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Monitoring centrálních bank - březen 2017

Česká národní banka
2017

Dostupný z <http://www.nusl.cz/ntk/nusl-354672>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 18.11.2017

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CENTRAL BANK MONITORING – MARCH

Monetary Department
Monetary Policy and Fiscal Analyses Division

2017

In this issue

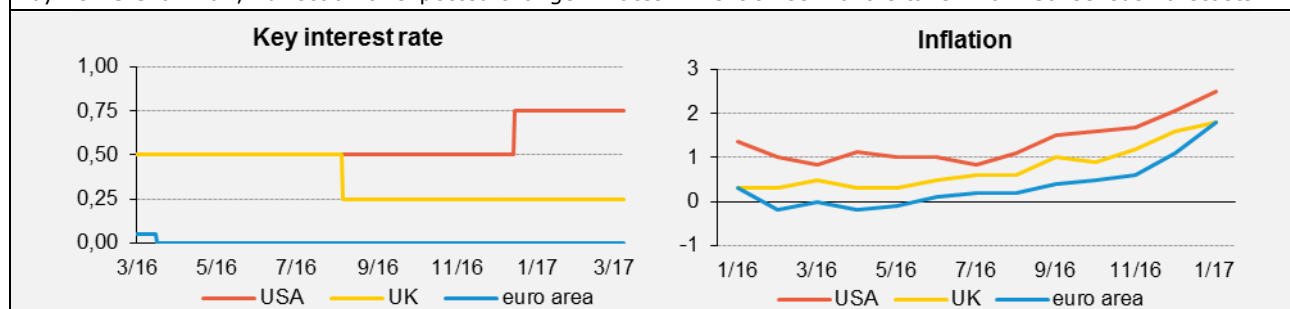
Most of the central banks under review, including the ECB, are keeping their interest rates still at low levels. The US Fed was alone in raising its key interest rate by 0.25 pp, in line with expectations. Inflation has now exceeded the 1% level in all the monitored economies except Switzerland and seems to be heading towards central banks' inflation targets. However, most of the banks are still maintaining their unconventional monetary policy programmes. Spotlight focuses on modern forms of central bank communication. In our Selected Speech, the deputy governor of the Bank of England Sir Jon Cunliffe presents the results of a survey of the investment behaviour of firms, an essential element of the monetary policy transmission mechanism.

1. LATEST MONETARY POLICY DEVELOPMENTS AT SELECTED CENTRAL BANKS

Key central banks of the Euro-Atlantic area

	<u>Euro area (ECB)</u>	<u>USA (Fed)</u>	<u>United Kingdom (BoE)</u>
Inflation target	< 2% ¹	2% ²	2%
MP meetings (rate changes)	19 Jan (0.00) 9 Mar (0.00)	13–14 Dec (0.25) 31 Jan–1 Feb (0.00)	15 Dec (0.00) 2 Feb (0.00)
Current basic rate	0.00%; -0.40% ³	0.50–0.75%	0.25%
Latest inflation	2.0% (Feb 2017) ⁴	2.5% (Jan 2017)	1.8% (Jan 2017)
Expected MP meetings	27 Apr 8 Jun	14–15 Mar 2–3 May	16 Mar 11 May
Other expected events	8 Mar publication of forecast	19 Apr: publication of Beige Book, Jun: publication of Monetary Policy Report	11 May: publication of Inflation Report
Expected rate movements⁶	→	↑	→

¹ ECB definition of price stability “below, but close to 2%”; ² January 2012 definition of inflation target; ³ deposit rate; ⁴ flash estimate; ⁵ meeting associated with summary of FOMC economic forecasts and press conference given by FOMC Chairman; ⁶ direction of expected change in rates in next three months taken from Consensus Forecasts.



The **ECB** kept its key interest rates unchanged and confirmed a EUR 20 billion reduction from April 2017 in monthly purchases under its asset purchase programme (APP), i.e. from the current EUR 80 billion to EUR 60 billion. The APP will continue until December 2017, or beyond, if necessary, and may also be expanded. The Governing Council did not discuss further TLTROs, so the final one will be conducted on 23 March. The ECB also confirmed that it expects the low interest rates to remain at present or lower levels well past the horizon of the APP. The ECB’s current forecast is slightly higher than in December and expects GDP growth of 1.8% in 2017 and 1.7% in 2018. The inflation forecast for this year was raised from 1.3% to 1.7% and that for 2018 from 1.5% to 1.6%.

