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Research Newsletter

DeNederlandscheBank
EUROSYSTEEM

Latest news

With 980 citations the paper 'Financial literacy and stock market participation' appeared in the top ten most highly cited research papers in Business, Economics and Management in 2011-2015 (Source: June 2016 version of Google Scholar Metrics). This paper is written by Maarten van Rooij, jointly with Annamaria Lusardi and Rob Alessie, and is published in the *Journal of Financial Economics* (2011, vol. 101(2), pp. 449-472). The paper shows that financial literacy is an important determinant of consumer stock market participation.

The *Journal of Money, Credit and Banking* has accepted the paper 'The pitch rather than the pit: Investor inattention, trading activity, and FIFA World Cup matches'. This paper, co-authored by Michael Ehrmann and David-Jan Jansen, uses the exogenous variation in investor inattention generated by major sporting events to show the sizeable effects of inattention on stock market trading activity and price formation. As such, the paper contributes to the ongoing debate on the (ir)rationality of financial markets.

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DNB workshop on 'Estimating and Interpreting Financial Cycles'

2 September 2016

The concept of financial cycle plays an important role in the current debate on how to increase the resilience of the financial system and dampen its procyclicality. The financial cycle captures systematic patterns in the financial system that can have important macroeconomic consequences. In recent years, empirical research has documented time-series patterns in financial variables – mainly credit growth, leverage, and real estate prices – around financial crises. A main conclusion of this research is that on average, financial crises tend to occur close to the peaks of the medium-term cycles in credit, the credit-to-GDP ratio and residential property prices.

Central banks are increasingly turning to estimates of the financial cycle as a broad indicator, in real time, of whether risks to financial stability increase, remain stable, or decrease. This can be especially useful in times of persistently low interest rates, which could lead to the build-up of financial imbalances.

There is, however, no consensus yet on how to measure the financial cycle or how to interpret different patterns that have been found over time and across countries.

To take stock of these challenges, DNB hosted a workshop on 'Estimating and Interpreting Financial Cycles' on 2 September 2016. The workshop brought together leading experts from central banks, international organizations and academia, with a view to discussing insights, challenges and concrete implications for policy. Keynote speakers were Siem Jan Koopman (Vrije Universiteit Amsterdam), Oscar Jorda (San Francisco Fed) and Stijn Claessens (Federal Reserve Board). Irma Hindrayanto and Jasper de Winter presented new research with Siem Jan Koopman on the interaction between financial cycles and the business cycle in the Netherlands and other advanced countries. The paper will be published as DNB Working Paper.

As part of the workshop, participants used a common data set to produce their best estimates of the financial cycle. The results of this exercise helped gain a better understanding of how and why estimates of financial cycles may vary.

Several important conclusions emerged from the workshop. First, estimating financial cycles involves issues comparable to estimating business cycles. However, the task of distinguishing trends and cycles in the financial system is trickier compared to business cycles, given that there is no common definition of the financial cycle and that financial indicators are typically noisier than macroeconomic variables. It is therefore not surprising that estimates of

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the financial cycle can vary quite markedly across estimation methods. More work is required to understand the benefits of alternative empirical approaches. This said, these different methods all reveal the existence of cycles in the financial sector that tend to be more ample and more protracted than the business cycle. How to best combine information from different financial variables remains a challenge.

Research presented at the workshop also shows that financial cycles differ quite markedly across countries and over time. This suggests that structural differences in the macroeconomic and financial sphere, as well as in the policy regime, may play a role in shaping the financial cycle. It also underscores the need to build a theoretical underpinning for the concept of the financial cycle. ■

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Neeltje van Horen (now at the Bank of England) won at the EFA meetings in Oslo the Pagano-Zechner Prize for the best non-investment paper in the *Review of Finance* for her paper 'Exporting Sovereign Stress: Evidence from Syndicated Bank Lending during the Euro Area Sovereign Debt Crisis' written jointly with Alex Popov (ECB). The paper was written while Neeltje was working at DNB. The paper shows that exposure to sovereign debt of the GIIPS countries had a negative impact on lending by non-GIIPS banks during the sovereign debt crisis. The effect is entirely driven by a decline in lending to foreign corporates, while lending to domestic corporates was not affected. It was one of the first papers showing that there exists a strong feedback loop between sovereign fragility and bank balance sheets. ››

