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## Research at the SNB

Researchers at the SNB are economists who undertake research projects alongside the main tasks assigned to them within their unit.

The SNB supports research activities and promotes the ongoing development of its researchers' skills.

## Preface

Dear Reader

The Swiss National Bank (SNB) conducts the country's monetary policy as an independent central bank. It is obliged by Constitution and statute to act in accordance with the interests of the country as a whole. Its primary goal is to ensure price stability, while taking due account of economic developments. In so doing, it creates an appropriate environment for economic growth.

Research is an important part of fulfilling this mandate and has a long tradition at the SNB. Researchers at the SNB are expected to keep abreast of the latest research findings and regularly exchange ideas with their colleagues from other central banking institutions and academic institutes. They must be proficient in the latest scientific methods and their application. It is also important for the SNB that its researchers share their expertise and results within the bank, with their peers and with the general public.

Not all research output finds application in policy decisions. However, experience has shown that even research topics with apparently marginal practical benefit can quickly become the focus of attention. Research thus helps to identify future trends and adequately prepare us for future developments.

While other central banks conduct their research in internal research centres, the SNB's researchers work in a decentralised manner in various units of the bank. This allows researchers to attend more closely to their various subject areas, and to be directly involved in the preparation of policy decisions.

The annual research report serves to account for the SNB's research activities and reports on the quantity, quality and relevance of the research output.

June 2022

Thomas J. Jordan  
Chairman of the Governing Board

# Executive summary

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Research supports the SNB in fulfilling its statutory mandate. The annual research report serves to account for the SNB's research activities and reports on the quantity, quality and relevance of the research output.

2021 was particularly successful in the area of completed research. In all three areas – quantity, quality and relevance for the SNB – a pleasing increase was recorded compared to the previous year, and also compared to a ten-year average. With the SNB Research Report 2021, in addition to the comparison with the previous year, there is also a comparison with the average since the start of reporting in 2011.

- Quantity: Increase in the number of published articles from nine to 27 (yearly average: 21).
- Quality: Increase in publications in A- and B-rated journals from 11% to 37% of all publications (yearly average: 16%).
- Relevance: Increase in articles with high relevance from 33% to 44% of all publications (yearly average 28%).

The prior publication of articles as SNB Working Papers has a positive effect on relevance; seven of 12 highly rated articles were previously published as SNB Working Papers.

The number of working papers increased from 32 to 39, but fewer SNB working papers were published than in the previous year (2021: 21, 2020: 25).

With regard to seminars, workshops and conferences, a significant increase was recorded. Due to the pandemic, many events were held completely virtually or hybrid.

# Research publications in 2021

## COMPLETED RESEARCH

Completed research is defined as an article published in a peer-reviewed journal. However, published research covers only part of the research undertaken by SNB staff. Although research serves as direct input into decision-making, due to confidentiality, not all work is published or released to the public at a later date. The importance of this research should not be underestimated, even if it is not evaluated and reported here.

## COMPLETED RESEARCH: QUANTITY

	2021	2020	Average
Articles in research journals	27	9	21
Of which SNB Economic Studies	–	–	1
Contributions to books <sup>1</sup>	–	39	6

<sup>1</sup> In 2020, the SNB's Legal Services published a book entitled *Nationalbankgesetz: Bundesgesetz über die Währung und die Zahlungsmittel* containing 35 contributions by SNB employees.

Source(s): SNB

In 2021, SNB economists published 27 articles in research journals – an achievement significantly above the average of 21, and just under the maximum of 28 articles in 2018.

A detailed list of publications can be found in the appendix.

## ARTICLES IN ACADEMIC JOURNALS: QUALITY

	2021	2020	Average
A journals	7%	0%	3%
B journals	30%	11%	13%
C journals	30%	56%	37%
D journals	33%	33%	47%

Source(s): SNB

Along with the quantitative increase, the quality assessment has also clearly improved; the shares in A and B-rated journals are clearly above average at 7% and 30% respectively of all publications. It is also worth noting that the share in D-rated journals in 2021 and 2020 is the lowest in ten years.

