Research Newsletter

DeNederlandscheBank

Latest news

Book about structural reform

"Modernising the economic structure by implementing structural reforms is perhaps the greatest challenge for the euro area," said DNB President Klaas Knot, at the launch of "Structural Reforms: Moving the economy forward", edited by Jakob de Haan and Jante Parlevliet. The book, published by Springer, contains contributions by researchers from the OECD, the European Commission, the IMF, the Bundesbank, the Netherlands Bureau for Policy Analysis and DNB.

■ LINK BOOK ABOUT STRUCTURAL REFORM



Reforms bolster growth

Reforms will increase economic growth. Especially the southern member states of the European Union, where the scope for reform is widest, could benefit from this. According

Two papers accepted for publication in the Journal of Money, Credit and Banking

Fiscal and monetary policy coordination, macroeconomic stability, and sovereign risk premia

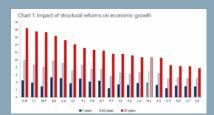
Authors Dennis Bonam and Jasper Lukkezen

In many dynamic macroeconomic models, macroeconomic stability is ensured when the central bank targets inflation by adjusting the policy interest rate and the government targets public debt by adjusting taxes and government expenditures. The idea is that such a mix of monetary and fiscal policy prevents a de-anchoring of inflation expectations, while ensuring longrun fiscal solvency. This result is formalized by Leeper (1991) who presents these policy requirements for macroeconomic stability analytically using a simple model. We revisit Leeper's results by extending his model in two ways: (1) we allow for fiscal policy to respond endogenously to the business cycle, and (2) we introduce a sovereign risk premium that is increasing in the outstanding stock of public debt. The idea behind the first extension to the model is that governments tend to systematically respond to economic conditions, either counter-cyclically or pro-cyclically, due to hardwired institutional features, such as unemployment benefits that rise during an economic crisis. The second extension is motivated

by the observation that sovereign risk premia can become highly sensitive to changes in government indebtedness in times when debt sustainability concerns are elevated. Using a case study of the Irish debt crisis in 2010, we present evidence suggesting that these two features, i.e. the cyclicality of fiscal policy and sovereign risk, may actually be related. Using rollingwindow regressions, we show that the Irish risk premium (i.e. the spread between the yield on Irish and German 10-year government bonds) became much more responsive to Irish government indebtedness during the crisis. Moreover, during this period, fiscal policy became more focused on debt consolidation and the fiscal stance turned from counter-cyclical to pro-cyclical. In the theoretical part of the paper, we show that such a policy response is actually optimal in terms of macroeconomic stability in times of sovereign risk. We start by replicating the results from Leeper for the case when sovereign risk is absent, which in our model means that the risk premium does not respond at all to changes in government >>

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to estimates presented in the book, GDP gains in some countries, such as Greece and Italy, could rise to almost 10%, provided they are willing to implement ambitious reforms (Chart 1).



Improved resilience

Reforms can also improve the resilience of national economies. If prices and wages can be adjusted more quickly, the business sector will be able to recover from an economic crisis faster. The rules and regulations regarding dismissal and bankruptcy also play a role. Caution is required, however. On the one hand, some degree of employment protection may prevent businesses from dismissing people too easily in times of recession, thereby deepening the crisis. On the other hand, high levels of employment protection, such as in the southern member states, but also in the Netherlands, may prompt businesses to increase the use of temporary workers, who will often quickly lose their jobs during a recession.

Fix the roof in good times

The employment protection example highlights the importance of initiating reforms at the right time. Easing employment protection during an economic downturn causes more job losses rather than boosting permanent employment. In a favourable cyclical environment the indebtedness. We show that, in this scenario, the cyclical stance of fiscal policy has no effect on stability outcomes. What this means is that, to ensure stability, the government is required to pursue an appropriate debt target over *the long run*. As long as this condition is met, the government may deviate from its debt target in the short run, for instance to respond to economic conditions.