On June 9-10 DNB has jointly organized with CEPR a conference on
Bank Equity over the Cycle

In the wake of the global financial crisis regulatory reform has focused on an increase in capital cushions of financial institutions. The debate around the appropriate level of bank capital is multidimensional, involving agency problems in banks, asymmetric information, international coordination and arbitrage, bank governance, tax benefits of debt, government subsidies, systemic risks and externalities beyond the financial sector, and shadow banking. This conference contributed to this debate and took stock of the recent academic research and experts' view on various questions about prudential capital regulation that are critical to regulatory policy. The main organizer of the conference was Enrico Perotti (from University of Amsterdam) and participants included academics (from the United States, the United Kingdom and Europe), policymakers (from the European Central Bank, the European Banking Authority, the Single Resolution Board, the Bank for International Settlements, and the U.S. Securities and Exchange Commission), and practitioners (from ABN AMRO Bank and Credit Suisse).

The conference was opened by Jan Marc Berk (division director, EBO), who introduced the topic of the conference and highlighted the key arguments in favor of higher capital, as well as the challenges and potential effects of stronger capital buffers on real economy and financial sector.

Papers in the first session of the conference (chaired by Jakob de Haan) discussed the relationship between banks' capital and their lending behavior. The session was opened by Frederic Malherbe (London Business School), who presented a paper (joint work with Saleem Bahaj, Jonathan Bridges, and Cian O'Neill, all from the Bank of England) which provides a theory on how banks choose to issue capital and lend in the presence of capital requirements. They argue that changes in capital requirements are strongly correlated with changes in lending, but only during downturns, with the magnitude of this effect depending on the level of capital requirements, return on legacy assets and on new lending. Using UK banking regulatory data from 1989 to 2007, they find strong empirical support for this relationship.

Andrea Polo (Pompeu Fabra) presented the second paper in this session (joint work with José-Luis Peydró, from Pompeu Fabra, and Enrico Sette, from Banca d'Italia) on ›› the transmission of monetary policy. Using Italian securities and credit registers, they show that in crisis times, banks increase their holdings of securities when monetary policy is softer. This effect is stronger for less capitalized banks, which also reduce credit supply. However, the results reverse in normal times when less capitalized banks increase more the supply of credit and the riskiness of their loans portfolio.

The third and last paper of this session was presented by Sebastian Pfeil (University of Bonn) (joint work with Nataliya Klimenko, Jean-Charles Rochet, both from the University of Zurich, and Gianni De Nicolo from the IMF). They argue that the capitalization of the entire banking sector is an important determinant for bank lending. The paper introduces a general equilibrium dynamic model with financial frictions to study the long-term impact of macro-prudential policies on output and financial stability. They show that in a framework in which aggregate bank capital

determines the dynamic of credit, undercapitalized banks lend too much. This is due to the fact that these banks do not internalize the effect of their individual lending decisions on the future loss-absorbing capacity of the banking sector.

The first day concluded with three panel discussions. The first panel (chaired by Jakob de Haan) focused on supervisory stress-testing. Mark Flannery (U.S. Securities and Exchange Commission and University of Florida) noted that while stress-testing has become an important tool for assessing how much capital a bank needs to support its risk-taking activities, there are some other important players in the financial markets that should be subject to stress-testing as well. He discussed the growing importance of mutual funds and the concerns over the massive retail money inflows into corporate bond funds. In his view, the potential risks to financial stability relate to prospective impact on market prices, particularly in a situation in which a large fund has to liquidate a large share of its holdings. Although desirable, the mutual funds' liquidity stress-testing is a difficult exercise (much more difficult than for banks), as it depends on information about mutual fund's holdings. Piers Haben (European Banking Authority) discussed the multiple use of stress-testing in the supervisory toolkit. He noted the role of stress-testing, first, as a valuable source of information for identifying business model vulnerabilities in risk management and problems with certain risk exposures, and second, as a mean for testing a bank's ability to meet its capital requirements over the economic cycle. He highlighted the importance of stress-tests in providing a comprehensive view on an individual institution by considering not only the risks it is exposed to in isolation, thus allowing public authorities to assess potential problems in the financial system more broadly, and discussed the challenges in designing new stress-testing methodologies adequate for non-crisis period. Charles Goodhart (London School of Economics) noted that the conduct of annual stress tests gives the regulatory authorities their best available chance of dealing with fragile banks while there is still enough time to avert a, potentially contagious, failure. However, in his view there is an important question, not yet fully resolved, of how to provide back-stop funding to recapitalize the weaker banks once the results of stress-tests are revealed, in name of transparency, to the »