An article in a high-quality academic journal is allocated an A or B rating, an article in a good academic journal a C, and an article in a decent-quality academic journal a D.

## ARTICLES IN ACADEMIC JOURNALS: RELEVANCE

	2021	2020	Average
High relevance (***)	44%	33%	28%
Medium relevance (**)	37%	67%	42%
Low relevance (*)	15%	0%	27%
No relevance	4%	0%	3%

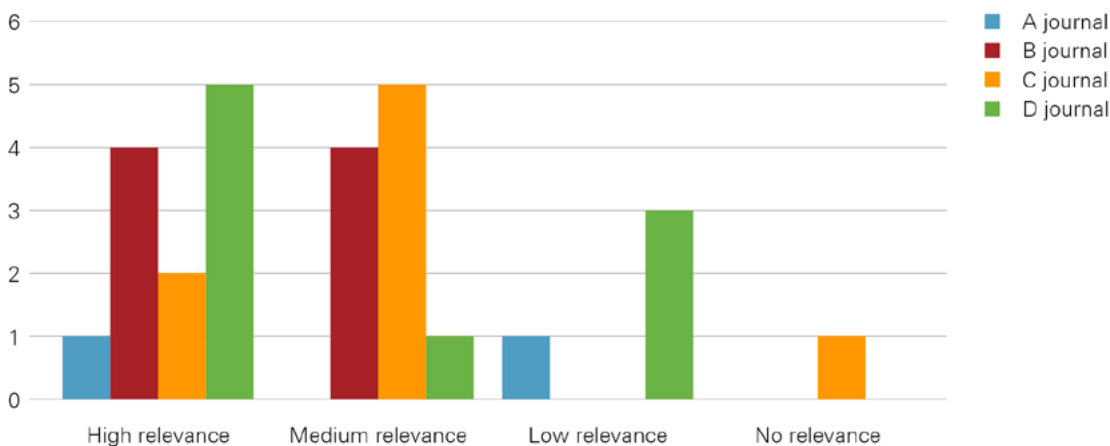
Source(s): SNB

Another very pleasing indicator: 44% of the published articles were highly relevant, an increase of 11 points compared to the previous year.

The SNB relevance schema considers contributions relevant if they focus on issues relating to the SNB's core mandate and/or conduct empirical analyses using Swiss data.

## RELEVANCE, QUALITY AND QUANTITY IN 2021

Number of published articles



Source(s): SNB

The relevance and quality ratings have developed uncorrelated in 2021. While only one article has scored highest in both aspects, most highly relevant articles were published in D-rated journals.

## ONGOING RESEARCH

Ongoing research encompasses research at intermediate steps, such as the publication of working papers.

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### ONGOING RESEARCH: QUANTITY

	2021	2020	Average
Working papers	39	32	22
Of which SNB Working Papers	21	25	15
Of which other working papers	18	7	7

Source(s): SNB

Research output was also higher than last year in the area of ongoing research; 39 working papers were published – the highest output in the last ten years. However, it is important to note that the output growth did not mean more SNB Working Papers.

A detailed list of publications can be found in the appendix.

# Supporting research in 2021

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The following chapter describes the activities of the Research Coordination team, which supports researchers at the SNB. The activities involve organising seminars and workshops, but also enabling exchanges between SNB economists and researchers from other institutions, for example by inviting research visitors to the SNB for a limited period of time. In addition, the team organises academic conferences and supports other units in organising their events.