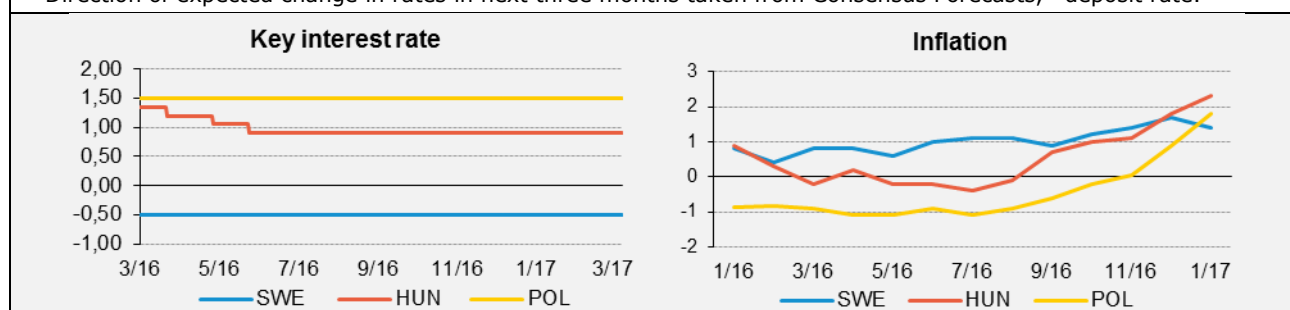
As expected, the **Fed** raised its key interest rate by 0.25 pp to 0.50%–0.75% in December 2016. The deposit rate was also increased by 0.25 pp to 1.25%. No further changes were made to rates at the February meeting. According to the FOMC members’ projections, there will be approximately three interest rate hikes of 25 bp this year, i.e. a rise of 75 bp overall. Financial markets expect that the first step in this direction will very probably be taken in mid-March. Both consumer and business sentiment is improving. The unemployment rate is 4.8%. Following a sharp GDP increase in Q3 (of 3.5%, annualised), the estimated growth in Q4 was only 1.9%, mainly due to a drop in net exports and consumption.

The **BoE** left its key interest rate at 0.25%. It is meanwhile continuing to buy government and corporate securities. By the end of February, it had purchased government bonds totalling GBP 429.5 billion (of the planned GBP 435 billion) and corporate bonds totalling GBP 7.4 billion (of the planned GBP 10 billion). Inflation moved significantly closer to the target, reaching 1.8% in January. The BoE expects it to rise further, to around 2.7% in mid-2018. It has also slightly increased its economic growth forecast to 2.0% for 2017 and 1.6% for 2018.

Selected central banks of inflation-targeting EU countries

	Sweden (Riksbank)	Hungary (MNB)	Poland (NBP)
Inflation target	2%	3%	2.5%
MP meetings (rate changes)	20 Dec (0.00) 14 Feb (0.00)	20 Dec (0.00) 24 Jan (0.00) 28 Feb (0.00)	10–11 Jan (0.00) 7–8 Feb (0.00) 7–8 Mar (0.00)
Current basic rate	-0.50%; -1.25% ²	0.9%; -0.05% ²	1.50%
Latest inflation	1.4% (Jan 2017)	2.9% (Feb 2017)	1.8% (Jan 2017)
Expected MP meetings	26 Apr 3 Jul	28 Mar 25 Apr 23 May	4–5 Apr 11–12 May 6–7 Jun
Other expected events	27 Apr: publication of Monetary Policy Report	20 Jun: publication of Inflation Report	13 Mar: publication of Inflation Report
Expected rate movements¹	→	→	→

¹ Direction of expected change in rates in next three months taken from Consensus Forecasts, ² deposit rate.



The **Riksbank** left its policy rate at -0.5% in both December and February. According to the Riksbank, there is a greater probability that the rate will be cut than it will be raised in the near term. In December, it was decided to expand government bond purchases by SEK 30 billion during the first six months of 2017. The purchases will thus total SEK 275 billion. At the February meeting, it was decided to extend the mandate facilitating rapid intervention on the foreign exchange market, i.e. at the decision of the governor or first deputy governor without any need for Executive Board approval. The Riksbank slightly raised its CPI inflation outlook for 2017 to 1.6% and its CPIF outlook to 1.7%. It expects the inflation target to be hit in 2018. The GDP growth outlook is 2.5% for this year and 2.2% for next year.

