July 2021

DNB Research Newsletter

DeNederlandscheBank
EUROSYSTEEM

Research highlights

1. Heterogeneous expectations and the business cycle at the effective lower bound

The expectations channel of macroeconomic policies plays an important role when determining their impact on the business cycle. DNB research shows that keeping private-sector expectations anchored at their equilibrium is crucial to maintaining macroeconomy stability when monetary policy is constrained by the effective lower bound on interest rates. This highlights the importance of communication tools used by central banks. Read more

2. Financing the transition

To reach the Paris climate targets, accelerating and scaling up climate investment is needed. While most of such investment will need to be made by private parties, it is up to governments to create favourable conditions by deploying a mix of pricing, supporting measures and regulation. The main impediment to scaling up private climate investment is that greenhouse gas emissions are often underpriced. This reduces the attractiveness of a business case for climate investment. The strongest incentives that governments can provide to make the economy more sustainable, therefore, are improved pricing of climate and environmental damage and the reduction of harmful subsidies. Read more

3. Half of the Dutch population ready for digital euro

Central banks around the world are examining the possibility of introducing Central Bank Digital Currency (CBDC). The public's preferences concerning the usage of CBDC for paying and saving are essential determinants of the success of CBDC. However, the literature has been silent about the willingness to adopt CBDC and what triggers adoption. DNB research aims to fill this gap. It complements the growing list of policy-oriented studies that discuss design issues such as the governance, cybersecurity and legal aspects of CBDC. DNB research among a representative group of citizens shows that about half of the Dutch population would be willing to open a current account for digital euros at the central bank. Read more

4. Mapping the lending channel of unconventional monetary policy

On March 31, Joost Bats defended his PhD thesis titled 'Monetary policy transmission in unconventional times: The role of financial structure' at the University of Amsterdam. Read more

Publications (since March 2021)

Working Papers

719 - What's the damage? Monetizing the environmental externalities of the Dutch economy and its supply chain
Bas Smeets, Guan Schellekens, Thomas Bauwens, Harry Wilting

718 - Governance in systems based on distributed ledger technology (DLT): a comparative study
Ellen Naudts, Timothy Aerts, Leonard Franken, Aimo Pieterse

717 - The Effects of Fiscal Policy when Planning Horizons are Finite
Joep Lustenhouwer, Kostas Mavromatis

716 - Enhancing banknote authentication by guiding attention to security features and prevalence expectancy
Frank van der Horst, Joshua Snell, Jan Theeuwes

715 - Anchoring of consumers' long-term euro area inflation expectations during the pandemic
Gabriele Galati, Richhild Moessner, Maarten van Rooij

714 - Heterogeneous Expectations and the Business Cycle at the Effective Lower Bound
Tolga Özden

713 - The Housing Wealth Effect: a comparative study of Italy and the Netherlands
Francesco Caloia, Mauro Mastrogiacomo

712 - Pension Funds and Drivers of Heterogeneous Investment Strategies
Dirk Broeders, Kristy Jansen

711 - Staggered wages, unanticipated shocks and firms' adjustments
Francesco Caloia, Jante Parlevliet, Mauro Mastrogiacomo

710 - Have scale effects on cost margins of pension fund investment portfolios disappeared?
Jacob Bikker, Jeroen Meringa

709 - What triggers consumer adoption of CBDC?
Michiel Bijlsma, Carin van der Cruijsen, Nicole Jonker, Jelmer Reijerink

Occasional Studies

19-2 Financing the transition: seizing opportunities for a green recovery
Justin Dijk, Jan Willem van den End, Rianne Luijendijk, Guido Schotten, Sophie Steins Bisschop

DNB Analyse

Virtueel werken en virtuele besluitvorming: Kansen, ervaringen en risico's
Jean de Bock, Maarten van Rooij

De financiële positie van het Nederlandse mkb één jaar na de Covid-19 uitbraak
Jasper de Winter and Maikel Volkerink

Published journal articles

Shallow or deep? Training an autoencoder to detect anomalous flows in a retail payment system
Leonard Sabetti and Ronald Heijmans
Latin American Journal of Central Banking, 2021, 2(2), 100031

Climate change uncertainty and central bank risk management
Dirk Broeders and Marleen Schlooz
Journal of Risk Management in Financial Institutions, 2021, 14(2), 121-130

Security design and credit rating risk in the CLO market
Dennis Vink, Mike Nawas and Vivian van Breemen
Journal of International Financial Markets, Institutions and Money, 2021, 72, 101305

The economics of sharing macro-longevity risk
Dirk Broeders, Roel Mehlkopf and Annick van Ool
Insurance: Mathematics and Economics, 2021, 99, 440-458