## RESEARCH SEMINARS AND RESEARCH VISITORS

### SUPPORT OF RESEARCH ACTIVITIES: OVERVIEW

	2021	2020	Average
SNB Brown Bag Workshops	17	17	16
SNB Research Seminars	18	8	34
SNB Current Economic Issues <sup>1</sup>	3	–	–
SNB Technology and Finance Seminars <sup>2</sup>	19	13	–
SNB research visitors	–	–	3
SNB economic advisors	–	–	1
SNB researchers visiting other institutions	–	–	1
SNB Research Lectures	1	–	1

<sup>1</sup> Before 2021, the number of Current Economic Issues was included in the total number of SNB Research Seminars.

<sup>2</sup> The average is not yet available since the SNB Technology and Finance Seminars only began in 2019.

Due to the pandemic, the various workshops and seminars were conducted almost exclusively virtually. Furthermore, due to the uncertain situation, research visitors and economic advisors were not invited and SNB economists were not sent to other institutes.

## RESEARCH CONFERENCES

### SUPPORT OF RESEARCH ACTIVITIES: CONFERENCES

	2021	2020	Average
Conferences at the SNB <sup>1</sup>	6	–	4
Conferences with the SNB <sup>2</sup>	1	2	3
Conferences hosted by the SNB <sup>3</sup>	–	–	1
<b>Total</b>	<b>7</b>	<b>2</b>	<b>8</b>

<sup>1</sup> The SNB was a member of the programme committee and in charge of event management.

<sup>2</sup> The SNB was a member of the programme committee.

<sup>3</sup> The SNB provided the premises only.

Source(s): SNB

There has also been a positive development in the area of conferences: The SNB organised six conferences in 2021. A significant increase compared to the previous year.

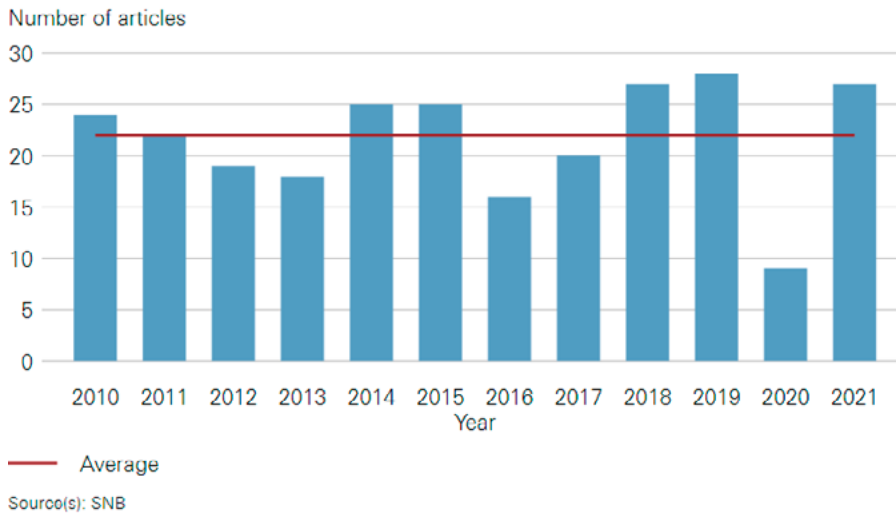
A detailed list of the conferences can be found in the appendix.