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Dorinth van Dijk was awarded the H.K. Nieuwenhuis thesis award for his thesis 'The predictive power of Funda' on June 23. The thesis employs data on the number of clicks from the brokerage website Funda to predict house prices and the number of transactions.The jury of the H.K. Nieuwenhuis Thesis Award 2015 was comprised of Prof. Marc Salomon, Prof. Arnoud Boot, Dr Jonne Guyt, Prof. Cees Diks and Prof. Peter Boswijk. The jury report stated the winning theses had the 'highest ranking on the relevancy of the research outcome as well as on the degree of innovation of the research question.'

The H.K. Nieuwenhuis thesis award is awarded each year to the writer of a thesis in the field of economics of exceptional quality. The award consists of 2.250 euro. De award is named after alumnus Herman Karel Nieuwenhuis, who was the first cum laude graduate in Economics at the University of Amsterdam in 1929.The thesis can be found here and a corresponding DNB Working Paper can be found here. ■

market (and the market turns against those banks that have failed the test). There are also some other remaining problems, such as: how to take account of second, amplifying effects, or how to reduce the implementation costs (in terms of time and resources consumed), or how to select the appropriate set of stresses for the purpose of the test, or what results to disclose and to whom.

The second panel (chaired by Iman van Lelyveld) focused on banks' models over the cycle. The panelists (Thomas Broeng Jørgensen, from the European Central Bank, Piers Haben, from the European Banking Authority, and Willy Westerborg-de Haan, from ABN-AMRO) discussed various aspects of credit risk modelling. Their views converged on the idea that a complete credit risk management system should require both through-the-cycle and point-in-time estimates (as they correspond to different objectives for credit measurement), while they acknowledged the difficulties in having long time series that can be fed into the models. Moving forward, the panelists highlighted the role of risk models in complementing the macro prudential instruments and noted that they should distinguish between intra- vs. inter-bank diversification.

The third policy panel (chaired by Paul Cavelaars) discussed new forms of bank capital, namely contingent convertible capital (CoCos) and bail-in debt. Thomas Broeng Jørgensen (European Central Bank) noted that a lot of attention has been given recently to the conversion mechanism of CoCos (i.e., principal write-down vs. debt-to-equity swap). While this is an important aspect of CoCos'design, for the going-concern CoCos the role played by the trigger event that leads to conversion (in particular, how low a trigger may be set), as well as the degree of transparency over the seniority structure of the bank's capital matter as well. Mauro Grande (Single Resolution Board) noted that from a resolution perspective it is critical for the bail-in procedure to be credible. He discussed the legal risk associated with bail-in (i.e., when one category of creditors is subject to bail-in, but others are not), as well as financial stability considerations (in particular the difficulties in measuring the impact that bail-in may have on financial stability, as well as potential spillover effects). Paul Glasserman (Columbia University) discussed three related questions relevant to CoCos' market. First, he argued that changes in the CDS market may provide useful information not only about risk in banks, but also about the credibility of recovery and resolution frameworks. Second, he noted that there are a few obstacles for implementing market-based triggers, obstacles that may be surmounted if the triggers are set sufficiently high and if conversion is credible. Finally, he discussed the opposing incentive effects faced by a bank as it nears a CoCo's conversion trigger: On the one hand, shareholders have a strong incentive to raise capital to stave off conversion. On the other hand, as conversion becomes very likely, shareholders would prefer to take on more tail risk. Sandeep Agarwal (Credit Suisse) noted that the market is absorbing well the supply of contingent convertible capital. The main issue for the potential investors is related with the correct valuation of these instruments. Currently, the market is not pricing various instruments conditional on their loss-absorbing mechanism. Looking into the future, the panelists noted that demand for CoCos will mainly come from institutional investors.