Asymmetric effects of uncertainty shocks: Normal times and financial disruptions are different
Valeriu Nalban and Andra Smădu
Journal of Macroeconomics, 2021, 69, 103331

Forthcoming journal articles

Information sharing in a competitive microcredit market
Ralph de Haas, Matteo Millone and Jaap Bos
Journal of Money, Credit and Banking

Effects of credit restrictions in the Netherlands and lessons for macroprudential policy
Gabriele Galati, Jan Kakes and Richhild Moessner
Financial History Review

Heterogeneous wealth effects
Dimitris Christelis, Dimitris Georgarakos, Tullio Jappelli, Luigi Pistaferri and Maarten van Rooij
European Economic Review

Commonalities in private commercial real estate market liquidity and price index returns
Dorinth van Dijk and Marc Francke
Journal of Real Estate Finance and Economics

Identification robust inference for moments based analysis of linear dynamic panel data models
Maurice Bun and Frank Kleibergen
Econometric Theory

Sovereign debt ratings and the country composition of cross-border holdings of euro area sovereign debt
Leo de Haan, Robert Vermeulen
Journal of International Money and Finance

Forthcoming books/articles in books

Room to move: why some industries drive the trade-specialization nexus and other do not
Jaap Bos and Lu Zhang
In: C. Parmeter and R. Sickles (Eds.), Advances in Efficiency and Productivity Analysis, 2021, Springer: Proceedings in Business and Economics

Other publications

How well are consumers' inflation expectations anchored to the ECB's inflation aim?
SUERF Policy Brief No. 130, July 2021.
Gabriele Galati, Richchild Moessner, Maarten van Rooij

Evidence of a macroeconomic reversal rate
SUERF Policy Brief, No 133, July 2021
Paul Konietschke, Anna Samarina, Irina Stanga, Jan Willem van den End

De ECB in crisistijd: juridische aandachtspunten bij onconventionele maatregelen
Willem Bovenschen, Chris Oudhuis and Anne van Toor
Ars Aequi, 2021, juli/augustus, 692-702

Wat drijft verschillen in portefeuillestrategieën?
Dirk Broeders and Kristy Jansen
Fondsnieuws, 21 mei 2021

Verschillen in beleggingskeuzes veelal gedreven door subjectieve beleggingsovertuigingen
Dirk Broeders and Kristy Jansen
Tijdschrift voor Pensioenvraagstukken, 2021, 11(2), 15-21

Coronacrisis tast vertrouwen in financiële instellingen niet aan
Carin van der Cruijsen, Jakob de Haan and Ria Roerink
Economische Statistische Berichten, May 2021.

Effect of COVID-19 on payment patterns: a policy perspective
Nicole Jonker, Carin van der Cruijsen, Michiel Bijlsma and Wilko Bolt
European Economy – Banks, Regulation, and the Real Sector, 2021(1), 173-187.

Einde van een tijdperk: Rentebenchmarkhervorming nadert climax
Tom Hudepohl and Daniël Overduijn
VBA Journaal, April 2021, No. 145

Mogelijke inhaalslag vrijwillige aflossingen blijft uit
Mauro Mastrogiacomo and Cindy Biesenbeek
Economisch Statistische Berichten, April 29, 2021

Schaalvoordelen vrijwel verdwenen bij beleggingen door pensioenfondsen
Jaap Bikker and Jeroen Meringa
Economisch Statistische Berichten, April 29, 2021

Groter systeem-risico door financiële structuur en crisisbeleid
Joost Bats, Kasper Goosen and Aerdt Houben
Economisch Statistische Berichten, April 22, 2021

Central bank communication with the general public: effective or not?
Nils Brouwer and Jakob de Haan
SUERF Policy Brief, No 57, March 2021

Sentimentsindicator op basis van financieel-economisch nieuws
Jasper de Winter and Dorinth van Dijk
Economisch Statistische Berichten, March 2021

Privaat commercieel vastgoed in tijden van Covid
Dorinth van Dijk, Anne Kinsella Thompson and David Geltner
Real Estate Research Quarterly, 20(1), January 2021

For a complete list of publications see our website.

