

SNB Research Report 2019

SCHWEIZERISCHE NATIONALBANK
BANQUE NATIONALE SUISSE
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SWISS NATIONAL BANK



SNB Research Report 2019

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Preface

Dear Reader

Research activities help the Swiss National Bank to fulfil its constitutional and statutory mandate. The SNB conducts research into monetary policy and financial stability, as well as into its other core tasks. As such, research activities are carried out across the entire bank. In 2019, the SNB drew up a set of research policy principles in order to underline the importance of research and facilitate a common understanding of these activities within the bank.

At the SNB, we define research as ‘the generation of new knowledge that meets scientific quality standards’. To make sure quality standards are upheld, research results are scrutinised at public presentations and published in peer-reviewed journals, which ensure and verify the quality of the work undertaken. However, the publication of research is a means to an end, and not the purpose of SNB research per se.

What is the purpose of the SNB’s research? It is intended to be useful for, and applicable to, the SNB and its tasks. The benefits of research may be direct – for instance, where such work gives rise to models that support the design and implementation of monetary policy. Equally, the benefits may be indirect. In this case, research helps to maintain or deepen specialist knowledge or methodological expertise at the SNB. Both direct and indirect benefits are of particular importance in times of economic uncertainty. During the current COVID-19 crisis, the SNB is able to profit from its research capacity and its interdisciplinary approach in addressing relevant questions.

All SNB research activities are coordinated by a central unit that ensures appropriate visibility and transparency within and beyond the SNB. This report provides an overview of the research activities carried out in 2019.

I trust that you will find it both interesting and informative.

June 2020



THOMAS J. JORDAN
Chairman of the Governing Board

This report presents the research activities at the SNB from 1 January to 31 December 2019.

The report is structured as follows:

- Chapter 2 provides a summary of SNB research activities in 2019 and a reader-friendly summary of a paper of particular relevance to central banking.
- Chapter 3 contains an overview of research publications.
- Chapter 4 lists the research events organised by the SNB.
- The appendix focuses on developments in SNB research over recent years.

Research at the SNB

The SNB bases the analyses used for its monetary and financial stability policy on cutting-edge theoretical and empirical economic knowledge. To this end, it conducts its own research and works closely with the research community – especially with researchers from other central banks. Besides providing insights, research also supplies models, tools and analytical instruments for the preparation and implementation of the SNB's monetary and macroprudential policy.

Research at the SNB is largely conducted on monetary and international macroeconomics as well as on the economics of banking, other financial institutions, payment systems and financial markets. The SNB does not maintain a centralised research unit. Instead, research work is carried out in various units.

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.

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SNB research activities in 2019

This chapter summarises and evaluates the SNB's research activities in 2019. Section 2.1 is dedicated to the research publications and section 2.2 outlines the research events.¹ Section 2.3 features a summary of a paper of particular relevance to central banking.

2.1 RESEARCH PUBLICATIONS

This section focuses on the number of articles appearing in research journals and working papers in 2019 compared to 2018.²

Caveat

Note that published research covers only part of the research undertaken by SNB staff. Some research provides direct input into decision-making. As such, it is often confidential and may not be published immediately (or indeed, at all).

Articles in research journals

Compared with 2018, the quantity of articles remained roughly the same (2019: 28, 2018: 27).

Table 1

RESEARCH PUBLICATIONS: QUANTITY

	2019	2018
Articles in research journals	28	27
Of which, SNB Economic Studies	–	–
Contributions to books	–	2
Dissertations ³	1	1

Quality

The quality of articles increased compared with 2018. This is mainly due to an increase in articles published in A-rated journals (2019: 14%, 2018: 7%). Publications in both B- and C-rated journals also increased by 3 percentage points each.

Definition of quality

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

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- 1 Further information about these research activities can be found in chapters 3 and 4 of this report.
 - 2 The number of articles in research journals and SNB Working Papers published by SNB staff in recent years is provided in the appendix.
 - 3 The SNB offers young staff members the opportunity to undertake a PhD alongside the main tasks assigned to them within their unit.

Table 2

RESEARCH PUBLICATIONS: QUALITY

	2019	2018
A journals	14%	7%
B journals	7%	4%
C journals	36%	33%
D journals	43%	56%

The reason for the decrease in high and medium relevance is that more publications were not directly related to central banking and to Switzerland (2019: 32%, 2018:15%).