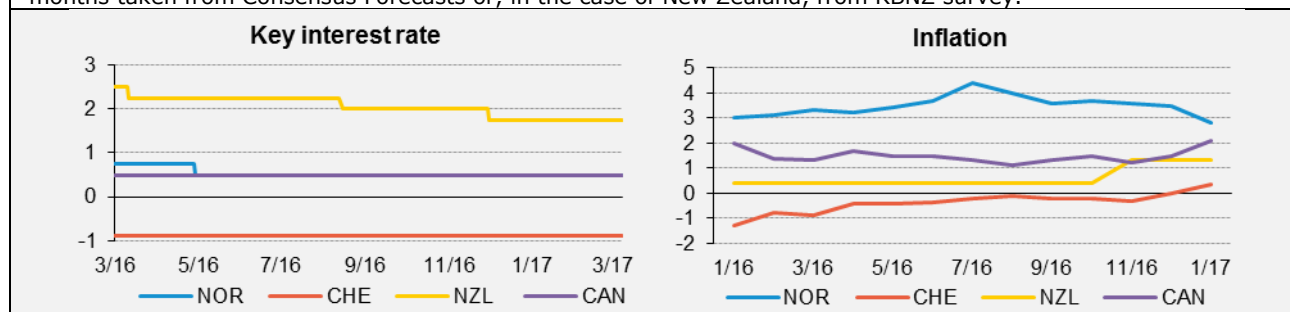
The **MNB** maintained its base rate at 0.9%. The overnight deposit rate remains at -0.05% and the overnight collateralised lending rate at 0.9%. The Hungarian economy grew by 1.6% year on year in Q4, lagging slightly behind market expectations (2.2%). The MNB expects the economy to grow by 3% in 2017. The agreed HUF 195 billion in lending to SMEs through the Market-Based Lending Scheme (see the [December 2015 CBM](#)) was exceeded by more than 50% in 2016. Since October, the MNB has been limiting the amount that commercial banks may deposit with it under the Self-Financing Programme. At its December meeting, it lowered the limit from HUF 900 billion to HUF 750 billion. According to the MNB, this decision will mean the crowding out of at least HUF 100–200 billion additional liquidity from the deposit facility. The MNB stands ready to use unconventional, or targeted monetary policy instruments.

The **NBP** kept its interest rate unchanged at 1.5%. Economic growth rose slightly to 3.3% year on year in Q4, owing mainly to consumer demand – driven by wage growth and good consumer sentiment – and to a more modest fall in investment due to higher absorption of EU funds. According to the NBP forecast, the economy will expand by 3.4%–4% in 2017 and by 2.4%–4.5% in 2018. Inflation reached 1.8% in January, but measures of core inflation stand at only 0%–1%. The NBP expects inflation of 1.6%–2.5% in 2017 and 0.9%–2.9% in 2018.

Other selected inflation-targeting countries

	Norway (NB)	Switzerland (SNB)	New Zealand (RBNZ)	Canada (BoC)
Inflation target	2.5%	0–2%	2%	2%
MP meetings (rate changes)	15 Dec (0.00)	15 Dec (0.00)	9 Feb (0.00)	18 Jan (0.00) 1 Mar (0.00)
Current basic rate	0.50% -0.50 reserve rate ¹	from -1.25 to -0.25% ² ; -0.75% ³	1.75%	0.5%
Latest inflation	2.8% (Jan 2017)	0.3% (Jan 2017)	1.3% (2016 Q4)	2.1% (Jan 2017)
Expected MP meetings	16 Mar 4 May	16 Mar 15 Jun	23 Mar 11 May	12 Apr 24 May
Other expected events	16 Mar: publication of Monetary Policy Report	22 Mar: publication of Monetary Policy Report	11 May: publication of Monetary Policy Statement	20 Apr: publication of Monetary Policy Report
Expected rate movements⁴	→	→	→	→

¹ Only on reserves exceeding quota; ² chart displays centre of band; ³ negative sight deposit rate on account balances held at SNB, graded according to balance amounts; ⁴ direction of expected change in rates in next three months taken from Consensus Forecasts or, in the case of New Zealand, from RBNZ survey.