Papers in the second session of the conference (chaired by Natalya Martynova) discussed the impact of bail-in requirements and capital buffers on lending. John Vourdas (European University Institute) presented a paper (joint work with Misa Tanaka from the Bank of England) on the optimal structure of banks' loss absorbing capacity. The paper introduces a theoretical model which studies the interaction between minimum capital requirements, TLAC requirements, and additional capital buffer requirements, and the impact of these requirements on moral hazard. The authors explain how ex-ante moral hazard (i.e., inefficient monitoring) can be mitigated by sufficiently high bank's loss absorbing capacity (i.e., TLAC plus equity capital buffer), while ex-post moral hazard (i.e., asset substitution incentives) can be prevented by an efficient bail-in procedure. Catherine Koch (Bank of International Settlements) presented the second paper in this session (joint work with Christoph Basten from KOF-ETH Zurich and the Swiss Financial Market Supervisory Authority FINMA) and provided empirical evidence on the impact of the introduction of countercyclical capital buffers (CCB) on the mortgage market in Switzerland. ››

Using data provided by the online mortgage platform Comparis, the authors show that the introduction of CCB changes the composition of credit supply, with mortgage specialized and less capitalized banks being more likely to raise prices, and thus shift mortgages from less to more resilient banks. The final paper of the conference was presented by Filippo De Marco (Bocconi University) (joint work with Tomasz Wieladek from Barclays Bank). It provided UK's evidence for the impact of capital requirements (and monetary policy) on bank's lending to SMEs.

The authors find that as a result of higher capital requirements banks cut lending, in particular to those firms with whom they have a short business relationship. Changes in monetary policy on the other hand impact only smaller banks which reduce lending to riskier SMEs. ■

Report of the Conference on 'Expectations in Dynamic Macroeconomic Models'

jointly organized by De Nederlandsche Bank and the University of Amsterdam, held at DNB on 6-8 September 2016

The conference aimed at improving the understanding of a key economic mechanism: the formation of expectations. Expectations play an important role in the economic theories that underpin most macroeconomic models, since planning for the future is a central part of economic life. However, economists disagree about the basis on which individuals form expectations and thus about the way to model them.

The dominant approach for the past several decades, of course, has made use of the hypothesis of model-consistent or Rational Expectations (RE): the assumption that people have probability beliefs that coincide with the probabilities predicted by one's model. Nonetheless, the assumption is a strong one. An alternative mechanism to form expectations with respect to the RE one is Adaptive Learning.

Adaptive learning relaxes assumption regarding agents' knowledge about the behavior of market determined variables. While in RE models the agents inside the model know more than the econometricians observing the economy, under learning the agent and the econometrician share the same information. Learning theorists build models populated by econometricians who run regressions to form expectations.

The conference brought together some leading experts in Adaptive Learning. It featured keynote speeches by Bruce Preston (University of Melbourne) and by Seppo Honkapohja (Bank of Finland), and included papers on a variety of macroeconomic topics, ranging from the role of learning for asset prices to the term structure of interest rates and the housing market. One of the main topics of interest was the design of monetary policy under learning and financial frictions and self-fulfilling recessions in monetary economies subject to a zero bound on nominal interest rates. ■

Conferences

Forthcoming:

29-30 September 2016:
19th Annual DNB Research Conference 'Inflation in the 21st century: New policies for new challenges?'
De Nederlandsche Bank, Amsterdam Conferences

DNB working-papers

(New since November 2015)

Since the end of 2015 the following Working Papers have been published (no. 498-520), please use the following link: DNB working paper 498-520