Relevance

Table 3

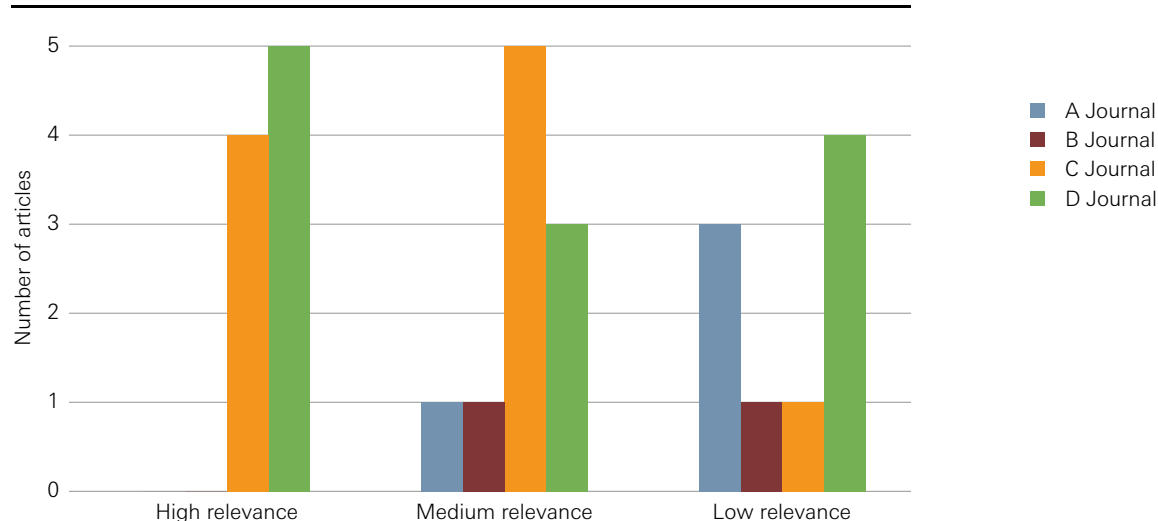
RESEARCH PUBLICATIONS: RELEVANCE CRITERIA

2019 (2018)	Related to Switzerland		Total	
	Yes	No		
Directly related to central banking	Yes	32% (41%)	22% (29%)	54% (70%)
	No	14% (15%)	32% (15%)	46% (30%)
Total		46% (56%)	54% (44%)	100%

Chart 1 shows that higher quality comes at the cost of relevance. Articles published in C-rated journals are mainly of medium and high relevance. D-rated publications are represented in all three levels of relevance. Overall, the quality of research completed in 2019 improved, but its relevance is lower.

Relevance, quality and quantity

Chart 1

RELEVANCE, QUALITY AND QUANTITY

The number of articles published in the SNB Working Paper series decreased to nearly a third of the previous year's contributions (2019: 6, 2018: 19).⁴

Working papers

As 11 SNB Working Papers were submitted at the end of 2019, the low number could be due to a lag effect.

⁴ The quantity of SNB Working Papers published by SNB staff in recent years is shown in the appendix (cf. section 5.1.2).

Table 4

ONGOING RESEARCH: QUANTITY

	2019	2018
Working papers	14	28
Of which, SNB Working Papers	6	19
Of which, other working papers	8	9

2.2 RESEARCH EVENTS

An extensive exchange with the research community, especially with that of other central banks, is a requirement for research. Table 4 shows some key figures of further research activities conducted by the SNB.

Table 5

SUPPORT OF RESEARCH ACTIVITIES: OVERVIEW

	2019	2018
SNB Research Seminars	40	37
SNB Research Visitors	1	2
SNB Research Lectures	–	1
Research conferences	10	10

SNB Research Seminars

The SNB regularly invites external researchers to present their research results at seminars. In 2018, 40 research seminars were held. In 2019, a new seminar called SNB Technology and Finance Seminars was introduced. They are included under the number of Research Seminars. In 2019, four of these seminars took place.

SNB Research Visitors

Research visitors give advice, exchange views, hold seminars and may undertake joint research projects with SNB staff. They are only present for a limited period of time. One researcher visited the SNB in 2019 (2018: 2):

- *Antoine Martin*, Senior Vice President of Money and Payments Studies Function at the Federal Reserve Bank of New York (Monetary Policy Analysis, 8–31 July 2019)

Research conferences

The SNB organises conferences, mostly in cooperation with other institutions, at the SNB or elsewhere. Conferences are an opportunity to present and discuss papers as well as to review research in a particular area. In 2019, the SNB was a member of the programme committee of nine conferences and hosted one conference.