We then show that the cyclical stance of fiscal policy *does* matter for stability in times when the sovereign risk premium rises endogenously with government indebtedness. In this scenario, pursuing a countercyclical stance reduces the likelihood of delivering stable macroeconomic outcomes. The intuition is as follows: if the economy is hit by a crisis, and the government responds countercyclically by lowering taxes or raising government consumption, then, as the budget deficit goes up, government debt rises which pushes up the risk premium. In turn, the higher risk premium leads to a decline in consumption and economic activity, which prompts the government to raise budget deficits further, causing the risk premium to go up even more, etc. etc. We show that, in order

to avoid this vicious cycle from turning into a full-blown sovereign debt crisis, the government must adopt aggressive debt consolidation policies or pursue a pro-cyclical fiscal stance, or, as in the Irish case, do both. Adopting a pro-cyclical fiscal stance entails raising taxes or lowering government consumption in times of a crisis. Although such policies tend to impinge on economic activity directly, they support economic activity indirectly through a reduction in the level of government debt and the risk premium. In times of severe levels of sovereign risk, the latter effect may dominate the former. Our results suggest that countercyclical fiscal policies do not threaten macroeconomic stability in 'normal times', when debt levels are low enough to keep sovereign risk (premia) at bay. However, in times of sovereign risk, a countercyclical fiscal stance might actually do more harm than good, whereas a pro-cyclical stance helps stabilize economic conditions.

Reference

Leeper, E. M. (1991). Equilibria under 'active' and 'passive' monetary and fiscal policies. *Journal of Monetary Economics*, 27(1):129–147.

US monetary regimes and optimal monetary policy in the Euro Area

Author Kostas Mavromatis

Monetary policy in the United States has been documented to have switched from reacting weakly to inflation fluctuations during the 1970s, to fighting inflation aggressively from the early 1980s onward. In this paper, I analyze the impact of the U.S. monetary policy regime switches on the Eurozone. I construct a New Keynesian twocountry model where foreign (U.S.) monetary policy switches regimes over time. I estimate the model for the U.S. and the Euro Area using quarterly data and find that the United States has switched between those two regimes, in line with existing evidence. I show that foreign regime switches affect home (Eurozone) inflation and output volatility and their responses to shocks substantially, as long as the home central bank commits to a time-invariant interest rate rule reacting to domestic conditions only. Optimal policy in the home

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reverse applies: the likelihood of additional dismissals is small and the number of permanent jobs increases.

Chances of success

of their own accord, due to the less willing to do so in the initial EMU period. The southern favourable times, when there Analysis, may help to accelerate the adoption of reforms

country instead requires that the home central bank reacts strongly to domestic producerprice inflation and to international variables, such as imported goods relative prices. In fact, I show that currency misalignments and relative prices play a crucial role in the transmission of foreign monetary policy regime switches internationally. Interestingly, I show

that only marginal gains arise for the Euro Area when the European Central Bank (ECB) adjusts its policy according to the monetary regime in the United States. Thus, a simple time-invariant monetary policy rule with a strong reaction to Producer Price Index (PPI) inflation and relative prices is enough to counteract the effects of monetary policy switches in the United States.

Paper in Nature: Climate Change

Guido Schotten and his co-authors have published a paper in *Nature: Climate Change*.

The academic and policy debate regarding the role of central banks and financial regulators in addressing climate-related financial risks has rapidly expanded in recent years. This Perspective presents the key controversies and discusses potential research and policy avenues for the future. Developing a comprehensive analytical framework to assess the potential impact of climate change and the low-carbon transition on financial stability seems to be the first crucial challenge. These enhanced risk measures could then be incorporated in setting financial regulations and implementing the policies of central banks. Link Paper in Nature: Climate Change

Conferences

25-26 June 2018: **"Ten Years after the Global Financial Crisis: What Have We Learned about Ensuring Financial Stability?"**

Annual International Journal of Central Banking Research Conference Hosted by De Nederlandsche Bank (DNB) in Amsterdam, The Netherlands, June 25-26, 2018.

Monday, June 25, 2018 8:30 – 9:15 Registration and Coffee 9:15 – 9:30 Welcoming Remarks Jakob de Haan, Head of Research, De Nederlandsche Bank

Session I Macroprudential Tools Chair: Jakob de Haan, De Nederlandsche Bank 9:30 – 10:30 **"Calibrating Macroprudential Policy to Forecasts of Financial Stability"** Scott Brave (Federal Reserve Bank of Chicago) Jose Lopez (Federal Reserve Bank of San Francisco) Discussant: Loriana Pelizzon (Goethe University Frankfurt) 10:30 – 10:50 Break 10:50 – 11:50 **"Can Macroprudential Measures Make Cross-Border** Lending More Resilient? Lessons from the Taper Tantrum" Előd Takáts (Bank for International Settlements) Judit Temesvary (Board of Governors of the Federal Reserve System) Discussant: Dennis Reinhardt (Bank of England) 11:50 – 12:15 Commentator: Christa Bouwman (Texas A&M University) 12:15 – 12:30 General Discussion 12:30 – 13:45 Lunch