Events

Research seminars

Past

30 March 2021: Mind the Basel Gap
Mathijs Lof (Aalto University)

6 April 2021: Returns to Scale, Productivity Measurement, and Trends in U.S. Manufacturing Misallocation
Dimitrije Ruzic (INSEAD)

13 April 2021: Measuring Price Selection in Microdata: It's Not There
Peter Karadi (European Central Bank))

20 April 2021: Best Before? Expiring Central Bank Digital Currency and Loss Recovery
Maarten van Oordt (Bank of Canada)

4 May 2021: Economic Agents as Imperfect Problem Solvers
Cosmin Ilut (Duke University)

11 May 2021: The Transmission of Keynesian Supply Shocks
Andrea Ferrero (University of Oxford)
18 May 2021: The (unobservable) value of central bank's refinancing operations
Nicola Pavanini (University of Tilburg)
25 May 2021: Credit, Bankruptcy, and Aggregate Fluctuations
Makoto Nakajima (Federal Reserve Bank of Philadelphia)
1 June 2021: The Financial (In)Stability Real Interest Rate, R**
Ozge Akinci (NY Fed)
3 June 2021: Econometrics meets Sentiment: an Overview of Methodology and applications
Kris Boudt (Vrije Universiteit Amsterdam)
8 June 2021: Fire Sale Risk and Credit
Wolf Wagner (Erasmus University/CEPR)
29 June 2021: Asset managers, market liquidity and bank regulation
Iñaki Aldasoro (BIS)

Forthcoming

7 September 2021: TBA
Mathias Trabandt (Freie Universität Berlin))

14 September 2021: TBA

Sergio Mayordomo (Bank of Spain)

20 Apr 2021: TBA

Maarten van Oordt (Bank of Canada)

Other news

PhD defense of Bas-Jan Nieuwenhuijzen, 27 May 2021, Free University of Amsterdam. Thesis: "Prudential regulation of investment firms in the European Union"
PhD defense of Tolga Özden, 29 April 2021, University of Amsterdam. Thesis: "Adaptive learning and macroeconomic policy in DSGE models"
PhD defense of Iris Palm-Steyerberg, 9 July 2021, Radboud Universiteit of Nijmegen. Thesis: "Personentoetsingen in de Financiële sector"

Research highlights, details

1. Heterogeneous expectations and the business cycle at the effective lower bound

The effective lower bound (ELB) constraint on nominal interest rates has been a concern for many leading central banks around the globe since the financial crisis of 2007-08, and even more so since the onset of the pandemic in 2020. A large part of the literature on macroeconomic modeling uses the rational expectations framework (i.e., agents know exactly how the economy that they live in works) when analyzing the effects of the ELB. However, sometimes this approach turns out to be too strict and makes the models unrealistic in specific scenarios, especially during periods of turmoil and increased uncertainty, such as the ELB periods. Therefore it is useful to consider deviations from this standard assumption. This paper explores the

effects of the ELB on the business cycle in a model where some agents are allowed to be boundedly rational.

Bounded rationality and heterogeneous expectations
The model features two types of agents: a traditional rational type that anchors their expectations at the long-run equilibrium of the economy and a boundedly rational type that attempts to learn about the economic environment they live in adaptively. When the ELB periods come, the rational agents act as a stabilizing force on the economy. They know the central bank's desired interest rate, i.e., the shadow rate, and form their expectations by fully trusting that the central bank is going to take up the slack in the nominal interest rates and keep the economy stable through its unconventional policy measures.

Unlike their rational counterparts, the adaptively learning agents develop their own models when forming their expectations. They act like econometricians and update their beliefs every period to learn about structural relations. During ELB episodes, these agents operate as a destabilizing force on the economy since they don't trust the central bank's shadow rate at face value. Therefore a high fraction of adaptive learners combined with persistently long ELB episodes may result in a de-anchoring of expectations, leading to deflationary spirals and prolonged recessions.

Lessons
Taking the model to U.S. data shows that rational expectations were dominant following the aftermath of the financial crisis in 2007-08 when nearly two-thirds of expectations stayed anchored at the equilibrium, while the remaining one-third were de-anchored and came from adaptive learners. Taking these results at face value, the relatively high fraction of anchored expectations over this period can be interpreted as the positive impact of unconventional policy on expectations.

Looking at what would have happened if there were more adaptive learners reveals that macroeconomic outcomes such as inflation and output gap rapidly decline as the fraction of adaptive learners increases. While the effects would have been negligible over the initial periods of the ELB, a high fraction of de-anchored expectations start generating sizeable downside risks over the post-2015 period, as agents have more time to learn and steer away from the equilibrium.

These results highlight the importance of keeping private-sector expectations anchored through central bank communication channels during periods of increased uncertainty, such as ELB episodes. The failure to do so may result in further downward pressure on the economy.