# History of SNB Research

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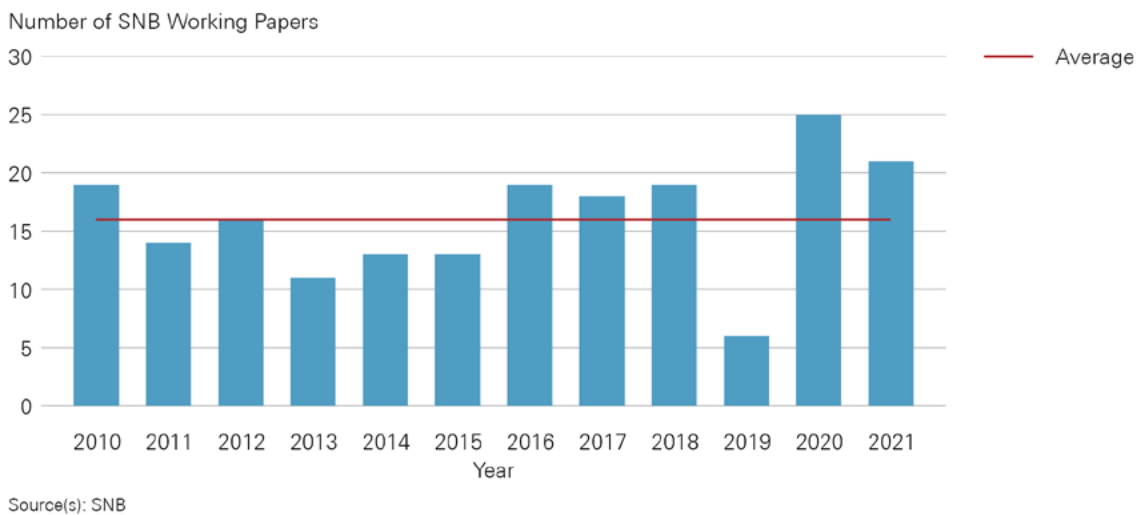
## ARTICLES IN ACADEMIC JOURNALS

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## SNB WORKING PAPERS

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## ARTICLES IN ACADEMIC JOURNALS

Abel, Joshua and Andreas Fuster (2021), How do mortgage refinances affect debt, default, and spending? Evidence from HARP, *American Economic Journal: Macroeconomics*, 13 (2), pp. 254–291.

Baeriswyl, Romain, Kene Boun My and Camille Cornand (2021), Double overreaction in beauty contests with information acquisition: Theory and experiment, *Journal of Monetary Economics*, 118, pp. 432–445.

Baumann, Philipp, Enzo Rossi and Michael Schomaker (2021), Estimating the effect of central bank independence on inflation using longitudinal targeted maximum likelihood estimation, *Journal of Causal Inference*, 9 (1), pp. 109–146.

Bäurle, Gregor, Matthias Gubler and Diego R. Känzig (2021), International inflation spillovers: The role of different shocks, *International Journal of Central Banking*, 17 (1), pp. 191–230.

Bäurle, Gregor, Sarah M. Lein and Elizabeth Steiner (2021), Employment adjustment and financial tightness – Evidence from firm-level data, *Journal of International Money and Finance*, 115 (C), pp. 1–32.

Bäurle, Gregor, Elizabeth Steiner and Gabriel Züllig (2021), Forecasting the production side of GDP, *Journal of Forecasting*, 40 (3), pp. 458–480.

Beutler, Toni, Matthias Gubler, Simona Hauri and Sylvia Kaufmann (2021), Bank lending in Switzerland: Driven by business models and exposed to uncertainty, *International Review of Financial Analysis*, 78, pp. 1–18.

Beyeler, Simon and Sylvia Kaufmann (2021), Reduced-form factor augmented VAR - Exploiting sparsity to include meaningful factors, *Journal of Applied Econometrics*, 36 (7), pp. 989–1012.

Bonk, Alica Ida and Laure Simon (2021), From he-cession to she-stimulus? The labor market impact of fiscal policy across gender, *Journal of the Spanish Economic Association*.

Fischer, Andreas M., Rafael Greminger, Christian Grisse and Sylvia Kaufmann (2021), Portfolio rebalancing in times of stress, *Journal of International Money and Finance*, 113 (C), pp. 1–24.

Fuhrer, Lucas Marc and Julia Giese (2021), Gilt auctions and secondary market dynamics, *Finance Research Letters*, 38, pp. 1–7.

Fuhrer, Lucas Marc, Thomas Nitschka and Dan Wunderli (2021), Central bank reserves and bank lending spreads, *Applied Economics Letters*, 28 (15), pp. 1301–1305.

