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Choosing the right paradigm and macro model mix for central bank policy making:

The case of NexGen at the Bank of Canada

Macroeconomic modelling frontiers for research
and policy, ECB

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Disclaimer

The views expressed in this presentation are solely my own and may differ from official Bank of Canada views. No responsibility for them should be attributed to the Bank.

A long history

RDX, RDX2, RDXF

- Research Department Experimental (Forecasting) model
 - Keynesian theory and demand side focus
 - After 1973 oil shock, added some supply elements
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- **Bottom-up approach with considerable detail**

QPM

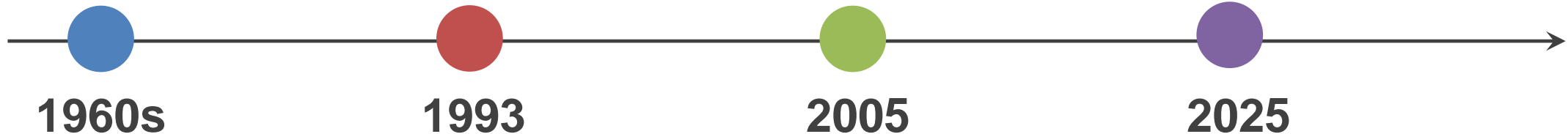
- Quarterly Projection Model
 - Forward-looking expectations
 - Endogenous policy
 - OLG steady-state
 - Stock-flow dynamics
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- **Inflation targeting**
 - **Fiscal adjustment**

ToTEM, LENS

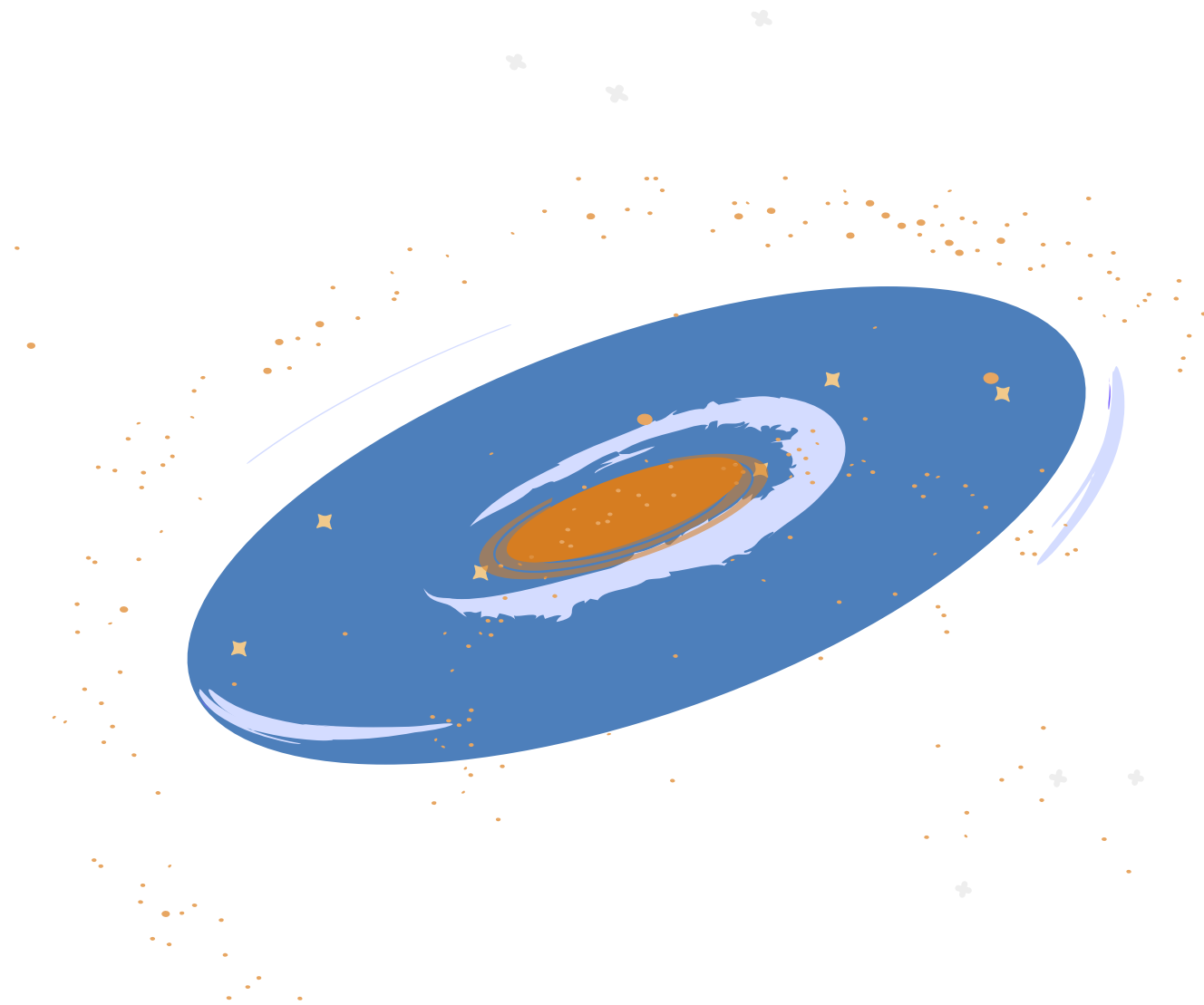
- Terms-of-Trade Economic Model
 - Large Empirical and Semi-structural Model
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- **Terms-of-trade shocks**
 - **EMP**
 - **High household debt**
 - **Model diversification**