Session II Bank Capital Chair: Loretta Mester, Federal Reserve Bank of Cleveland and IJCB Managing Editor

13:45 - 14:45 "Impact of Higher Capital Buffers on Banks' Lending: Evidence from Euro Area Experiments"

Zymantas Budrys (European University Institute) Giuseppe Cappelletti (European Central Bank) Áurea Ponte Marques (European Central Bank) Paolo Varraso (New York University) Discussant: Diana Bonfim (Banco de Portugal)

14:45 – 15:45 **"Are Basel's** Capital Surcharges for Global Systemically Important Banks Too Small?"

Wayne Passmore (Board of Governors of the Federal Reserve System) Alexander H. von Hafften (Board of Governors of the Federal Reserve System) *Discussant*: Chen Zhou (De Nederlandsche Bank) 15:45 – 16:15 Break

16:15 – 17:15 **"The Rise of Shadow** Banking: Evidence from Capital Regulation"

Rustom Irani (University of Illinois at Urbana–Champaign) Rajkamal Iyer (Imperial College London) Ralf Meisenzahl (Board of Governors of the Federal Reserve System) José-Luis Peydró (ICREA-Universitat Pompeu Fabra) Discussant: Skander Van den Heuvel (Board of Governors of the Federal Reserve System) 17:15 – 17:40 Commentator: Arnoud Boot (University of Amsterdam and De Nederlandsche Bank)

17:40 – 18:00 General Discussion 18:30 Reception and Dinner

Tuesday, June 26, 2018 8:15 – 8:45 Coffee 8:45 – 9:00 Remarks Klaas Knot, President, De Nederlandsche Bank Session III Monetary Policy and Financial Stability Policy Interactions Chair: Luc Laeven, European Central Bank and IJCB Co-Editor

9:00 - 10:00 **"A Quantitative Case** for Leaning Against the Wind"

Andrew Filardo (Bank for International Settlements) Phurichai Rungcharoenkitkul (Bank for International Settlements) *Discussant*: Linda Goldberg (Federal Reserve Bank of New York) 10:00 – 10:15 Break

10:15 - 11:15 "Coordinating Monetary and Financial Regulatory Policies"

Alejandro Van der Ghote (European Central Bank) Discussant: Deborah Lucas (Massachusetts Institute of Technology) 11:15 – 11:40 *Commentator*: Claudio Borio (Bank for International Settlements) 11:40 – 12:00 General Discussion 12:00 – 14:00 Lunch and Conclusion

If you are interested in participating in this conference, please contact Jolanda Kok (j.h.m.kok-stuijfzand@dnb.nl).

5-6 July 2018: **6th International Conference: Corporate Governance in Emerging Markets** (hosted by De Nederlandsche Bank (DNB) Location: De Nederlandsche Bank (DNB), Westeinde 1, 1017 ZN Amsterdam, The Netherlands Link: https://www.dnb.nl/en/ binaries/programme_6th_ international_conference_tcm47-376660.pdf.

CALL FOR PAPERS 21st Annual Research Conference De Nederlandsche Bank Amsterdam, 12-13 November 2018 UNCLOGGING THE CREDIT CHANNEL

Keynote speaker: Simon Gilchrist (Boston University)

In recent years, central banks around the world have implemented unconventional monetary policy measures in an attempt to encourage bank lending and revive economic activity. Despite the extensive monetary stimulus and a substantial increase in central banks' balance sheets, credit growth remained subdued. This reveals that the credit channel of monetary policy transmission might be "clogged", potentially resulting in underinvestment and slow economic growth. Among the factors that impair the credit channel and hinder bank lending are financial frictions, growing importance of non-bank finance, banks' balance sheet problems, as well as macro-prudential regulation.

We invite the submission of high quality theoretical and empirical papers that study the transmission of monetary policy through the credit channel.

Topics of interest include, but are not limited to:

- Credit channel of unconventional monetary policy: theory and evidence
- Credit (mis)allocation in the postcrisis environment
- Substitutes for bank lending: shadow banking and asset markets
- Banks' balance sheets problems: debt overhang, bad loans, and risk exposure
- Macroprudential policies and credit growth
- Financial frictions in DSGE models

Manuscripts should be submitted to DNB_ResearchConference@dnb.nl by the 31st of June 2018. Authors of accepted papers will be notified by the 15th of July 2018.