2.3 FEATURED ARTICLE

The Swiss franc and the Japanese yen are both known as safe-haven currencies. Their safe-haven status implies that demand for both rises when there is increased uncertainty in the international financial markets. As a result, the two currencies tend to appreciate against all other currencies, including the US dollar.

In their paper ‘Macroeconomic surprises, market environment and safe-haven currencies’,⁵ Adrian Jäggi (University of St. Gallen), Martin Schlegel and Attilio Zanetti add to the literature by showing that the Swiss franc and the Japanese yen are significantly more sensitive to macroeconomic surprises than other currencies.

2.3.1 MACROECONOMIC SURPRISES, MARKET ENVIRONMENT AND SAFE-HAVEN CURRENCIES

The financial crisis and the increased uncertainty in the financial markets that followed the outbreak of the subprime crisis in August 2007 led to a massive appreciation of the Swiss franc and the Japanese yen. In order to limit the appreciation pressure and the associated severe consequences for the economy, the Swiss National Bank and the Bank of Japan were forced to take extraordinary monetary policy measures. In particular, in 2011, the SNB introduced an exchange-rate floor of CHF 1.20 per euro.

Against this background the authors examine the following questions:

1. To what kind of information do safe-haven currencies react?
2. Do safe-haven currencies react symmetrically to information shocks?
3. How do times of crisis change the way safe-haven currencies behave?

The paper relies on high-frequency data (cf. box 1) to investigate these questions. The authors analyse the impact of macroeconomic surprises (cf. box 2), defined as the difference between market expectations and the actual outcome revealed by macroeconomic indicators. Various studies have shown that unexpected developments in macroeconomic indicators lead to fast changes in asset prices. The general hypothesis established here is that negative surprises increase uncertainty, while positive ones bolster optimism in the financial markets.

Not only standard macroeconomic indicators, but also factors such as corporate and economic policy as well as political news may influence the general market environment and its perception of risk. To measure the possible influence of the general market environment the authors use two indices, the CBOE Volatility Index (VIX) from the Chicago Board Options Exchange (CBOE) and a novel Bloomberg index (cf. box 3).

The empirical analysis provides the following answers to the questions posed above.

First, macroeconomic surprises affect risk aversion and uncertainty, which leads to short-term changes in the two exchange rates. When negative macroeconomic surprises from the US arise, the two currencies appreciate significantly. With regard to macroeconomic surprises from Europe, only Germany is of relevance. In this respect, the Swiss franc is particularly affected by German economic data. The study further shows that, in addition to their reaction to macroeconomic surprises, safe-haven currencies react in a systematic way to changes in the general market environment.

Second, the results provide evidence of asymmetric exchange rate effects. That is, negative macroeconomic surprises lead to larger appreciations than the depreciation pressure caused by positive surprises.

5 Jäggi, A., Schlegel, M. und Zanetti, A. (2019). Macroeconomic Surprises, Market Environment, and Safe-Haven Currencies. *Swiss Journal of Economics and Statistics* Vol. 155(5): 1–21.

Third, in times of crisis the sensitivity of safe-haven currencies to foreign macroeconomic surprises is amplified. Consequently, the state of the international economy is important in determining the extent to which macroeconomic surprises affect the two currencies.

These findings contribute to the previous literature about safe-haven currencies by other SNB authors (Rinaldo and Söderlind 2010; Grisse and Nitschka 2013; Auer 2015).

Box 1: High frequency data

High frequency data are collected on an extremely fine scale. In this analysis the use of exchange-rate observations at five-minute intervals allows for the identification of market responses to specific events separate from other events occurring on the same day.

Box 2: Macroeconomic surprises

Macroeconomic surprises are defined as the difference between the expected value of a given macroeconomic indicator and the actual value. One example is the difference between expected GDP growth and actual GDP growth.

Box 3: CBOE VIX and Bloomberg index

The Chicago Board Options Exchange (CBOE) Volatility Index (VIX) measures the implied volatility of options on the S&P 500 stock index. An increase in the VIX indicates higher market uncertainty and risk aversion. The novel Bloomberg index was computed by the authors thanks to an algorithm that counts positive and negative news on the Bloomberg wires. Such wires cover all kind of news that might impact global uncertainty: political or geopolitical events, natural disasters, or terrorist attacks. A piece of news is then qualified as positive or negative according to its historical relevance for markets.