NexGen

- **Practical DSGE + variants + specialty models**
 - **Behavioral agent-based model**
 - **VECM**
-
- **Supply shocks**
 - **Sectoral shocks**
 - **How economic conditions affect firm pricing**
 - **Uncertainty**



NexGen: New Canadian Macro Model



- DSGE core
Emphasis on modelling inflation
- Flexible link to the raw data
Idiosyncratic trends
- Non-core
Data-rich environment

Goals for the new workhorse model

1. Rich narrative over a wide variety of shocks
2. Clear monetary policy transmission mechanism
3. Sensible historical narrative
4. Forecasts at least as well as simple statistical models
5. Responds to the needs of the projection environment
 - Not unnecessarily complex
 - Flexible enough so that judgment and additional details can be easily added or dropped

NexGen: A risk management tool

Extended
monetary policy
(EMP) toolkit

Financial
Vulnerabilities

Climate Change

Workhorse Model

Core DSGE
Trends
Data-rich

Variants

Question key behavioral assumptions central for inflation:

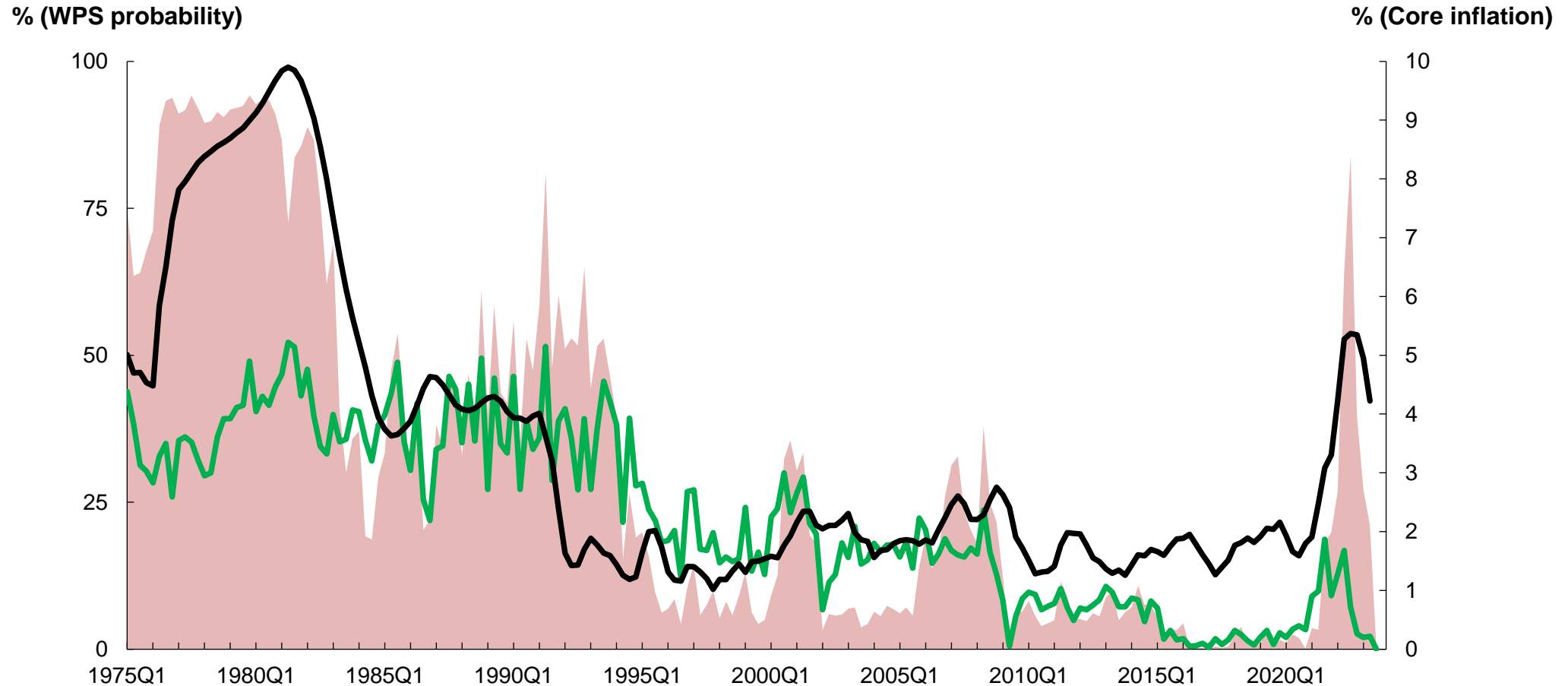
- Price setting behaviour
- Inflation expectations

