

Incorporating climate change risk in the Bank of Canada's analysis of the economy and financial system

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Outline

- Motivation
- Dimensions of climate change
- Research questions
- Building analytical capacity through collaboration

Including climate change risk in our analysis of the economy and financial system is aligned with our mandate

- Economic activity and the environment are intertwined
 - Changes in global climate => growing implications for the economy and the financial system
 - Transition to lower carbon economy => complex structural adjustments => transition risk + new opportunities

 Our objective: better understand the risks that climate change poses to the economy and financial system

Climate change has two risk dimensions: physical risks

- Intergovernmental Panel on Climate Change:
 - 2017 temperatures 1°C > pre-industrial levels
 - Projection: + 0.2°C per decade
- Canada warming faster than rest of the world (Environment and Climate Change Canada)
- Consequence: more frequent extreme weather events (e.g., flooding, severe droughts)
- Implication: physical risks for the economy and financial system
 - More frequent extreme weather events = more frequent supply shocks
 - Rising insured damage to property and infrastructure in Canada:
 - 2008-2017: C\$1.7 billion/year
 - 1983-1992: C\$200 million/year

Climate change has two risk dimensions: transition risks

- Transition to lower-carbon economy => complex structural adjustments in economy => costs and new opportunities
 - Labour and capital reallocation
 - Potential shifts in global trade patterns
 - Different impacts across sectors
- Potential financial system implications:
 - Financial system participants exposed to carbon-intensive assets/sectors
 - Asset prices may not fully reflect carbon-related risks
 - Reasons: lack of information on exposures, difficult to account for uncertainty and complexity associated with climate risk
 - Risk: rapid repricing => potentially destabilizing for financial system

Research questions

- Features of climate change:
 - Complexity
 - Uncertainty (large range of possible outcomes)
 - Time horizon

Important to identify questions to focus on in analysis and research

Research questions – preliminary ideas

Economy

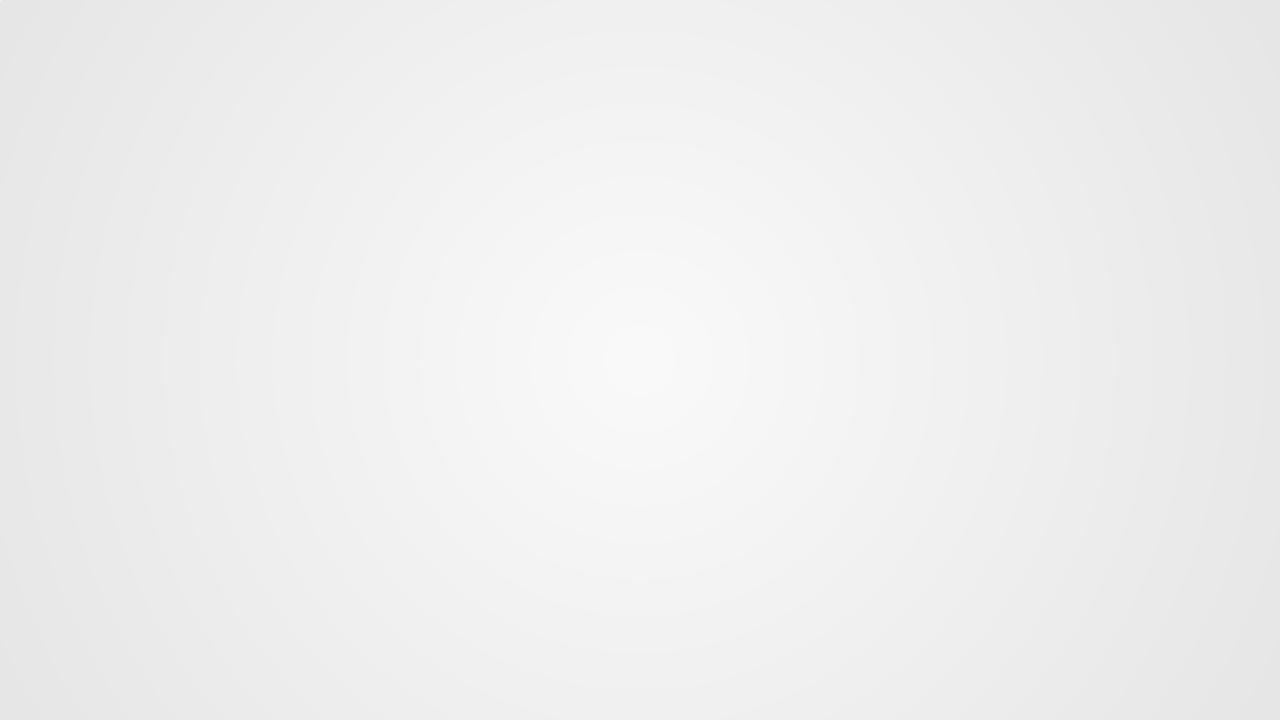
- Short-term impacts on price dynamics and output gap
- Longer-term impacts: changes in relative prices, impact on inflation expectations, impact on productivity (innovation, migration etc.)
- Modelling: long-term macro models with climate component

Financial system

- Evaluate exposures
- Assess pricing of climate risk (mispricing risk)
- Assess impact of repricing through scenario analysis and stress testing

Building analytical capacity through collaboration

- Climate change is complex => collaboration with range of partners is essential
- The Bank of Canada joined the Network for Greening the Financial System (NGFS) in March 2019
 - Workstream 2: macrofinancial focus. Goal: develop analytical framework to assess climate risks and related policies
 - Workstream 3: scaling up green finance
- Collaboration with academics
- Collaboration with domestic agencies
- Engagement with financial system participants



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