The **NB** kept its interest rate unchanged at 0.50% at its December meeting. On the one hand, the inflation outlook, which is below the inflation target, and weaker economic growth imply lower interest rates. On the other, a rapid rise in house prices and household debt and the resulting financial imbalances preclude any further cut in rates. In this context, the NB recommended applying a macroprudential tool, i.e. increasing the countercyclical buffer rate from 1.5% to 2%; the Ministry of Finance decided to implement this recommendation with effect from 31 December 2017.

At its December meeting, the **SNB** left the target range for its monetary policy rate (the 3M Libor) at between -1.25% and -0.25%. The interest rate on commercial banks' account balances with the SNB also remained unchanged at -0.75%. The negative interest rate and the SNB's willingness to intervene in the foreign exchange market are intended to make the Swiss franc less attractive to foreign investors. The SNB expects GDP growth of 1.5% for 2017. According to the new forecast, the price level will increase only gradually in the next two years. The SNB expects inflation of 0.1% in 2017 and 0.5% in 2018.

The **RBNZ** left its key rate at 1.75% in February. According to the RBNZ, monetary policy will remain accommodative for a considerable period. The RBNZ expects inflation to return gradually into the inflation band thanks to strong economic growth (around 3.5% in both 2017 and 2018), despite persistent negative tradables inflation. Inflation expectations are well-anchored at around the 2% target. In addition, house price inflation moderated, in part reflecting previous LTV ratio restrictions and higher mortgage rates.

The **BoC** left its key interest rate at 0.5%. Inflation rose to 2.1% in January due to temporary growth in energy prices in two provinces. Measures of core inflation (for more information about these, see *News in the last CBM*) are in the range of 1.3% and 1.9%. The outlooks for consumption indicators and the property market suggest that growth in 2016 Q4 may have been stronger than expected (the BoC expects 1.6%). However, weaker exports probably weighed down on growth. For 2017 the BoC predicts GDP growth of 2.1%.

2. NEWS

Daniel Tarullo announces resignation from Fed Board of Governors

Daniel Tarullo submitted his resignation letter to President Trump, stating no reasons for his decision. He announced he would leave the Board of Governors on or around 5 April. Tarullo was appointed a member of the Board in 2009 and was supposed to stay in office until 2022. He oversaw the field of banking regulation and supervised the implementation of the Dodd-Frank Act. The media is speculating that one reason for his decision to resign was the new US president's disapproval of this Act and of what the president regards as excessive regulation of the financial industry in general. With Tarullo's resignation, the US president now has the opportunity to appoint three members to the seven-member Board of Governors of the Fed.

Norwegian experience with 15 years of inflation targeting

In a [study](#) submitted to the Norwegian Ministry of Finance at the end of January, Norges Bank summed up its experience with the monetary policy framework in Norway since 2001, when the country introduced inflation targeting. The study is part of the decision-making process of the Ministry of Finance, which, in its [Financial Markets Report 2015](#), announced it would, in parallel with considering a new Norges Bank Act, assess the need to modernise the Regulation on Monetary Policy.

The study concludes that the inflation-targeting regime has proved its worth. Since 2001, it has helped anchor inflation expectations and enabled monetary policy to stabilise output and employment, even at times of major economic shocks. A flexible monetary policy regime has been essential for the ability to make appropriate trade-offs in response to these shocks. Another finding is that the time horizon for achieving the target must be sufficiently long. Last but not least, the exchange rate has played an important role as a shock absorber, especially during the financial crisis and in periods when oil prices have fallen. At the same time, the interest rate level abroad places limitations on the room for manoeuvre in monetary policy in the small open Norwegian economy.

Fan charts added to Fed communications, quarterly MP report suggested

The Fed [announced](#) that it would, beginning with its March meeting, use fan charts in its forecasts for GDP, unemployment, inflation and interest rates in order to better communicate the uncertainty that attends its projections. St. Louis Fed President James Bullard meanwhile argues in an [article](#) for the bank's quarterly economic bulletin that the Fed should start publishing a quarterly report on monetary policy. Such a report would align the US with international best practice and would give the public more information and insight into the FOMC members' monetary policy considerations compared to the current dot plots. Bullard emphasises that the Fed has made substantial progress in its communication since the financial crisis and believes that a regular quarterly monetary policy report would represent a further improvement.