Fuhrer, Lucas Marc, Marc-Antoine Ramelet and Jörn Tenhofen (2021), Firms' participation in the Swiss COVID-19 loan programme, *Swiss Journal of Economics and Statistics*, 157 (2), pp. 1–22.

Fuster, Andreas and Basit Zafar (2021), The sensitivity of housing demand to financing conditions: Evidence from a survey, *American Economic Journal: Economic Policy*, 13 (1), pp. 231–265.

Fuster, Andreas, Greg Kaplan and Basit Zafar (2021), What would you do with \$500? Spending responses to gains, losses, news and loans, *Review of Economic Studies*, 88 (4), pp. 1760–1795.

Gersbach, Hans, Stephan Imhof and Oriol Tejada (2021), Channeling the final say in politics: A simple mechanism, *Economic Theory*, 71, pp. 151–183.

Grise, Christian and Fabian Scheidegger (2021), Covariability of real exchange rates and fundamentals, *Economics Letters*, 201 (C), pp. 1–4.

Hwang, In Do, Thomas Lustenberger and Enzo Rossi (2021), Does communication influence executives' opinion of central bank policy?, *Journal of International Money and Finance*, 15 (C), pp. 1–23.

Jokipii, Terhi, Reto Nyffeler and Stéphane Riederer (2021), Exploring BIS credit-to-GDP gap critiques: The Swiss case, *Swiss Journal of Economics and Statistics*, 157 (7), pp. 1–19.

Meuli, Jonas, Thomas Nellen and Thomas Nitschka (2021), Covered bonds, loan growth and bank funding: The Swiss experience since 1932, *International Finance*, 24 (1), pp. 77–94.

Monnet, Cyril and Thomas Nellen (2021), The collateral cost of clearing, *Journal of Money, Credit and Banking*, 53 (5), pp. 939–970.

Pfister, Curdin, Miriam Koomen, Dietmar Harhoff and Uschi Backes-Gellner (2021), Regional innovation effects of applied research institutions, *Research Policy*, 50 (4), pp. 1–19.

Repele, Amalia and Sébastien Wälti (2021), Mapping the global business cycle network, *Open Economies Review*, 32, pp. 739–760.

Rinawi, Miriam and Uschi Backes-Gellner (2021), Labour market transitions after layoffs: The role of occupational skills, *Oxford Economic Papers*, 73 (1), pp. 76–97.

Stucki, Yannic and Jacqueline Thomet (2021), A neoclassical perspective on Switzerland's 1990s stagnation, *Swiss Journal of Economics and Statistics*, 157 (7), pp. 1–26.

Voellmy, Lukas (2021), Preventing runs with fees and gates, *Journal of Banking & Finance*, 125 (C), pp. 1–12.

Wehrli, Alexander, Spencer Wheatley and Didier Sornette (2021), Scale-, time- and asset-dependence of Hawkes process estimates on high frequency price changes, *Quantitative Finance*, 21 (5), pp. 729–752.

## WORKING PAPERS

Abbate, Angela and Dominik Thaler (2021), *Optimal monetary policy with the risk-taking channel*, SNB Working Papers, 2021–09.

Allenspach, Nicole, Oleg Reichmann and Javier Rodriguez-Martin (2021), *Are banks still 'too big to fail'? - A market perspective*, SNB Working Papers, 2021–18.

Argimon, Isabel, Jayson Danton, Jakob de Haan, Javier Rodriguez-Martin and Maria Rodriguez-Moreno (2021), *Low interest rates and banks' interest margins: Does belonging to a banking group matter?*, CESifo Working Paper Series, 9340.

Bacchetta, Philippe, Rachel Cordonier and Ouarda Merrouche (2021), *The rise in foreign currency bonds: The role of US monetary policy and capital controls*, SNB Working Papers, 2021–11.

Baeriswyl, Romain, Samuel Reynard and Alexandre Swoboda (2021), *Retail CBDC purposes and risk transfers to the central bank*, SNB Working Papers, 2021–19.