Shaping marginal cost

- Production network
- Search and match labour

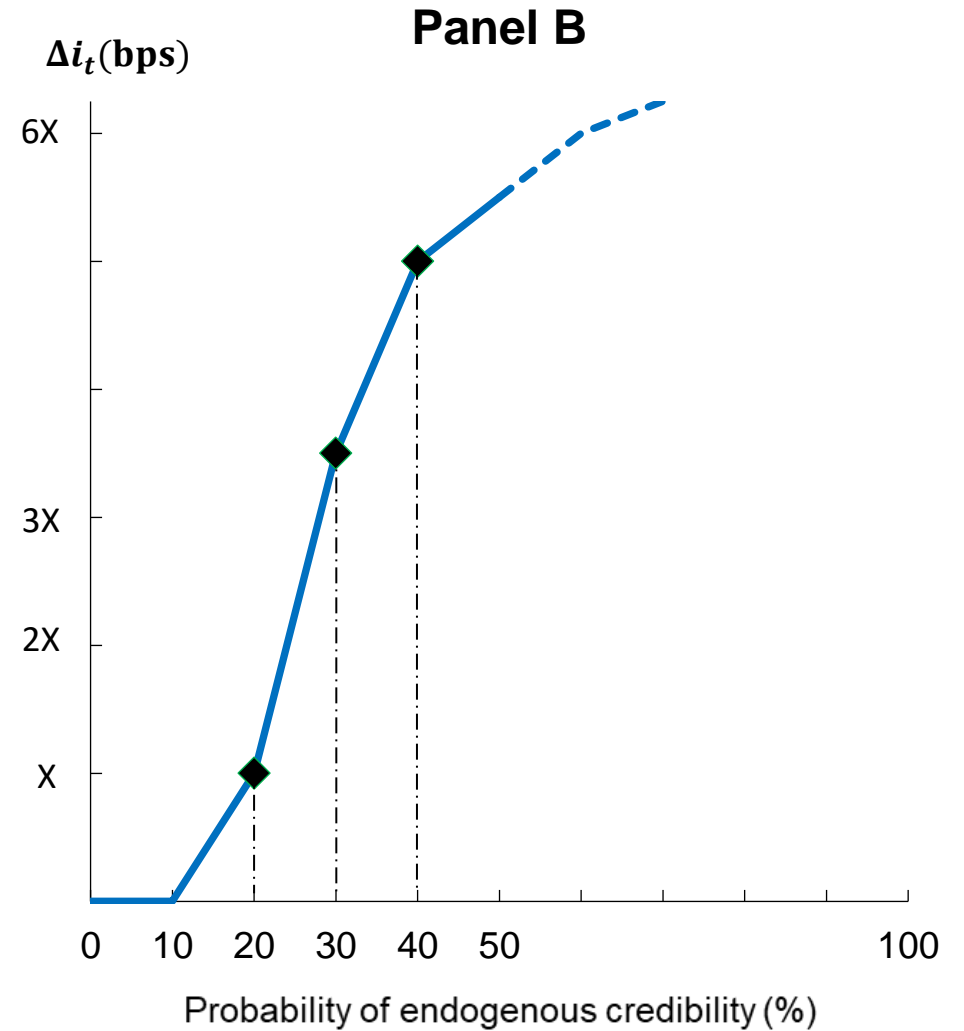
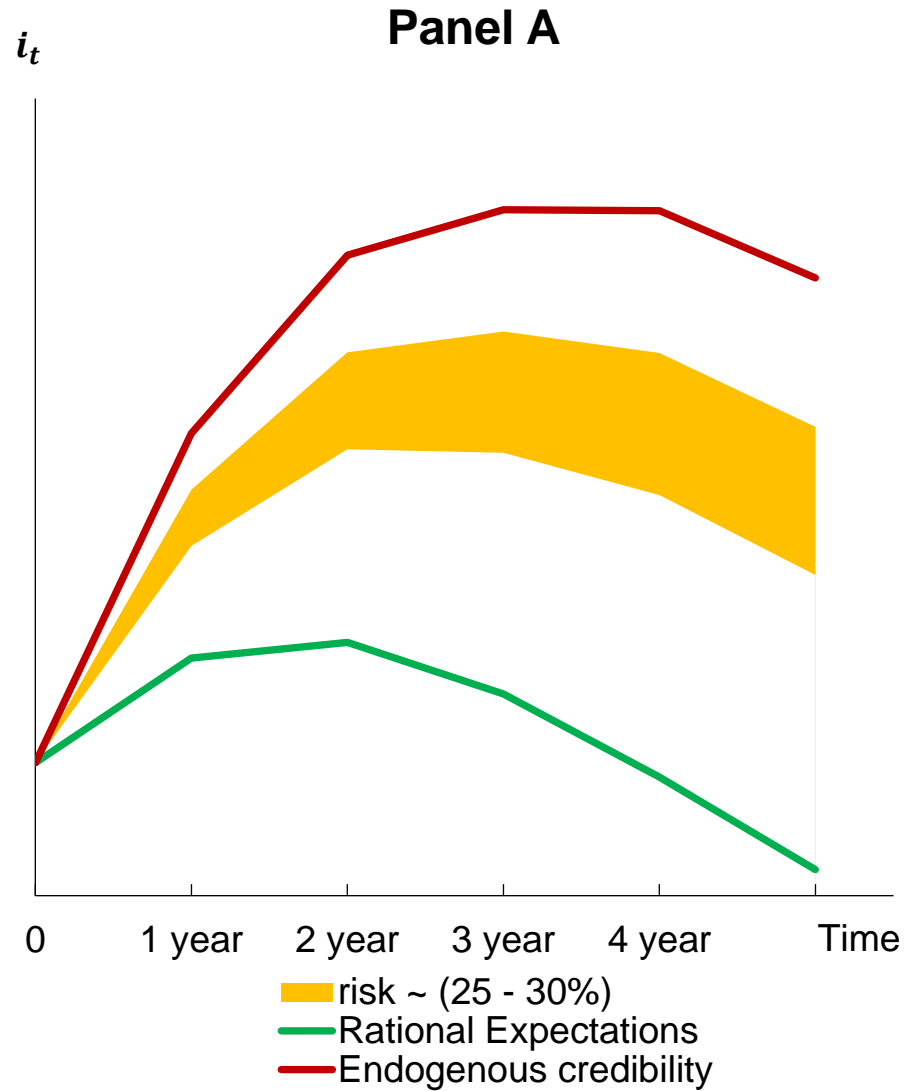


Endogenous Policy Credibility



— WPS probability rational expectations ■ WPS probability under endogenous credibility — Core Inflation (y/y)

Uncertainty and non-linearities can have important policy implications



Comprehensive effort

Resources	Governance
External experts <ul style="list-style-type: none">• Fabio Canova• Sacha Gelfer• Jonathan Swarbrick	Steering Committee <ul style="list-style-type: none">• 2 Deputy Governors• 2 Advisors• 1 staff senior leader
Economists (8 FTE) <ul style="list-style-type: none">• Model Developers• Researchers• Projection team	
Software engineers, HPC experts, Data scientists	Staff Advisory Group

Thank you!

