Newsletter no. 42, October 2019

Research Newsletter

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PhD defense Niels Gilbert

On October 10, 2019, Niels Gilbert successfully defended his PhD thesis at the University of Groningen. His dissertation, titled "Monetary and fiscal integration in Europe", explores the fundamental causes behind the so-called Eurocrisis. In three main parts, the emergence of macro-economic imbalances within the Eurozone, the effectiveness of the European fiscal rules, and the contagious effects of shocks to Italian and Spanish sovereign spreads are studied. In the final chapter, it is shown that such contagious effects have disappeared following Mario Draghi's promise to do "whatever it takes" to save the Eurozone and the subsequent announcement of the Outright Monetary Transactions program. Niels' thesis was supervised by Jakob de Haan and Harry Garretsen.

His complete thesis can be found here:
■ LINK »

Conference

Uncertainty and Non-linearities: Policy Challenges and New Perspectives

On 30 September and 1 October 2019, De Nederlandsche Bank organized its 22nd Annual Research Conference. The conference theme was "Uncertainty and Non-linearities: Policy Challenges and New Perspectives". The conference featured two keynote speeches by Jesus Fernandez-Villaverde and the 2013 Nobel Prize winner Lars Peter Hansen. Eight research papers were presented and a policy panel discussed the conference theme.

In his keynote speech Jesus Fernandez-Villaverde (University of Pennsylvania) discussed nonlinearities in business cycle models and focused on strategic complementarities as an important source of these nonlinearities. He developed a business cycle model with search complementarities in the inter-firm matching process that entails multiple equilibria. An active equilibrium with strong joint venture formation, high output, and low unemployment can coexist with a passive equilibrium with low joint venture formation, low output, and high unemployment. Changes in fundamentals move the system between the two equilibria, generating large and persistent business cycle fluctuations. Sufficiently adverse shocks in

Policy panel: Frank Smets »

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PhD defense: Improving IT Decisions with Enterprise Architecture

On 11 September 2019, Martin van den Berg obtained his PhD at the Vrije Universiteit Amsterdam on the topic "Improving IT Decisions with Enterprise Architecture". Martin studied at Tilburg University, where he obtained an MSc in Business Economics and an MSc in Logistics Management. In 2012 he joined De Nederlandsche Bank, where he has since worked as an enterprise architect. In that same year he started work on his PhD.

One of the often mentioned applications of enterprise architecture (EA) is decision-making support. EA is considered as a business function that enables senior management to take ownership of the key decisions on the design of the future organization. However, little is known about how EA has improved decisions. In this thesis Martin wants to find evidence to what extent EA is indeed a useful instrument for supporting decision-making and in what way this support can take place. He therefore researched the relations between various aspects of the EA function and various aspects of the IT decision.

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Keynote by Lars Hansen

periods of low macroeconomic volatility trigger severe and protracted downturns.

In his Keynote speech Lars Hansen (University of Chicago) talked about the role of uncertainty for economic policy with respect to climate change. In particular, he discussed the causes of climate change and its economic consequences. He proposed dynamic structural economic models which combine decision theory, asset valuation, control theory, and nonlinear impulse response functions to account for uncertainty outside of the usual limitations of risk analysis in economics and finance. In a quantitative application, abstracting from regional and developmental heterogeneity, he showed that the social cost of carbon emissions could become very high without additional forms of mitigation, technological change, adaptation or policy intervention.

The policy panel discussion focused on the role of uncertainty and nonlinearities in the decision making process of policy makers. Athanasios Orphanides (MIT) talked about stress testing models that can be used for a robust policy advice. He mentioned several applications based on two examples for the U.S., namely nonlinear Phillips curve and risk scenarios. Next, Ulf Söderström (Sveriges Riksbank) described methods and challenges of dealing with uncertainty at the Sveriges Riksbank in forecasting and monetary policy analysis, in particular through scenarios. Finally, Frank Smets (European Central Bank) discussed model-based approaches to risk analysis at the ECB such as statistical risk metrics combining predictive densities from several models and an event-based risk analysis for assessing macroeconomic contingencies based on scenarios.