This chapter contains an overview of articles published in research journals (cf. section 3.1), contributions to books (cf. section 3.2), working papers (cf. section 3.3) and dissertations (cf. section 3.4).

3.1 ARTICLES IN RESEARCH JOURNALS

Abbate, Angela and Dominik Thaler. 2019. [Monetary policy and the asset risk-taking channel](#). *Journal of Money, Credit and Banking* 51(8): 2115–2144.

Armona, Luis, Andreas Fuster and Basit Zafar. 2019. [Home price expectations and behaviour: Evidence from a randomized information experiment](#). *Review of Economic Studies* 86(4): 1371–1410.

Assenmacher, Katrin, Franz Seitz and Jörn Tenhofen. 2019. [The demand for Swiss banknotes: Some new evidence](#). *Swiss Journal of Economics and Statistics* 155(14): 1–22.

Auer, Simone. 2019. [Monetary policy shocks and foreign investment income: Evidence from a large Bayesian VAR](#). *Journal of International Money and Finance* 93: 142–166.

Auer, Simone, Christian Friedrich, Maja Ganarin, Teodora Paligorova and Pascal Towbin. 2019. [International monetary policy transmission through banks in small open economies](#). *Journal of International Money and Finance* 90: 34–53.

Bäurle, Gregor and Rolf Scheufele. 2019. [Credit cycles and real activity: The Swiss case](#). *Empirical Economics* 56(6): 1939–1966.

Beraja, Martin, Andreas Fuster, Erik Hurst and Joseph Vavra. 2019. [Regional heterogeneity and the refinancing channel of monetary policy](#). *Quarterly Journal of Economics* 134(1): 109–183.

Beutler, Toni and Mathieu Grobéty. 2019. [The collateral channel under imperfect debt enforcement](#). *European Economic Review* 111(January): 336–359.

Boyarchenko, Nina, Andreas Fuster and David O. Lucca. 2019. [Understanding mortgage spreads](#). *Review of Financial Studies* 32(10): 3799–3850.

- Clerc, Pierrick. 2019. [Brunner and Leijonhufvud: friends or foes?](#) *The European Journal of the History of Economic Thought* 26(2): 231–270.
- Fischer, Andreas M., Henrike Groeger, Philip U. Sauré and Pinar Yesin. 2019. [Current account adjustment and retained earnings.](#) *Journal of International Money and Finance* 94: 246–259.
- Föllmi, Reto, Adrian Jäggi and Rina Rosenblatt-Wisch. 2019. [Loss aversion at the aggregate level across countries and its relation to economic fundamentals.](#) *Journal of Macroeconomics* 61(C): 1–19.
- Fratzscher, Marcel, Oliver Gloede, Lukas Menkhoff, Lucio Sarno and Tobias Stöhr. 2019. [When is foreign exchange intervention effective? Evidence from 33 countries.](#) *American Economic Journal: Macroeconomics* 11(1): 132–156.
- Fuhrer, Lucas Marc, Basil Guggenheim and Matthias Jüttner. 2019. [A survey-based estimation of the Swiss franc forward term premium.](#) *Swiss Journal of Economics and Statistics* 155(8): 1–18.
- Fuster, Andreas, Matthew Plosser, Philipp Schnabl and James Vickery. 2019. [The role of technology in mortgage lending.](#) *Review of Financial Studies* 32(5): 1854–1899.
- Galli, Alain. 2019. [Sticky consumption and wealth effects in Switzerland.](#) *Review of Income and Wealth* 65(4): 930–952.
- Galli, Alain, Christian Hopenstrick and Rolf Scheufele. 2019. [Mixed-frequency models for tracking short-term economic developments in Switzerland.](#) *International Journal of Central Banking* 15(2): 151–178.
- Gerlach-Kristen, Petra and Rossana Merola. 2019. [Consumption and credit constraints: A model and evidence from Ireland.](#) *Empirical Economics* 57(2): 475–503.
- Glocker, Christian, Giulia Sestieri and Pascal Towbin. 2019. [Time-varying government spending multipliers in the UK.](#) *Journal of Macroeconomics* 60(C): 180–197.
- Gubler, Matthias and Christoph Sax. 2019. [The Balassa-Samuelson effect reversed: New evidence from OECD countries.](#) *Swiss Journal of Economics and Statistics* 155(3): 1–21.
- Guggenheim, Basil, Mario Meichle and Thomas Nellen. 2019. [Confederation debt management since 1970.](#) *Swiss Journal of Economics and Statistics* 155(15): 1–23.
- Haab, David and Thomas Nitschka. 2019. [What Goliaths and Davids among Swiss firms tell us about expected returns on Swiss asset markets.](#) *Swiss Journal of Economics and Statistics* 155(16): 1–17.