DNB working papers

Since October 2017 the following Working Papers have been published, please use the following Link: DNB working paper 573-595

- **573** Modeling the business and financial cycle in a multivariate structural time series model by Jasper de Winter, Siem Jan Koopman, Irma Hindrayanto and Anjali Chouhan - 19 October 2017
- **574** Evaluating the environmental impact of debit card payments by Erik Roos Lindgreen, Milan van Schendel, Nicole Jonker, Jorieke Kloek, Lonneke de Graaff and Marc Davidson - 20 October 2017

- 575 Assessing the effective stance of monetary policy: A factor-based approach by Christiaan Pattipeilohy, Christina Bräuning, Jan Willem van den End and Renske Maas - 9 November 2017
- **576** Collective bargaining through the magnifying glass: A comparison between the Netherlands and Portugal by Alexander Hijzen, Pedro Martins and Jante Parlevliet - 21 November 2017
- **577** Bank-based versus marketbased financing: implications for systemic risk by Joost Bats and Aerdt Houben - 11 December 2017
- **578** The power of percentage: Quantitative framing of pension income by Henriëtte Prast and Federica Teppa - 11 December 2017
- **579** How expensive should CO2 be? Fuel for the debate on optimal climate policy by Steven Poelhekke - 11 December 2017
- **580** Mortgage arrears, regulation and institutions: Crosscountry evidence by Irina Stanga, Razvan Vlahu and Jakob de Haan - 27 December 2017
- **581** Entropy-based implied moments by Xiao Xiao and Chen Zhou - 27 December 2017
- **582** Effects of payment instruments on unhealthy purchases by Frank van der Horst, Jelle Miedema, Daniël Schreij and Martijn Meeter - 16 January 2018
- **583** Revisiting supply and demand indexes in real estate by Dorinth van Dijk, David Geltner, Alex van de Minne 30 January 2018
- **584** The effect of fiscal announcements on interest spreads: Evidence from the Netherlands by Jasper de Jong -20 February 2018

- 585 What drives bitcoin adoption by retailers by Nicole Jonker - 1 March 2018
- **586** Quantitative easing and preferred habitat investors in the euro area bond market by Martijn Boermans and Robert Vermeulen - 5 March 2018
- **587** Time-varying wage Phillips curves in the euro area with a new measure for labor market slack by Dennis Bonam, Jakob de Haan and Duncan van Limbergen - 7 March 2018
- **588** Mortgage debt and shadow banks by Sebastiaan Pool 8 March 2018
- **589** The international spillovers of the 2010 U.S. flash crash by David-Jan Jansen - 13 March 2018
- **590** The impact of the ECB asset purchases on the European bond market structure: Granular evidence on ownership concentration by Martijn Boermans and Viacheslav Keshkov - 2 May 2018
- **591** Credit shocks and the European labour market by Katalin Bodnár a, Ludmila Fadejevab, Marco Hoeberichtsc, Mario Izquierdo Peinadod, Christophe Jadeaue and Eliana Viviano - 2 May 2018
- **592** CDS market structure and risk flows: the Dutch case by Anouk Levels, René de Sousa van Stralen, Sînziana Kroon Petrescu and Iman van Lelyveld - 18 May 2018
- **593** Basel methodological heterogeneity and banking system stability: The case of the Netherlands by Laurence Deborgies Sanches and Marno Verbeek - 22 May 2018
- **594** Central bank policies and income and wealth inequality: A survey by Andrea Colciago, Anna Samarina and Jakob de Haan -22 May 2018

• **595** - Optimal risk-sharing in pension funds when stock and labor markets are co-integrated by Ilja Boelaars and Roel Mehlkopf - 30 May 2018

DNB Occasional Studies

Since November 2017 the following occasional studies have been published, please use the following link: Occasional Studies

Nr 4 (2017): Developing macroprudential policy for alternative investment funds by Koen van der Veer, Anouk Levels, Claudia Lambert, Luis Molestina Vivar, Christian Weistroffer, Raymond Chaudron and René de Sousa van Stralen Willem Heeringa (November 2017)

Nr 1 (2018): From cash to cards: how debit card payments overtook cash in the Netherlands by Nicole Jonker, Lola Hernandez, Renate de Vree and Patricia Zwaan (February 2018)