Presented papers studied various aspects of uncertainty and nonlinearities in theoretical and empirical research. Rosen Valchev (Boston College) proposed a model of rigid prices where firms face Knightian uncertainty about competitive environment. This uncertainty has two key implications. First, firms learn about the shape of their demand function from past observations of quantities sold. This learning gives rise to kinks in the expected profit function at previously observed prices, making those prices sticky and more likely to reoccur. Second, uncertainty about the relation between aggregate and industry-level inflation ensures nominal rigidity. The estimated model

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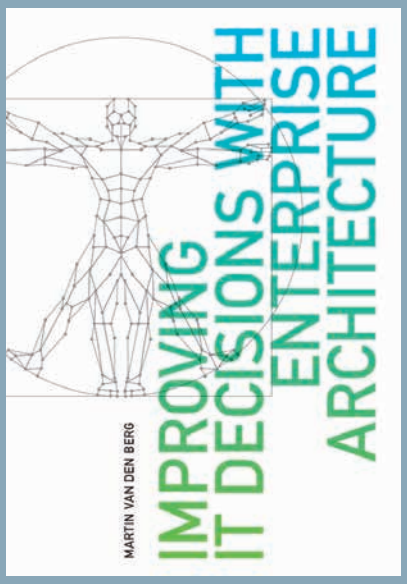

The results of Martin's thesis indicate that the involvement of the EA function in IT decisions, and in particular in IT investment decisions is still low. He also found that the maturity of the EA function has a weak positive relationship with the quality of outcomes of IT investment decisions where this relationship is almost perfectly mediated by the quality of IT investment decisions. So the question is; does EA matter? Yes, it does, but it depends on the way EA is performed.

To extend his research with a practical tool Martin developed a checklist that can be used by enterprise architects to support IT investment decisions, and more specifically, the business case. The added value of the checklist was evaluated by means of an experiment. The results of the experiment demonstrate that using a checklist as such does not make the difference. This confirrms the conclusion that the enterprise architect him- or herself is the most important success factor in the use of enterprise architecture as management tool.

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is consistent with micro-level pricing facts and implies significant monetary non-neutrality.

Guido Ascari (University of Oxford) applied non-linear and smooth transition local projections for the U.S. data to test two empirical predictions that aggregate data should exhibit if sticky prices were the key transmission mechanism of monetary policy, as implied by the New Keynesian models. First, large monetary policy shocks should yield larger initial responses of the price level and smaller real effects on output. Second, in a high-inflation regime, prices should be more flexible; thus the real effects of monetary policy shocks should be smaller and the response of the price level larger. The analysis provides some evidence supporting both predictions.

Giovanni Pellegrino (Aarhus University) examined the responses of output, consumption, investment, and hours worked to a financial uncertainty shock in booms and busts in the post-WWII U.S., using a nonlinear VAR model. He found evidence of co-movements both in expansions and recessions, with stronger responses of real activity indicators in the latter state. This state-dependent responses are interpreted with a model where an uncertainty shock generates co-movements in real activity. A state-contingent estimation of this model points to counter-cyclical risk aversion as the crucial ingredient to replicate the evidence from the nonlinear VAR. An exercise focusing on the Great Recession suggests that the nonlinear DSGE model replicates a half of the cumulative output loss in 2009-2014 period.

Yves S. Schüler (Deutsche Bundesbank) identified uncertainty shocks within a novel Bayesian quantile VAR model, unifying Bloom's (2009) two identification steps into one. He found that uncertainty shocks are at least three times more important for macroeconomy relative to the two-step identification. He also identified certainty shocks and showed that uncertainty and certainty shocks differ. While uncertainty shocks persistently depress real activity, certainty shocks temporarily raise real activity before subsequently suppressing it, erasing almost entirely its previous gains.

Elmar Mertens (Deutsche Bundesbank) presented a model where two kinds of agents have different information sets. The fully informed agents know the structure of the model and observe histories of all variables, while the less informed

Policy panel: Athanasios Orphanides

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Given the increasing use of technology, the associated high investments, and the growing complexity, a solution is highly necessary to make the right investments and mitigate the risks of these investments. The EA function can be an important ingredient of that solution. However, it is a young discipline. With this research Martin contributed to EA being suited for and considered as being a management tool.