- **No 520** - International Banking and Cross-Border Effects of Regulation: Lessons from the Netherlands *Jon Frost, Jakob de Haan and Neeltje van Horen* - 15 September 2016
- **No 518** - Credit Defaults, Bank Lending and the Real Economy *Sebastiaan Pool* - 25 August 2016
- **No 517** - Contingent convertible bonds with floating coupon payments: fixing the equilibrium problem *Daniël Vullings* - 5 August 2016
- **No 516** - The signalling content of asset prices for inflation: Implications for Quantitative Easing *Leo de Haan and Jan Willem van den End* - 28 July 2016
- **No 515** - How competitiveness shocks affect macroeconomic performance across euro area countries *Karsten Staehr and Robert Vermeulen* - 27 July 2016
- **No 514** - Macroeconomic effects of mortgage interest deduction *Cenkhan Sahin* - 7 July 2016
- **No 513** - Timing of banks' loan loss provisioning during the crisis *Leo de Haan and Maarten van Oordt* - 2 June 2016

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- **No 512** - Communicating dissent on monetary policy: Evidence from central bank minutes *David-Jan Jansen and Richhild Moessner* - 17 May 2016
- **No 511** - Determinacy analysis in high order dynamic systems: The case of nominal rigidities and limited asset market participation *Guido Ascari, Andrea Colciago and Lorenza Rossi* - 21 April 2016
- **No 510** - A comparative analysis of developments in central bank balance sheet composition *Christiaan Pattipeilohy* - 11 April 2016
- **No 509** - Deflation risk in the euro area and central bank credibility *Gabriele Galati, Zion Gorgi, Richhild Moessner and Chen Zhou* - 5 April 2016
- **No 508** - Individual inflation expectations in a declining-inflation environment: Evidence from survey data *Malka de Castro Campos and Federica Teppa* - 30 March 2016
- **No 507** - Improving model-based near-term GDP forecasts by subjective forecasts: A real-time exercise for the G7 countries *Jos Jansen and Jasper de Winter* - 10 March 2016
- **No 506** - Measuring expectations of inflation: Effects of survey mode, wording, and opportunities to revise *Wändi Bruine de Bruin, Wilbert van der Klaauw, Maarten van Rooij, Federica Teppa and Klaas de Vos* - 7 March 2016
- **No 505** - The invisible hand of the government: 'Moral suasion' during the European sovereign debt crisis *Steven Ongena, Alexander Popov and Neeltje van Horen* - 7 March 2016
- **No 504** - How to monitor the exit from the Eurosystem's unconventional monetary policy: Is EONIA dead and gone? *Ronald Heijmans, Richard Heuver and Zion Gorgi* - 7 March 2016
- **No 503** - Pension funds' herding *Dirk Broeders, Damiaan Chen, Peter Minderhoud and Willem Schudel* - 1 March 2016
- **No 502** - The changing composition of the supervisory boards of the eight largest banks and insurers during 2008-2014 and the impact of the '4+4 suitability screenings' *Mijntje Lückerath-Rovers and Margriet Stavast-Groothuis* - 1 March 2016
- **No 501** - On the differential impact of securitization on bank lending during the financial crisis *Clemens Bonner, Daniel Streitz and Michael Wedow* - 1 March 2016
- **No 500** - A descriptive model of banking and aggregate demand *Jochen Mierau and Mark Mink* - 9 February 2016
- **No 499** - Does Banknote Quality Affect Counterfeit Detection? Experimental evidence from Germany and the Netherlands *Frank van der Horst, Martina Eschelbach, Susann Sieber and Jelle Miedema* - 1 February 2016
- **No 498** - Effective macroprudential policy: Cross-sector substitution from price and quantity measures *Janko Cizel, Jon Frost, Aerdt Houben and Peter Wierts* - 1 February 2016

DNB Occasional Studies

(New since end 2015)

Since December 2015 the following Occasional Studies have been publisched (no. 7 (2015) and no. 1 and 2 (2016)), please use the following link: Occasional Studies

Nr. 2 (2016): Time for Transition - an exploratory study of the transition to a carbon-neutral economy March 2016. Diederik Dicou, Saskia van Ewijk, Jan Kakes, Martijn Regelink and Guido Schotten

Nr. 1 (2016): A shock to the system? Market illiquidity and concentrated holdings in European bond markets February 2016. Sophie Steins Bisschop, Martijn Boermans and Jon Frost

Nr. 7 (2015): Shedding a clearer light on financial stability risks in the shadow banking system December 2015. Koen van der Veer, Eric Klaaijsen and Ria Roerink