Baeriswyl, Romain, Lucas Marc Fuhrer, Petra Gerlach-Kristen and Jörn Tenhofen (2021), *The dynamics of bank rates in a negative-rate environment - the Swiss case*, SNB Working Papers, 2021–05.

Baumann, Philipp, Enzo Rossi and Alexander Volkmann (2021), *What drives inflation and how? Evidence from additive mixed models selected by cAIC*, SNB Working Papers, 2021–12.

Blatter, Marc and Andreas Fuster (2021), *Scale effects on efficiency and profitability in the Swiss banking sector*, SNB Working Papers, 2021–15.<sup>1</sup>

Bonk, Alica Ida and Laure Simon (2021), *From he-cession to she-stimulus? The labor market impact of fiscal policy across gender*, Bank of Canada, Staff Working Papers, 2021–42.

Brülhart, Marius, Jayson Danton, Raphael Parchet and Jörg Schläpfer (2021), *Who bears the burden of local taxes?*, CEPR Discussion Papers, 15826.

Burgert, Matthias, Philipp Pfeiffer and Werner Roeger (2021), *Fiscal policy in a monetary union with downward nominal wage rigidity*, SNB Working Papers, 2021–16.

Chaum, David, Christian Grothoff and Thomas Moser (2021), *How to issue a central bank digital currency*, SNB Working Papers, 2021–03.

Christensen, Jens H. E. and Nikola Mirkov (2021), *The safety premium of safe assets*, SNB Working Papers, 2021–02.

Dentler, Alexander and Enzo Rossi (2021), *Shooting up liquidity: The effect of crime on real estate*, SNB Working Papers, 2021–20.

Ebner, Till, Thomas Nellen and Jörn Tenhofen (2021), *The rise of digital watchers*, SNB Working Papers, 2021–01.

Faber, Marius, Andrés Sarto and Marco Tabellini (2021), *Local shocks and internal migration: The disparate effects of robots and Chinese imports in the US*, CEPR Discussion Papers, 16460.<sup>2</sup>

Fischer, Andreas M., Rafael Greminger, Christian Grisse and Sylvia Kaufmann (2021), *Portfolio rebalancing in times of stress*, CEPR Discussion Papers, 15777.

Fuhrer, Lucas Marc and Nils Herger (2021), *Real interest rates and demographic developments across generations: A panel-data analysis over two centuries*, SNB Working Papers, 2021–07.

Fuhrer, Lucas Marc, Matthias Jüttner, Jan Wrampelmeyer and Matthias Zwicker (2021), *Reserve tiering and the interbank market*, SNB Working Papers, 2021–17.

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<sup>1</sup> In 2021, this working paper also appeared in the Swiss Finance Institute Research Paper Series, 21–61.

<sup>2</sup> In 2021, this working paper also appeared as IZA Discussion Paper 14623, and in the CReAM Discussion Paper Series, 2124.

Fuster, Andreas, Matthew Plosser and James Vickery (2021), *Does CFPB oversight crimp credit?*, CEPR Discussion Papers, 15681.

Fuster, Andreas, Tan Schelling and Pascal Towbin (2021), *Tiers of joy? Reserve tiering and bank behavior in a negative-rate environment*, SNB Working Papers, 2021–10.<sup>3</sup>

Fuster, Andreas, Ester Faia, Vincenzo Pezone and Basit Zafar (2021), *Biases in information selection and processing: Survey evidence from the pandemic*, NBER Working Papers, 28484.<sup>4</sup>

Fuster, Andreas, Aurel Hizmo, James Vickery, Paul S. Willen and Lauren Lambie-Hanson (2021), *How resilient is mortgage credit supply? Evidence from the COVID-19 pandemic*, CEPR Discussion Papers, 16110.<sup>5</sup>

Indergand, Martin and Gabriela Hrasco (2021), *Does the market believe in loss-absorbing bank debt?*, SNB Working Papers, 2021–13.