Martin's thesis can be find here:
■ LINK

If you are interested in Martin's research, you can contact him at m.j.b.k.van.den.berg@dnb.nl.

Best-paper prize for DNB Working Paper on climate stress testing

At the second Annual GRASFI conference at Oxford University, a best-paper prize was awarded to DNB Working Paper 625 on climate stress testing. GRASFI is a world-wide network of universities that focuses on sustainable finance research. The prize-winning working paper proposes an analytical framework for quantifying financial risks during a disruptive energy transition. The paper was written by a team of economists from DNB's Financial Stability Division.

Keynote by Jesus Fernandez-Villaverde

ones observe only a subset of the full information set. All agents form expectations rationally but agents with limited information need to solve a dynamic signal extraction problem to gather information about the variables they do not observe. The framework is illustrated with a monetary policy problem where an imperfectly informed central bank follows an interest rate rule.

Georg Strasser (European Central Bank) discussed the international evidence showing that forward guidance generally mutes the response of government bond yields to macroeconomic news. However, calendar-based guidance with a short horizon counter-intuitively raises it. Using a stylized model where agents learn from market signals, he showed that the public release of more precise information about future interest rates lowers the informativeness of market signals and, as a consequence, may increase uncertainty and amplify the reaction of expectations to macroeconomic news.

Jaroslav Borovicka (New York University) proposed a theory of subjective beliefs and showed that biases in beliefs have large effects on macroeconomic aggregates. The departures are formalized using notions of pessimism and optimism and are disciplined by data on household forecasts. The role of subjective beliefs is quantified in a business cycle model with goods and labor market frictions. Consistent with survey evidence, an increase in pessimism generates upward biases in unemployment and inflation forecasts and lowers economic activity. The belief distortions reduce aggregate demand and propagate through frictional goods and labor markets.

Paolo Bonomolo (DNB) studied the role of agents' beliefs in explaining the drop in interest rates during the Great Recession, considering that agents are uncertain about the nature of shocks that hit the economy. His conjecture was that the attribution of a positive probability to the scenario of secular stagnation acts as a force that induces a more cautious behavior to consume less and save more, resulting in a lower natural interest rate. The higher the agents' pessimism, the bigger this effect is. This paper aims to verify if this conjecture is empirically relevant and to quantify the role of beliefs and pessimism in explaining the decline of interest rates.

More information on the program, papers and presentations is available on the conference website. ››

EAGLE Taskforce meeting

De Nederlandsche Bank, 15 October 2019

On the 15th of October DNB hosted the EAGLE taskforce workshop on financial linkages. In the workshop, the team leaders (Nikola Bokan, Sandra Gomez, Pascal Jacquinot and Massimiliano Pisani) presented an extension of the EAGLE model with a financial sector. EAGLE is a multicountry dynamic stochastic general equilibrium model featuring four regions, namely the home country (a euro area member state), the rest of the euro area, the US and the Rest of the World. The purpose of the extension of the model with a financial sector is to analyze the effects of large scale asset purchase programs domestically (euro area), as well as their international spillovers.

In particular, the model includes a banking sector in each region and distinguishes between two types of households, namely savers and borrowers. The latter group borrows to invest in the housing market which is also included. Banks receive deposits from savers and intermediate funds between agents who cannot borrow and lend to each other. In particular, they provide loans to borrowers and to entrepreneurs. The latter group owns capital and part of the real estate stock. In the euro area, the model assumes an interbank market as well. Banks choose deposits and loans to maximize their profits subject to a capital requirement. The ECB is assumed to set the interest rate according to a Taylor rule, in normal times, while performing purchases of long-term assets during the zero lower bound periods. Finally, the model assumes that the ECB provides forward guidance for its policy rate when the economy is at the zero lower bound.

The key result from asset purchases can be expansionary leading to an increase in investment and private consumption. In line with the data, the model predicts an exchange rate depreciation which boosts exports. The model assumes that the supply of long-term assets in the euro area is fixed. This leads to a substantial rebalancing towards shorter maturities or towards assets outside the euro area, leading to a capital account deficit.