Published articles

(New since November 2015)

For published articles in Books please use the following link: Published articles in Books

- **Forecasting and nowcasting economic growth in the euro area using factor models,** Irma Hindrayanto, Siem Jan Koopman and Jasper de Winter, International Journal of Forecasting, 2016, 32(4), 1284-1305
- **Preferential regulatory treatment and banks' demand for government bonds,** Clemens Bonner, Journal of Money, Credit and Banking, 2016, 48(6), 1195-1221
- **Scale economies in pension fund investments: A dissection of investment costs across asset classes,** Dirk Broeders, Arco van Oord and David Rijsbergen, Journal of International Money and Finance, 2016, 67, 147-171
- **Endogenous market structures and optimal taxation,** Andrea Colciago, The Economic Journal, 2016, 126, 1441-1483
- **Measuring financial cycles in a model-based analysis: Empirical evidence for the United States and the Euro,** Area Gabriele Galati, Irma Hindrayanto, Siem Jan Koopman and Marente Vlekke, Economics Letters, 2016, 145, 83-87

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- **Scale economies in local public administration,** Jacob Bikker and Daan van der Linde, Local Government Studies, 2016, 42(3), 441-463

- **Household saving behaviour in the euro area,** Julia Le Blanc, Alessandro Porpiglia, Federica Teppa, Michael Ziegelmeyer and Junyi Zhu, International Journal of Central Banking, 2016, 12(2), 15-69

- **The effects of liquidity regulation on bank assets and liabilities,** Patty Duijm and Peter Wierts, International Journal of Central Banking, 2016, 12(2), 385-411

- **Eurosystem household finance and consumption survey: Main results on assets, debt, and saving,** Olympia Bover, Martin Schürz, Jiri Slacalek and Federica Teppa, International Journal of Central Banking, 2016, 12(2), 1-13

- **Newton meets Van Leeuwenhoek: Identifying international investors' common currency preferences,** Martijn Boermans and Robert Vermeulen, Finance Research Letters, 2016, 17, 62-65

- **Systematic tail risk,** Maarten van Oordt and Chen Zhou, Journal of Financial and Quantitative Analysis, 2016, 51(2), 685-705

- **Adapting extreme value statistics to financial time series: dealing with bias and serial dependence,** Laurence de Haan, Cécile Mercadier and Chen Zhou, Finance and Stochastics, 2016, 20(2), 321-354

- **Becoming self-employed at ages 50+: true entrepreneurship or exclusion from (wage) employment?,** Mauro Mastrogiacomo and Michele Belloni, In: A. Börsch-Supan, H. Litwin, M. Myck, T. Kneip and G. Weber (eds), Ageing in Europe - Supporting Policies for an Inclusive Society, 2015, De Gruyter, 245-256

Forthcoming articles

(New since November 2015)

- **Optimal forecasts from Markov switching models,** Tom Boot and Andreas Pick, *Journal of Business & Economic Statistics*

- **Do European fiscal rules induce a bias in fiscal forecasts? Evidence from the Stability and Growth Pact,** Niels Gilbert and Jasper de Jong, *Public Choice*

- **International banking and cross-border effects of regulation: Lessons from the Netherlands,** Jon Frost, Neeltje van Horen and Jakob de Haan, *International Journal of Central Banking*

- **The role of wealth in the start-up decision of new self-employed: Evidence from a pension policy reform,** Yue Li, Mauro Mastrogiacomo, Stefan Hochguertel and Hans Bloemen, *Labor Economics*

- **Heterogeneity in labour supply responses: Evidence from a major tax reform,** Mauro Mastrogiacomo, Nicole Bosch, Miriam Gielen and Egbert Jongen, *Oxford Bulletin of Economics and Statistics*

- **Demanding occupations and the retirement age in the Netherlands,** Niels Vermeer, Mauro Mastrogiacomo and Arthur van Soest, *Labor Economics*

- **The pitch rather than the pit: Investor inattention, trading activity, and FIFA World Cup matches,** Michael Ehrmann and David-Jan Jansen, *Journal of Money, Credit and Banking*

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Editor: Désirée Buhrs
mailto: secretariaat-ebo@dnb.nl

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