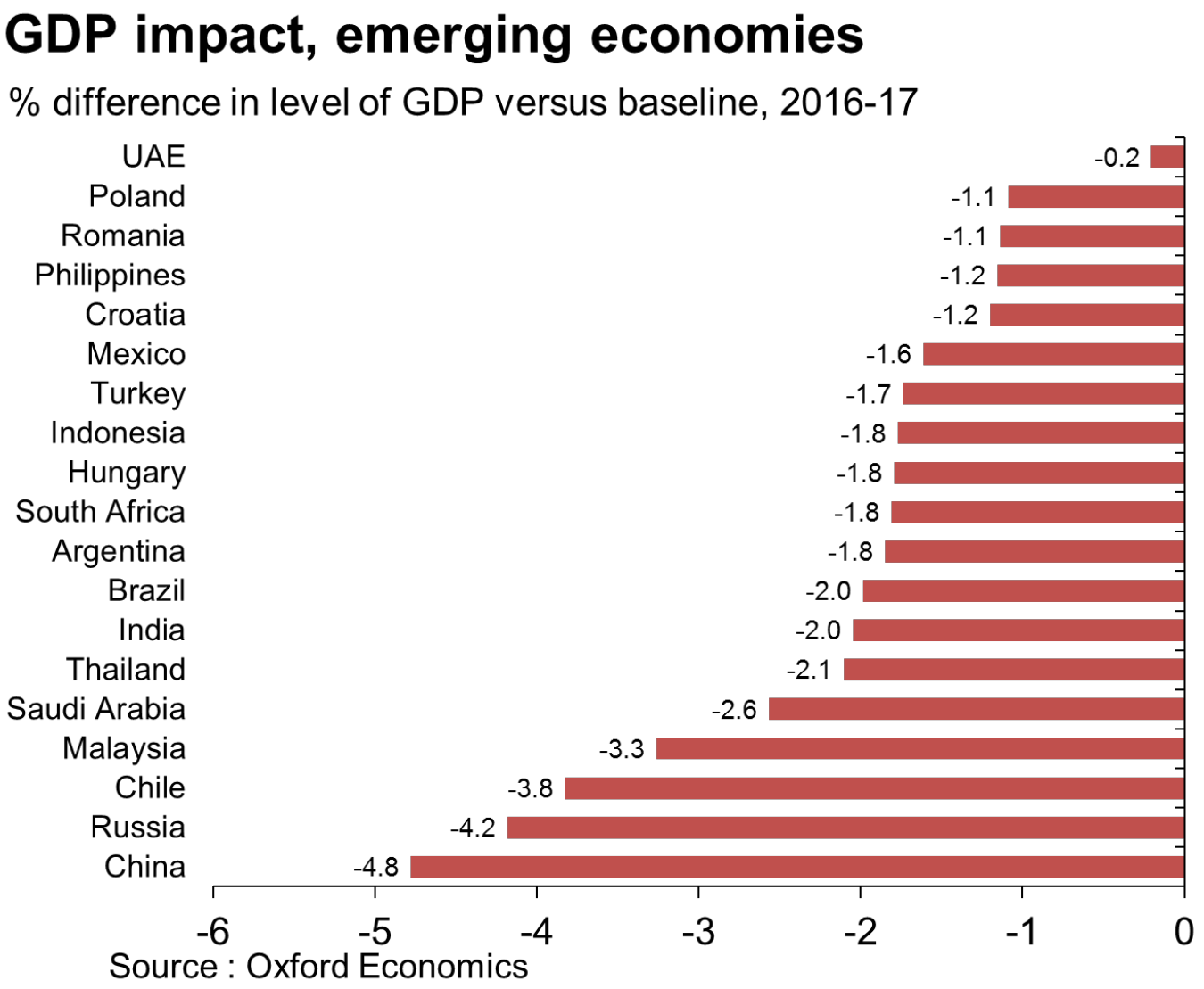
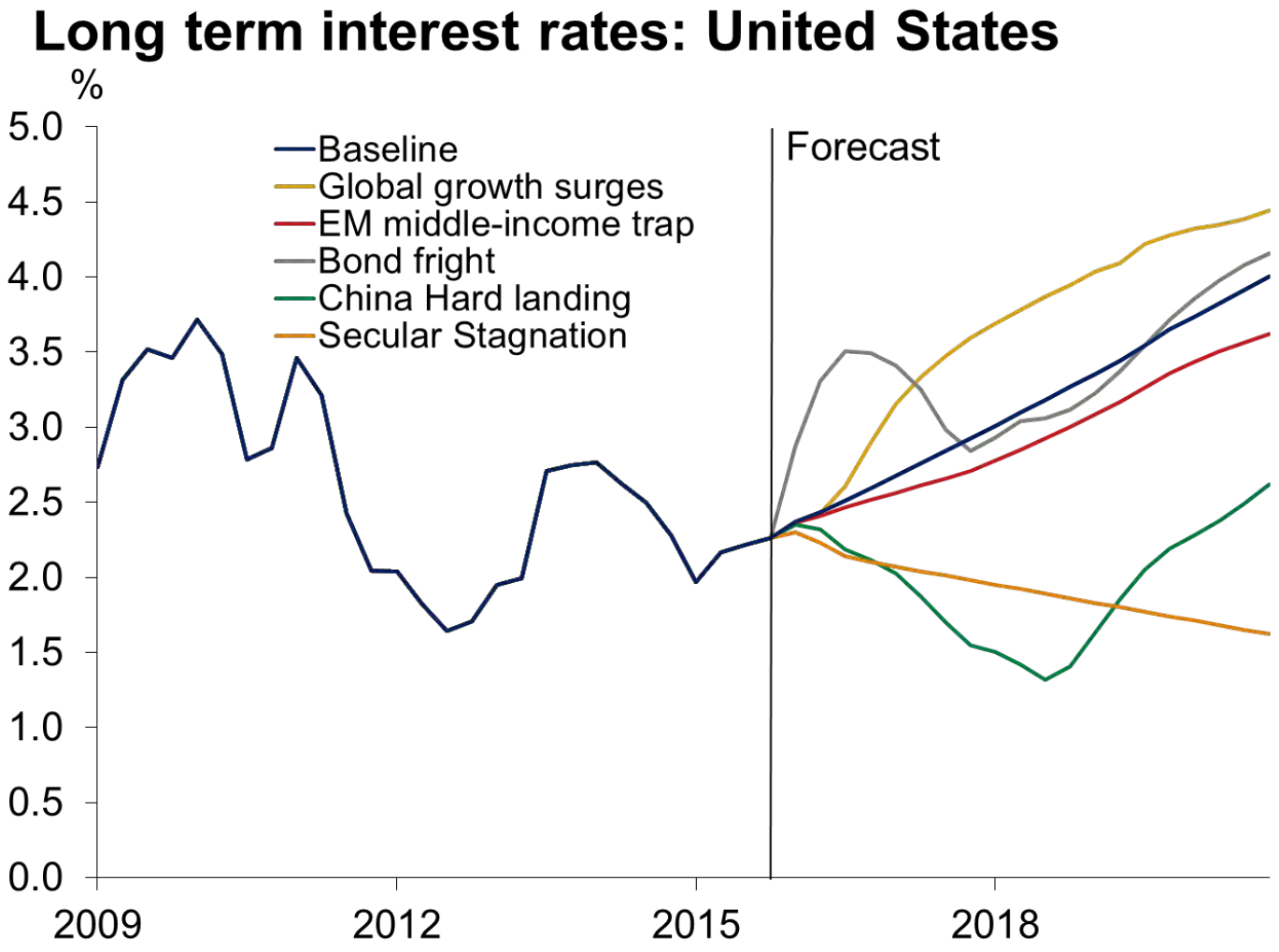


Significant implications for markets in different scenarios



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Final thoughts

- Traditional macroeconomic models are a useful tool for stress testers because they do a good job of capturing the traditional channels through which economies interact

- In the past a common criticism was that models weren't calibrated over times of stress that where severe enough to describe tail events. That is harder to argue today

- The last recession provides a useful set of shocks that can be used to calibrate downside scenarios – this includes elusive confidence shocks where were can now be calibrated from historic experience and benchmarked against volatility measures such as the VIX

- But financial contagion will always be hard to capture