Sentiment of monetary policy statement affects economy

Bank of England [research](#) has used computational linguistics and other models to investigate how the sentiment expressed by FOMC statements (i.e. "soft" information conveyed beyond the traditional quantitative and qualitative information described in the statement) affects the term structure of private interest rate expectations and other macroeconomic variables. The results show that an optimistic tone of FOMC statements increases private interest rate expectations mainly at one-year maturity beyond monetary shocks. The research also finds that FOMC sentiment shocks affect inflation expectations, help predict the next policy decision and have an effect on inflation and industrial production.

Appointment of Banco de México governor as head of BIS postponed

The [Central Bank of Mexico](#) (Banco de México, BdM) and the [Bank for International Settlements](#) (BIS) simultaneously announced that BIS General Manager Jaime Caruana will remain at the helm of the BIS until the end of November 2017 and that the BdM Governor Agustín Carstens will replace him in this position in December 2017, two months later than previously announced (see the [last CBM](#)). The BIS agreed to this postponement in response to an official request from Mexico induced by the Mexican economy's current difficult situation, which is being tackled by the central bank headed by Carstens.

Central Banking awards 2017 announced

Central Banking Publications has awarded the title [Central Bank of the Year](#) to the Bank of England for successfully meeting the communication and economic challenges associated with the Brexit referendum while undergoing a modernisation process itself. The [Transparency Award](#) went to the Bank of Canada for its clear communication when implementing policy and for continuously developing its communication strategy, including its modern website (the BoC won the Website of the Year award in 2015). The 2017 [Website of the Year](#) title was awarded to the [Kenyan central bank](#) for its transition to a simple and responsive design, which is especially important in a country with an increasingly mobile population and widespread use of mobile payments. Carlos Fernández Valdovinos, the governor of the Central Bank of Paraguay, was crowned as [Governor of the Year](#). The [Reserve Manager of the Year](#) title was awarded to the Bank of Israel.

[Bank of Finland upgrades its official website](#)

At the end of January the Finnish central bank (BoF) joined the ranks of many central banks that have upgraded the design and improved the layout of their websites. The BoF started the modernisation of its website back in May 2015 (see the [June 2015 CBM](#)) with the creation of a visually modern [information website](#) publishing economic articles.

3. SPOTLIGHT: MODERN FORMS OF CENTRAL BANK COMMUNICATION

Effective communication with the public is a key condition for central bank transparency and credibility, especially under inflation targeting. In addition to traditional tools, banks today use modern forms of communication – the internet, social networks and mobile apps – to inform the public about their activities, provide information and data and generally enhance economic and financial literacy. This Spotlight maps out these modern forms of communication in the central banks we routinely monitor. It is thus a follow-up article to the June 2011 Spotlight, which provided a general introduction to central bank communication, and the March 2015 Spotlight, which focused on central banks' regular inflation reports.

Central banks try to communicate with the public via multiple channels. First among these are senior representatives' media appearances and speeches and presentations at conferences, seminars and roundtables. Banks also traditionally issue regular and ad-hoc publications containing information about the various areas in which the central bank fulfils its mandate. However, the most visible and most easily accessible communication channel for the public is the presence of central banks on the internet, especially in the form of official and other websites. Banks are also strengthening their presence on social networks.

Banks' official websites

It goes without saying that all the banks covered in *Central Bank Monitoring* have high-quality websites. However, those websites differ considerably in terms of how clear and user-friendly they are. A related factor is responsiveness, i.e. adjustability to the requirements of modern mobile devices used to access the site.

All the banks divide their websites into sections based on their individual areas of activity and mandates (most of them have sections on monetary policy, financial stability, banking regulation, banknotes, currency and the payment system, data and statistics, publications, research, education and basic information about the bank). Besides the local language version(s), an English version is also the norm; the ECB provides part of its information in another 23 EU languages, and the BoE makes some of its information available in Welsh.

The Bank of Canada and ECB websites are the most modern-looking, being visually clean, easy-to-navigate and optimised for mobile devices. Both sites also contain an interactive feature for charts. Both banks have received awards for their websites from Central Banking Publications (the BoC in 2016 and the ECB in 2016; this year the award in this category went to the [central bank of Kenya](#) – see *News* for details). The Norges Bank website is of the same quality as the BoC and ECB ones, only with static charts.

The websites of the other central banks retain a "conservative" look and graphic design. The BoE, Riksbank, RBNZ, SNB and MNB sites are responsive (the SNB's is also interactive). The websites of the NBP and the Fed Board of Governors are not optimised for modern mobile devices. The disadvantage with a "classic" visual design is that it overloads users with large amounts of information, news and data. It can be difficult to find the necessary information, which tends to be hidden in sub-sections.