Koeniger, Winfried, Benedikt Lennartz and Marc-Antoine Ramelet (2021), *On the transmission of monetary policy to the housing market*, SNB Working Papers, 2021–06.

Nitschka, Thomas and Shajivan Satkurunathan (2021), *Habits die hard: Implications for bond and stock markets internationally*, SNB Working Papers, 2021–08.

Oleschak, Robert (2021), *Financial inclusion, technology and their impacts on monetary and fiscal policy: Theory and evidence*, SNB Working Papers, 2021–04.

Phillot, Maxime and Samuel Reynard (2021), *Monetary policy financial transmission and treasury liquidity premia*, SNB Working Papers, 2021–14.

Wehrli, Alexander and Didier Sornette (2021), *Excess financial volatility explained by endogenous excitations revealed by EM calibrations of a generalized Hawkes point process*, Swiss Finance Institute, Research Paper Series, 21–35.

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<sup>3</sup> In 2021, this working paper also appeared as CEPR Discussion Paper 16191.

<sup>4</sup> In 2021, this working paper also appeared as CEPR Discussion Paper 15774 and in the SAFE Working Paper Series, 307.

<sup>5</sup> In 2021, this working paper also appeared as NBER Working Paper 28843, Federal Reserve Bank of Boston, Research Department Working Paper 21–4, Federal Reserve Bank of Philadelphia, Working Papers Research Department, 21–20 and in the Finance and Economics Discussion Series, 2021–048.

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## RESEARCH CONFERENCES AT THE SNB

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### Joint SNB-BIS research workshop

Dates 14 April 2021, 30 April 2021, 4 May 2021  
Venue Virtual  
Organising committee Petra Gerlach, SNB  
Boris Hofmann, BIS

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### SNB-CIF Conference on Cryptoassets and Financial Innovation

Date 20–21 May 2021  
Venue Virtual  
Organising committee Aleksander Berentsen, Center for Innovative Finance (CIF)  
Thomas Moser, SNB  
Fabian Schär, Center for Innovative Finance (CIF)  
Sébastien Kraenzlin, SNB  
Andreas Fuster, SNB

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### Karl Brunner Distinguished Lecture by Carmen M. Reinhart: Monetary Policy in an Era of High Debt

Dates 23 September 2021  
Venue Virtual  
Organising committee Lukas Voellmy, SNB  
Nicolas Cuche-Curti, SNB

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### SNB Research Conference 2021: Central Banking at a Crossroads: Challenges in the Current Environment

Dates 24–25 September 2021  
Venue Metropol Restaurant, Zurich, hybrid event  
Organising committee Athanasios Orphanides, MIT  
Carlos Lenz, SNB  
Andreas Fuster, SNB  
Samuel Reynard, SNB  
Nicolas Cuche-Curti, SNB

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### 16th Central Bank Conference on the Microstructure of Financial Markets

Dates 7–8 October 2021  
Venue Zurich Marriott Hotel  
Organising committee Dagfinn Rime, BI Norwegian Business School  
Angelo Ranaldo, University of St.Gallen  
Benjamin Anderegg, SNB  
Lukas Frei, SNB  
Christian Myohl, SNB

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### 11th Workshop on “Exchange Rates”

Dates 16–17 December 2021  
Venue Virtual  
Organising committee Alessio Anzuini, Banca d'Italia  
Fabio Fornari, ECB  
Johannes Gräßl, ECB  
Thomas Nitschka, SNB

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## RESEARCH CONFERENCES WITH THE SNB

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### 6th Caucasus, Central Asia, and Mongolia (CCAM) Central Bank Practitioners Peer-to-Peer Workshop

Date 22–24 June 2021  
Venue Virtual  
Organising committee Nathan Porter, IMF  
Herve Joly, Joint Vienna Institute  
Lena Lee Andresen, SNB  
Nasiba Imaraliev, SNB

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