Nr 2 (2018): An urgent call to get better prepared for unexpected events by Jurgen Spaanderman (February 2018)

Published Articles in Journals

Since July 2017 the following article and books have been published. For published articles in journals please use the following link: Articles in Journals

- Determinants of interest rates on time deposits and savings accounts: macro factors, bank risk, and account features, Jacob Bikker and Dirk Gerritsen, International Review of Finance, 2018, 18, 169-216
- Deflation risk in the euro area and central bank credibility, Gabriele Galati, Zion Gorgi, Richhild Moessner and Chen Zhou, Economics Letters, 2018, 167, 124-126

- Low real rates as driver of secular stagnation: empirical assessment, Marco Hoeberichts and Jan Willem van den End, Japan and the World Economy, 2018, 46, 29-40
- The missing links: A global study on uncovering financial network structures from partial data, Iman van Lelyveld, Ádám Banai, Soeren Friedrich, Rodney Garratt, Grzegorz Hałaj, Jose Fique, Ib Hansen, Serafín Martínez Jaramillo, Hwayun Lee, José Luis Molina-Borboa, Stefano Nobili, Sriram Rajan, Dilyara Salakhova, Thiago Christiano Silva, Laura Silvestri and Sergio Rubens Stancato de Souza, Journal of Financial Stability, 2018, 35, 107–119
- Banks' interest rate risk and profitability in a prolonged environment of low interest rates, Raymond Chaudron, Journal of Banking and Finance, 2018, 89, 94-104
- Does the impact of financial liberalization on income inequality depend on financial development? Some new evidence, Jakob de Haan, Regina Pleniger, and Jan-Egbert Sturm, Applied Economics Letters, 2018, 25(5), 313-316
- Surges of international fund flows, Suxiao Li, Jakob de Haan and Bert Scholtens, Journal of International Money and Finance, 2018, 82, 97-119
- Drivers of payment patterns at the point-of-sale: Stable or not? Carin van der Cruijsen and Mirjam Plooij, Contemporary Economic Policy, 2018, 36(2), 363-380
- Cyclical changes in firm volatility, Emmanuel de Veirman and Andrew Levin, Journal of Money, Credit and Banking, 2018, 50(2-3)
- The signalling content of asset prices for inflation: Implications for Quantitative Easing, Leo de Haan and Jan Willem van den End, Economic Systems, 2018, 42(1), 45-63

- Industry wages across countries and over time: A new database of micro survey data, Van-Ha Le, Jakob de Haan and Erik Dietzenbacher, *Review of Income and Wealth*, 2018, 64(1), 1-25
- The rose-tinted spectacles of homeowners, Carin van der Cruijsen, David-Jan Jansen and Maarten van Rooij, *Journal of Consumer Affairs*, 2018, 52(1), 61-87
- National information and euro area monetary policy: A generalized ordered choice approach, Christina Bräuning and Ralf Fendel, *Empirical Economics*, 2018, 54(2), 501–522
- Contingent convertible bonds: Who invests in European CoCos? Martijn Boermans and Sweder van Wijnbergen, Applied Economics Letters, 2018, 25(4), 234-238
- Are international fund flows related to exchange rate dynamics? Suxiao Li, Jakob de Haan and Bert Scholtens, Open Economies Review, 2018, 29(1), 31-48
- Fiscal consolidations and heterogeneous expectations, Cars Hommes, Joep Lustenhouwer and Kostas Mavromatis, Journal of Economic Dynamics and Control, 2018, 87, 173-205
- Timing of banks' loan loss provisioning during the crisis, Leo de Haan and Maarten van Oordt, Journal of Banking and Finance, 2018, 87, 293-303
- The relationship between tenure and outside director task involvement: A social identity perspective, Dennis Veltrop, Eric Molleman, Reggy Hooghiemstra and Hans van Ees, Journal of Management, 2018, 44(2), 445-469
- Bank profitability and risktaking under low interest rates, Jacob Bikker and Tobias Vervliet, International Journal of Finance and Economics, 2018, 23(1), 3–18

- Cyclical behavior of international fund flows, Suxhiao Li, Jakob de Haan and Bert Scholtens, *Research in International Business and Finance*, 2018, 43, 99-112
- Determinants of the real impact of banking crises: A review and new evidence, Philip Wilms, Job Swank and Jakob de Haan, North American Journal of Economics and Finance, 2018, 43, 54-70
- When arm's length is too far: Relationship banking over the credit cycle, Thorsten Beck, Hans Degryse, Ralph de Haas and Neeltje van Horen, Journal of Financial Economics, 2018, 127(1), 174-196