Read more?
See DNB Working Paper 714 Heterogeneous Expectations and the Business Cycle at the Effective Lower Bound by Tolga Özden.
Go to the Top

2. Financing the transition

Supporting sustainable finance

The coordination problem between investors and financiers impedes climate investment. This is where the government must step in to provide support and coordination. A further impediment to climate investment is the mismatch between their risk profile and the current supply of private finance. The energy transition requires massive investment in new technologies with high-risk characteristics. Speeding up the creation of the European capital markets union will unlock the necessary finance by promoting equity financing and safe, innovative financing structures.

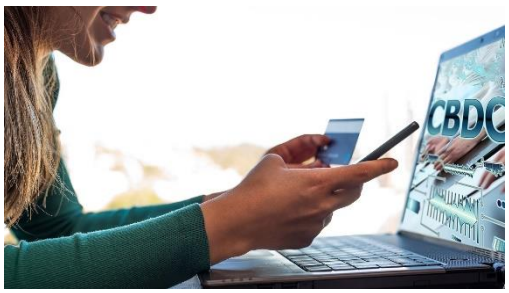
Read more?

See the DNB Occasional Study Financing the transition: seizing opportunities for a green recovery by Justin Dijk, Jan Willem van den End, Rianne Luijendijk, Guido Schotten and Sophie Steins Bisschop.

Go to the Top

3. Half of the Dutch population ready for digital euro

While Dutch citizens are very satisfied with the current payment options, the digital euro has potential in the Netherlands. About half of the Dutch population would be interested in opening a current account for digital euros. The same holds for opening a savings account with digital euros. Among the potential early adopters are relatively many males, people up to 35 years of age, more highly educated people, homeowners and people living in urban environments. In addition, familiarity with the concept of a digital euro increases people's willingness to use it. Almost half of the Dutch citizens are familiar with the concept of digital central bank money, although most people indicated they did not know exactly what it entails. The stronger the importance attached to privacy and security, the stronger the intended usage of digital euros as a means of payment. Moreover, financial incentives matter too. The amount people would want to deposit on a savings account with digital euros depends on the interest rate offered.



Privacy and security play a key role in the design

Dutch consumers are willing to hold a digital euro account provided their privacy is well-protected and the risk of theft and fraud of their assets is minimised. The most frequently cited reason why the Dutch public believes a digital euro would be useful is that central banks, unlike commercial banks, do not operate on a for-profit basis. This is why the digital euro could be a reliable complement to cash and

existing electronic payment instruments, offering consumers more choice.

Read more?
See the DNB Working Paper What triggers consumer adoption of CBDC? by Michiel Bijlsma, Carin van der Cruijsen, Nicole Jonker and Jelmer Reijerink.
Go to the Top

4. Mapping the lending channel of unconventional monetary policy

What is the topic of your thesis?
I focused on the European bank and market financing channels of monetary policy. What has motivated me to study this topic is that Europe is heavily bank-based. A bank-based economy struggles especially during a banking crisis, because banks reduce lending. This is exactly what happened during the financial crisis of 2008. Since then, the Eurosystem (i.e. the ECB and other national central banks) had to intervene. It did so in two ways. First, it offered very cheap funding to banks. Second, it boosted capital markets by purchasing large volumes of government and corporate debt. The novelty of my thesis is to investigate the effectiveness of these two types of monetary policy, using confidential data from DNB's monetary operations.

What are the main findings?
The main conclusion is promising: the Eurosystem has effectively buttressed the lending channel of monetary policy. But there are three important lessons to be drawn. First, lending can be supported more effectively by giving better price incentives to banks. An example of this is to provide cheap funding to banks only if they substantially increase their lending to the real economy. Second, the current negative interest rate environment has implications for the effectiveness of monetary policy. This is because negative interest rates reduce bank profitability and lending. Third, Europe should develop towards a more diversified financial structure, with more market-based funding and less financing by banks. More market financing can act as an alternative source of finance when the lending capacity of banks falls short.

How does your research square with DNB policy work?
My PhD is the result of my policy work. As an economist at the Monetary Operations, my role was to back policy related topics with empirical research. Based on this, I have developed my PhD thesis. I am grateful for the opportunity to contribute to effective monetary policy making from a capital markets' perspective: the studying of market financing conditions by central bankers is becoming ever more important.

What's next?

Joost Bats is currently an economist at the Division Capital Markets & Financial Structure of the ECB's Monetary Policy Directorate. Here, he contributes to mapping the non-bank lending channel of monetary policy, in line with the research of his PhD thesis.

Go to the Top

This is a DNB-publication of the **Economic Policy and Research Division**

To **subscribe/unsubscribe** to DNB Research Newsletter, please send an email to: office.ebo@dnb.nl.

De Nederlandsche Bank N.V.

DeNederlandscheBank

EUROSYSTEEM