Hanslin Grossmann, Sandra and Rolf Scheufele. 2019. [PMIs: Reliable indicators for exports?](#) *Review of International Economics* 27(2): 711–734.

Heinisch, Katja and Rolf Scheufele. 2019. [Should forecasters use real-time data to evaluate leading indicator models for GDP prediction? German evidence.](#) *German Economic Review* 20(4): 170–200.

Hepenstrick, Christian and Massimiliano Marcellino. 2019. [Forecasting gross domestic product growth with large unbalanced data sets: The mixed frequency three-pass regression filter.](#) *Journal of the Royal Statistical Society: Series A* 182(1): 69–99.

Jäggi, Adrian, Martin Schlegel and Attilio Zanetti. 2019. [Macroeconomic surprises, market environment, and safe-haven currencies.](#) *Swiss Journal of Economics and Statistics* 155(5): 1–21.

Nellen, Thomas. 2019. [Intraday liquidity facilities, late settlement fee and coordination.](#) *Journal of Banking & Finance* 106(C): 124–131.

Sornette, Didier, Alexander Wehrli and Spencer Wheatley. 2019. [The endo-exo problem in high frequency financial price fluctuations and rejecting criticality.](#) *Quantitative Finance* 19(7): 1165–1178.

3.2 CONTRIBUTIONS TO BOOKS

In 2019 no contributions to books were made by SNB employees.

3.3 WORKING PAPERS

Anderegg, Benjamin, Didier Sornette and Florian Ulmann. 2019. [Quantification of feedback effects in FX options markets.](#) SNB Working Papers 2019-03.

Assenmacher, Katrin, Franz Seitz and Jörn Tenhofen. 2019. [The demand for Swiss banknotes: Some new evidence.](#) SNB Working Papers 2019-02.

Beyeler, Simon. 2019. [Streamlining time-varying VAR with a factor structure in the parameters.](#) Study Center Gerzensee Working Papers 19.03.

Beyeler, Simon and Sylvia Kaufmann. 2019. [Factor augmented VAR revisited – A sparse dynamic factor model approach.](#) Study Center Gerzensee Working Papers 16.08R.

Christensen, Jens and Nikola Mirkov. 2019. [The safety premium of safe assets.](#) Federal Reserve Bank of San Francisco Working Paper Series 2019-28.

Fischer, Andreas M. and Pinar Yesin. 2019. *Foreign currency loan conversions and currency mismatches*. SNB Working Papers 2019-04.⁶

Girsberger, Esther Mirjam, Matthias Krapf and Miriam Rinawi.⁷ 2019. *Wages and employment: The role of occupational skills*. Working Paper Series 2019/01.

Itzhak, Ben-David, Pascal Towbin and Sebastian Weber. 2019. *Expectations during the U.S. housing boom: Inferring beliefs from actions*. NBER Working Papers 25702.⁸

Kohler, Daniel and Benjamin Müller. 2019. *Covered interest rate parity, relative funding liquidity and cross-currency repos*. SNB Working Papers 2019-05.

Natal, Jean-Marc and Nicolas Stoffels. 2019. *Globalization, market power, and the natural interest rate*. IMF Working Papers 19/95.

Oleschak, Robert. 2019. *Central counterparty auctions and loss allocation*. SNB Working Papers 2019-06.

Tartari, Darlena and Albi Tola. 2019. *Does the IMF program implementation matter for sovereign spreads? The case of selected European emerging markets*. SNB Working Papers 2019-01.

3.4 DISSERTATIONS

Cuonz, Jan. 2019. *Essays on the dynamics of market and liquidity risk*. Dissertation, University of St. Gallen.

6 In 2019, this working paper also appeared as CEPR Discussion Paper 13923.

7 New surname: Koomen

8 In 2019, this working paper also appeared as Fisher College of Business Working Paper 2019-03-008.

This chapter reviews research events organised by the SNB, including research seminars (cf. section 4.1), research visitors (cf. section 4.2), research lectures (cf. section 4.3) and research conferences (cf. section 4.4).