Forthcoming Articles in Journals

For forthcoming articles in journals please use the following link: Forthcoming Articles

- X-efficiency and economies of scale in pension fund administration and investment, Alserda, G.A.G., J.A. Bikker, and S.G. van der Lecq, *Applied Economics*
- Fuel tourism in Dutch border regions: Are only salient price differentials relevant? David-Jan Jansen and Nicole Jonker, Energy Economics
- Financial constraints matter: Empirical evidence on borrowing behavior, microfinance and firm productivity, Boermans, M.A., and D. Willebrands, Journal of Developmental Entrepreneurship
- Public Capital in the 21st Century: As productive as ever? Marien Ferdinandusse, Josip Funda and Jasper de Jong, Applied Economics
- Combining model-based near-term GDP forecasts and judgmental forecasts: A real-time exercise for the G7 countries, Jansen, W.J and J.M. de Winter, Oxford Bulletin of Economics and Statistics

- A Dynamic Stochastic Network Model of the Unsecured Interbank Lending Market, Francisco Blasques, Falk Bräuning and Iman van Lelyveld, Journal of Economic Dynamics & Control
- Fiscal and monetary policy coordination, macroeconomic stability and sovereign risk premia, Dennis Bonam and Jasper Lukkezen, Journal of Money, Credit and Banking
- Trend-cycle-seasonal interactions: identification and estimation, Irma Hindrayanto, Jan Jacobs, Denise Osborn and Jing Tian, *Macroeconomic Dynamics*
- Cash remains top-of-wallet! International evidence from payment diaries, Carlos Arango-Arango, Yassine Bouhdaoui, David Bounie, Martina Eschelbach and Lola Hernandez, Economic Modelling
- The time-varying relationship between credit spreads and employment growth, Yimin Xu and Jakob de Haan, Applied Economics
- Evaluating monetary policy rules under fundamental uncertainty: an info-gap approach, Jan Willem van den End, Maria Demertzis and Yakov Ben-Haim, *Economic Modelling*
- OLS and IV estimation of regression models including endogenous interaction terms, Maurice Bun and Teresa Harrison, Econometric Reviews

- The impact of higher fixed pay and lower bonuses on productivity, Maurice Bun and Leo Huberts, Journal of Labor Research
- Does the clarity of monetary policy reports reduce volatility in financial markets? Aleš Bulíř, Martin Cihák and David-Jan Jansen, Czech Journal of Economics and Finance
- Can successful fiscal adjustments only be achieved by spending cuts? Rasmus Wiese, Richard Jong-A-Pin and Jakob de Haan, European Journal of Political Economy
- Introduction to FMIC2 special issue, Biliana Alexandrovakabadjova, Evangelos Benos, Jo Braithwaite, Jorge Cruz-Lopez, Ronald Heijmans, Mark Manning, David Murphey and Francisco Rivadeneyra, Journal of Financial Market Infrastructures
- Short-termism of long-term investors? The investment behaviour of Dutch insurance companies and pension funds, Patty Duijm and Sophie Steins Bisschop, Applied Economics
- US monetary regimes and optimal monetary policy in the Euro Area, Kostas Mavromatis, Journal of Money, Credit and Banking

Forthcoming and published Articles in Books

For forthcoming articles in books please use the following link: Articles in books

 The case for more fiscal risk sharing and coordination of fiscal and monetary policy

Jakob de Haan and Patrick Kosterink In: Bretton Woods, Brussels and Beyond: Redesigning the Institutions of Europe, Nauro Campos and Jan-Egbert Sturm (eds.), CEPR ebook

• ECB communication: effects on expectations

Jakob de Haan In: Jaques Ziller (ed.), The European Central Bank's Communication: An Instrument of Monetary Policy and a Vector of Accountability, Giappichelli.

• Central bank policies after the crisis

Alan Blinder, Michael Ehrmann, Jakob de Haan and David-Jan Jansen In: S.C.W. Eijffinger and D. Masciandaro, *Hawks and Doves*, Deeds and Words, CEPR ebook, 97-103

• The banknote designer and the banknote design manager: Who does what?

Hans de Heij International Banknote Designers Association, Lausanne

Links

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Editor: Jolanda Kok mailto: secretariaat-ebo@dnb.nl

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