The meeting was attended by 25 participants from 15 central banks. DNB is actively contributing to the EAGLE taskforce and has calibrated the model for the Netherlands as the home country. Additionally, it has developed an extension of the model accounting for the implications of the US-China trade war.

Forthcoming Workshop

"Wealth and Income Inequality in the 21st Century"
At De Nederlandsche Bank, 15th November 2019

You can register through email: ebo_conferences@dnb.nl

Friday 15 November 2019
8:45-9:30 Registration with coffee/tea
9:30-9:45 Opening address: Jakob de Haan (DNB, Head of Research)

SESSION I: The evolution of wealth and Income inequality in the last few decades
Chair: Paolo Bonomolo (DNB)
9:45-10:45 Wealth and Income Inequality in America, 1949-2016
Presenter: Moritz Kuhn (University of Bonn)
10:45-11:15 Coffee break
11:15-12:15 The Performance of Policy Rules in Heterogeneous-Agent Models with Aggregate Shocks (preliminary title)
Presenter: Per Krusell (Stockholm University)
Discussant: Marcelo Pedroni (University of Amsterdam)
12:15-13:30 Lunch in Foyer

SESSION II: Competition, Markups, Wages and Inequality
Chair: Christian Pattipeilohy (DNB)
13:30-14:30 Competition and Inequality
Presenter: Andrea Colciago (DNB and University of Milano Bicocca)
Discussant: Petr Sedlaceck (Oxford University)
14:30-15:30 Markups and Inequality
Presenter: Virgiliu Midrigan (New York University)
Discussant: Basile Grassi (Bocconi University)
15:30-16:00 Coffee break
16:00-17:00 Wealth, Wages and Employment
Presenter: Victor Rios-Rull (University of Pennsylvania)
Discussant: Alireza Sepahsalari (University of Bristol)
18:30-21:30 Conference Dinner

DNB workingpapers

Since July 2019 the following Working Papers have been published, please use the following link.

- **644** - Medium-term asymmetric fluctuations and EMU as an optimum currency area
  Jeroen Hessel 23 July 2019

- **645** - Wealth shocks and MPC heterogeneity
  Dimitris Christelis, Dimitris Georgarakos, Tullio Jappelli, Luigi Pistaferri and Maarten van Rooij
  1 August 2019

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- **646** - Debt shift, financial development and income inequality
  Dirk Bezemer and Anna Samarina
  1 August 2019

- **647** - Effects of QE on sovereign bond spreads through the safe asset channel
  Jan Willem van den End
  13 August 2019

- **648 -** Animal spirits and household spending in Europe and the US
  Bahar Öztürk and Ad Stokman
  14 August 2019

- **649** - Beyond the zero lower bound: negative policy rates and bank lending
  Garyn Tan 26 September 2019

- **650** - Fundamental uncertainty about the natural rate of interest: Info-gap as guide for monetary policy
  Yakov Ben-Haim and Jan Willem van den End 29 August 2019

- **651** - How does consumption respond to news about inflation? Field evidence from a randomized control trial
  Olivier Coibion, Dimitris Georgarakos, Yuriy Gorodnichenko and Maarten van Rooij 29 August 2019

- **652** - Inflation expectations anchoring: new insights from micro evidence of a survey at high-frequency and of distributions
  Nikos Apokoritis, Gabriele Galati, Richhild Moessner and Federica Teppa 29 August 2019

- **653** - Credit risk in commercial real estate bank loans: the role of idiosyncratic versus macro-economic factors
  Dimitris Mokas and Rob Nijskens 29 August 2019

- **654** - Behavioral learning equilibria in the New Keynesian model
  Cars Hommes, Kostas Mavromatis, Tolga Özden and Mei Zhu 2 September 2019

- **655** - Loan to value caps and government-backed mortgage insurance: Loan-level evidence from Dutch residential mortgages
  Leo de Haan and Mauro Mastrogiacomo 6 September 2019