4.1 SNB RESEARCH SEMINARS

11 January 2019	<i>Simonetta Rosati</i> (ECB), <i>Francesco Vacirca</i> (ECB) Interdependencies in the euro area cleared derivatives market: A multilayer network analysis
25 January 2019	<i>Gian Maria Milesi-Ferretti</i> (IMF) World economic outlook update
18 February 2019	<i>Rubén Lamdany</i> (IMF) An evaluation of IMF financial surveillance
22 February 2019	<i>Hengge Martina</i> (Graduate Institute Geneva) Uncertainty as a predictor of economic activity
26 February 2019	<i>Francesco Furlanetto</i> (Norges Bank) The decline of the labor share: New empirical evidence
29 March 2019	<i>Josef Schroth</i> (Bank of Canada) Macroprudential policy with capital buffers
4 April 2019	<i>Jens Christensen</i> (Federal Reserve Bank of San Francisco) Reassessing abenomics: Evidence from inflation-indexed Japanese government bonds
12 April 2019	<i>Amir Khalilzadeh</i> (École Polytechnique Fédérale de Lausanne) Measuring the capital shortfall of large U.S. banks
15 April 2019	<i>Douglas Laxton</i> (Nova School of Business and Economics) Advancing the frontiers of monetary policy
3 May 2019	<i>Diego Känzig</i> (London Business School) The macroeconomic effects of oil supply shocks: New evidence from OPEC announcements
10 May 2019	<i>Martin Summer</i> (Oesterreichische Nationalbank) Systemic, systematic stress tests
13 May 2019	<i>Charles Engel</i> (University of Wisconsin) Liquidity and exchange rates: An empirical investigation
14 May 2019	<i>Diane Pierret</i> (University of Lausanne) Stressed banks
24 May 2019	<i>Carlos Garriga</i> (Federal Reserve Bank of St. Louis) MoNK: Mortgages in a New Keynesian model
14 June 2019	<i>Jens Dick-Nielsen</i> (Copenhagen Business School), <i>Jacob Gyntelberg</i> (Nordea Group) The cost of capital for banks
17 June 2019	<i>Alfred Schipke</i> (IMF) The future of China's bond market and monetary policy communication
21 June 2019	<i>Bernard Dumas</i> (INSEAD) The stock market in an inflation-targeting economy
25 June 2019	<i>Ralph Ossa</i> (University of Zurich) Are trade agreements good for you?
26 June 2019	<i>Alan M. Taylor</i> (University of California, NBER, CEPR) The rate of return on everything, 1870–2015
28 June 2019	<i>Oliver Landmann</i> (University of Freiburg) Managing a safe-haven currency in a low-interest-rate environment
12 July 2019	<i>Wenqian Huang</i> (BIS) Design of CCP default management auctions

26 July 2019	<i>Antoine Martin</i> (Federal Reserve Bank of New York) Who sees the trades? The effect of information on liquidity in inter-dealer markets
16 August 2019	<i>Raphael Auer</i> (BIS) Regulation automata: Efficient supervision of distributed ledger-based finance
2 September 2019	<i>Angelo Ranaldo</i> (University of St. Gallen) Regulatory effects on short-term interest rates
13 September 2019	<i>Karsten Müller</i> (Princeton University) Electoral cycles in macroprudential regulation
10 October 2019	<i>Eric Zwick</i> (University of Chicago) Top wealth in the United States: New estimates and implications for taxing the rich
17 October 2019	<i>Gianluca Violante</i> (Princeton University) Household heterogeneity, monetary policy and consumption
18 October 2019	<i>Daniel Kaufmann</i> (University of Neuchâtel) Shocking interest rate floors
25 October 2019	<i>Benoit Mojon</i> (BIS) Does the liquidity trap exist?
31 October 2019	<i>Sven Roth</i> (SIX Digital Exchange) SIX Digital Exchange – Introduction and current state of implementation
1 November 2019	<i>Carlo Monticelli</i> (Europe Development Bank) Reforming global economic governance: An unsettled order
4 November 2019	<i>Massimiliano Ferrari</i> (BFS), <i>Filippo di Mauro</i> (CompNet), <i>Elizabeth Steiner</i> (SNB) New micro-aggregated balance sheet data for Switzerland and 19 other European countries
5 November 2019	<i>Filippo di Mauro</i> (National University of Singapore) Bank credit and productivity growth
8 November 2019	<i>Toshifumi Nakamura</i> (Bank of Japan) Simple model of interbank trade with tiered remuneration
13 November 2019	<i>Emmanuel Sheref</i> (PIMCO) Applying artificial intelligence to central bank communication
22 November 2019	<i>Egon Zakrajsek</i> (BIS) Financial heterogeneity and monetary union
26 November 2019	<i>Costa Vayenas</i> (Procivis Think Tank / Wellershoff & Partners) The digitalization of government: The implications for democracy and the finances of the state
4 December 2019	<i>Alexander Dentler</i> (Centro de Investigación y Educación) Did the fed raise interest rates before elections
5 December 2019	<i>James Chiang</i> (Bitcoin) Bitcoin's development model
19 December 2019	<i>Signe Krogstrup</i> (Dansk Nationalbank) Macroeconomic and financial policies for climate change mitigation: A review of the literature

4.2 SNB RESEARCH VISITORS

Antoine Martin visited the SNB from 8 to 31 July 2019. During the course of his visit, he held a SNB Research Seminar on ‘Who sees the trades? The effect of information on liquidity in inter-dealer markets’ and advised staff in the Economic Affairs division and the Monetary Policy Analysis unit on projects related to digital currencies and the implementation of monetary policy. Antoine Martin also interacted with staff in the Banking Operations division and the Money Market Analysis unit to discuss payment system issues and operational aspects of monetary policy.

Antoine Martin is Senior Vice President of Money and Payments Studies Function at the Federal Reserve of New York. He holds a Ph.D. in Economics from the University of Minnesota. His main fields of research are economics of payments, financial intermediation, money and banking and macroeconomics. Antoine Martin has published work in various national and international journals such as the *Journal of Finance* and *Review of Financial Studies*. He is also an associate editor of the *Journal of Money, Credit and Banking* and a referee for numerous academic journals. Antoine Martin visited the SNB five times for Research Seminars from 2015 to 2019.

4.3 RESEARCH CONFERENCES

This section presents the conferences co-organised, managed and/or hosted by the SNB.

4.3.1.1 Ausschuss für Geldtheorie und Geldpolitik des Vereins für Socialpolitik

Date	31 January–1 February 2019
Venue	SNB, Zurich
Organising committee	Klaus Adam, University of Mannheim

4.3.1.2 Joint SNB-BIS Research Workshop

Date	11 April 2019
Venue	SNB, Zurich
Organising committee	Petra Gerlach, SNB Boris Hofmann, BIS

4.3.1.3 SNB-CIF Conference on Cryptoassets and Financial Innovation

Date	31 May 2019
Venue	Metropol, Zurich
Organising committee	Aleksander Berentsen, Center for Innovative Finance (CIF), University of Basel Thomas Moser, SNB Christopher Waller, Federal Reserve Bank of St. Louis Marcel Savioz, SNB Fabian Schär, Center for Innovative Finance (CIF), University of Basel Sébastien Kraenzlin, SNB

4.3.1.4 Aussenwirtschaft Workshop 2019

Date	5 July 2019
Venue	Metropol, Zurich
Organising committee	Reto Föllmi, University of St. Gallen Alain Gabler, SNB Thomas Moser, SNB

4.3.1.5 Karl Brunner Distinguished Lecture by Raghuram Rajan: The spillovers from monetary policy

Date	19 September 2019
Venue	ETH, Zurich
Organising committee	Marcel Savioz, SNB

4.3.1.6 SNB Research Conference 2019: New Normal Monetary Policy Frameworks

Date	20–21 September 2019
Venue	Metropol, Zurich
Organising committee	Athanasios Orphanides, Massachusetts Institute of Technology (MIT) Carlos Lenz, SNB Samuel Reynard, SNB Marcel Savioz, SNB

4.3.1.7 Joint Central Bankers' Conference

Date	15–16 October 2019
Venue	Federal Reserve Bank of Atlanta, Atlanta
Organising committee	Bank of Canada Federal Reserve Bank of Atlanta Federal Reserve Bank of Cleveland SNB

4.3.1.8 Fed St. Louis-JEDC-SCG-SNB-UniBern Conference: Disaggregate Data and Macroeconomic Models JME-SNB-SCG Conference: Money Creation and Currency Competition

Date	18–19 October 2019
Venue	Study Center Gerzensee, Gerzensee
Organising committee	Harris Dellas, University of Bern Miguel Faria-e-Castro, Federal Reserve Bank of St. Louis Bill Dupor, Federal Reserve Bank of St. Louis Dirk Niepelt, Study Center Gerzensee and University of Bern Marcel Savioz, SNB