- **656** - Micro-prudential regulation and banks' systemic risk
  Jakob de Haan, Zhenghao Jin and Chen Zhou 14 October2019

- **657** - Credit Supply: Are there negative spillovers from banks' proprietary trading?
  Michael Kurz and Stefanie Kleimeier 18 October 2019

DNB occasional studies (new since July 2019)

Since March 2019 the following occasional studies have been published, please use the following link:

Nr. 2 (2019): De toegevoegde waarde van maatwerk in risicotoedeling
Damiaan Chen, Maurice Doll en Annick van Ool (September 2019)

Nr. 3 (2019): Inflation in the euro area since the Global Financial Crisis
Dennis Bonam, Gabriele Galati, Irma Hindrayanto, Marco Hoeberichts, Anna Samarina and Irina Stanga (September 2019)

Published Articles in Journals

- **International lending of Dutch insurers and pension funds: The impact of ECB monetary policy and prudential policies in the host country**
  Jon Frost, Patty Duijm, Clemens Bonner, Leo de Haan and Jakob de Haan
  Open Economies Review, 2019, 30(3), 445-465

- **The influence of government ideology on monetary policy: New cross-country evidence based on dynamic heterogeneous panels**
  Frederico Giesenow and Jakob de Haan
  Economics and Politics, 2019, 31, 216-239

- **To stay or go? Consumer bank switching behaviour after government interventions**
  Maaike Diepstraten and Carin van der Cruijsen
  Journal of Banking and Finance, 2019, 106, 16-33

For published articles in journals please use the following link.

Forthcoming Articles in Journals

- **How does government control affect firm value? New evidence for China**
  Marzieh Abolhassani, Zhi Wang and Jakob de Haan
  Kyklos

- **Frontal assault versus incremental change: A comparison of collective bargaining in Portugal and the Netherlands**
  Alexander Hijzen, Pedro Martins and Jante Parlevliet
  IZA Journal of Labour Policy

- **Payments data: do consumers want banks to keep them in a safe or turn them into gold?**
  Carin van der Cruijsen
  Applied Economics

- **Connecting the dots: Market reactions to forecasts of policy rates and forward guidance provided by the Fed**
  Michelle Bongard, Richhild Moessner, William Nelson and Gabriele Galati *International Journal of Finance and Economics*

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- **Animal spirits and household spending in Europe and the US**
  Bahar Özturk and Ad Stokman
  Economics Letters

- **Trust in the central bank and inflation expectations**
  Dimitris Christelis, Dimitris Georgarakos, Tullio Jappelli and Maarten van Rooij
  International Journal of Central Banking

- **Benchmark selection and performance**
  Dirk Broeders and Leo de Haan
  Journal of Pension Economics and Finance

For forthcoming articles in journals please use the following link.

Forthcoming Articles in Books

- **Financial Markets and Institutions: A European Perspective (fourth edition)**
  Jakob de Haan, Dirk Schoenmaker and Peter Wierts
  Cambridge University Press

- **Institutions and Economic Development**
  Jakob de Haan (Ed.)
  2019, *Edward Elgar*

- **Institutions and Economic Development: Introduction**
  Jakob de Haan
  In: Jakob de Haan (Ed.), Institutions and Economic Development, 2019, *Edward Elgar*

For forthcoming articles in books please use the following link.

Published Articles in Books

- **The struggle of German central banks to maintain price stability** Jakob de Haan
  In: Rodney Edvinsson, Tor Jacobson, and Daniel Waldenström (eds.), Sveriges Riksbank and the History of Central Banking, 2018, *Oxford University Press*

- **Zahlungsverhalten in den Niederlanden – eine Fallstudie**
  Sascha Füllbrunn and Carin van der Cruijsen
  In: J. Lempp, T. Pitz & J. Sickmann (eds), Die Zukunft des Bargelds, 2018, *Springer Gabler*

- **Why nations fail**
  Jakob de Haan
  In: Bruno Frey and Christoph Schaltegger (eds.), *21st Century Economics - Economic Ideas You Should Read and Remember*, 2019, Heidelberg: Springer

For published articles in books please use the following link.

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