4.3.1.9 SNB-FRB-BIS High-Level Conference on Global Risk, Uncertainty, and Volatility

Date	12–13 November 2019
Venue	Swiss Re Centre for Global Dialogue, Zurich
Organising committee	Thomas Moser, SNB Matthias Jüttner, SNB Alexander Wehrli, SNB John Rogers, Federal Reserve Board Alain Chaboud, Federal Reserve Board Juan M. Londono, Federal Reserve Board Hyun Song Shin, BIS Boris Hofmann, BIS Sirio Aramonte, BIS

4.3.1.10 16th Annual NBP-SNB Joint Seminar: Current Account and Exchange Rate Adjustment

Date	16–18 December 2019
Venue	Metropol, Zurich
Organising committee	Pinar Yesin, SNB Nasiba Imaralieva, SNB

5

Appendix

5.1 HISTORY OF SNB RESEARCH

This appendix provides an overview of the quantity of articles in peer-reviewed journals and working papers written by SNB staff in the last decade.

Since 2009, a total of 251 articles have been published in research journals (cf. chart 1). This corresponds on average to more than 22 articles per year.

From 2009 to 2019, the number of SNB Working Papers varied between 6 and 19 per year (cf. chart 2).

Chart 1

ARTICLES IN RESEARCH JOURNALS

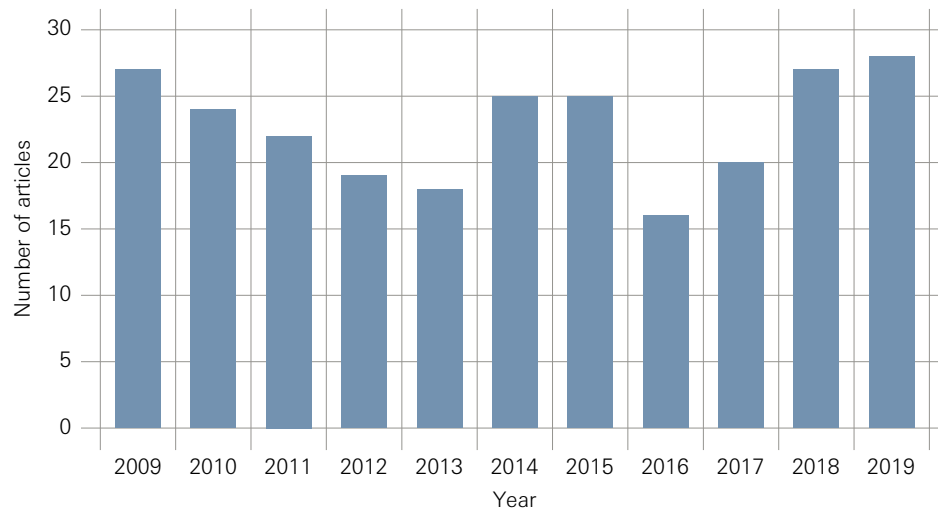
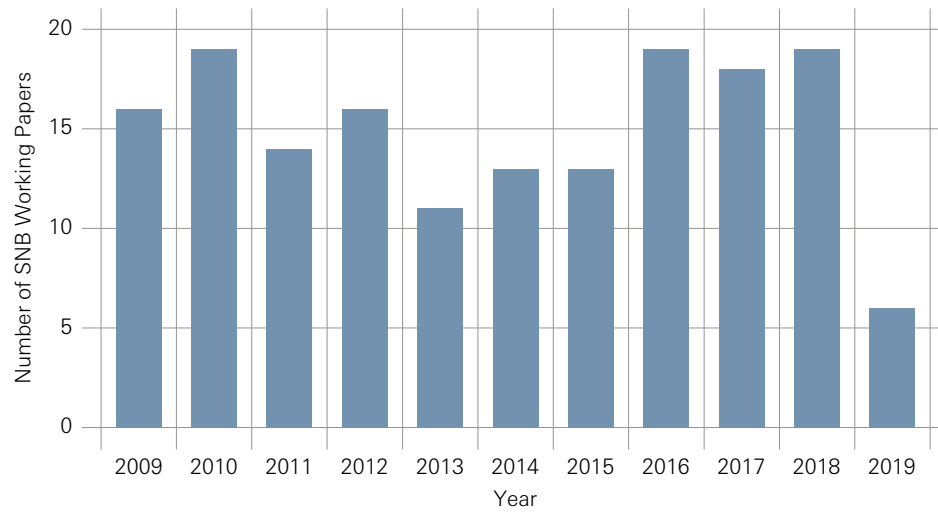


Chart 2

SNB WORKING PAPERS



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