Contact with the public, searchability, navigability

To deal with questions from the public, the websites usually contain an FAQs section and a glossary or provide explanations in the relevant sections. For further questions, banks provide contact information on their websites and some also have enquiry forms.

The search function is visibly accessible from the top of each bank's website. Search results can be filtered further for some banks (the ECB, the Fed, the Riksbank and the NBP).

All the banks make their websites easy to navigate by showing information about where the visitor is at the moment, either by displaying the whole relative address or by changing the

colour of the main menu (the Riksbank and this year's award-winning Bank of Kenya). Most of the banks also give information about the structure of their website in the form of a site map.

Educational and instructional websites

Given the complexity of central banking, banks put great effort into educational activities. To this end, most of them have created educational sections or separate websites to explain the functioning of the economy and the work of the central bank and to enhance financial literacy.

Each central bank treats the issue of education differently. For example, the ECB and the RBNZ have their educational content located in one place on their websites, structured according to its complexity and the nature of the explanation,¹ while the Fed's material is intended mainly for students. By contrast, the BoE structures its educational content by topic both in the educational section of its website and in a separate, graphically well-designed and infotaining website ([KnowledgeBank – The economy made simple](#)). The SNB has also opted for a separate educational website ([Our National Bank](#)), with its content structured by topic.

Even the banks that have no separate educational sections or websites try to present their activities to the public. For example, the Swedish Riksbank has posted explanatory videos (about monetary policy and financial stability) in the relevant sections of its website, while the MNB focuses its educational activities on the development of financial literacy in an extensive consumer-protection site (in Hungarian). The Polish NBP has no educational section about the bank, but runs a separate, visually appealing website containing information about the euro ([Centrum Informacji o Euro](#), in Polish).

Expert-oriented websites and blogsites

Banks also try to focus their communication on the professional community and involve it in the debate about central banking. Some of them publish less formal blog posts or short papers to this end, often in a separate section or website.

One example of such communication is the Bank of England's [Bank Underground](#) site for less formal blog posts written by bank experts. These posts cover all the BoE's areas of activity and express the authors' own views, which may differ from the bank's official position. There are rules for publishing contributions, but these are aimed mainly at coordinating the publication time with other bank activities. The bank's press department does not edit the posts. Readers can comment, and only those comments which are not relevant to the content are removed by a moderator. The aim of the blog is to increase the openness and transparency of the bank, to show that different views exist and are freely discussed even within the bank, and to share the bank's analytical and research outputs and thereby encourage wider debate. Well-established blogs are also run by some of the regional Feds, for instance the St. Louis Fed ([On The Economy](#)), the New York Fed ([Liberty Street Economics](#)), the San Francisco Fed ([SF Fed Blog](#)) and the Atlanta Fed ([Macroblog](#)). The Fed's Board of Governors does not operate its own blog.

As for other central banks not monitored directly by CBM, specialised sites and blogsites are run, for example, by the Banque de France ([Eco Notepad](#)) and the Bank of Finland ([Bulletin](#)). The Eesti Pank has an actively used [blog section](#) in Estonian on its website. Other banks also have blogsites (e.g. the Riksbank and the BoC), but these are intended for employees only and are hidden on the intranet; the Riksbank also publishes some of its Bancoblog articles on its public website (in [Swedish](#) only).

Central bank mobile apps

Some central banks have developed special mobile apps to provide information about local banknotes (the BoE's "Banknotes" and the NBP's "Safe") or about the bank itself (the SNB's

¹ The ECB has a brief "Tell me" page, a multimedia "Show me" page and a detailed "Tell me more" page; the RBNZ has a brief "At a glance" page, a multimedia "On the money" page and explanations intended for schools.

“Our National Bank”) or to enable access to statistical data (ECBstatsApp and the St. Louis Fed’s “FRED”).

Central banks on social networks

Central banks’ internet presence is not limited to websites. All the banks monitored also use other social networks (see the table on the next page for an overview) and facilitate sharing of their articles on those networks by means of social media icons.



















All the central banks under review have **YouTube** accounts, most of which were opened in 2008–2010. They all use YouTube in a similar manner: they upload relatively long videos from press conferences, seminars and briefings (of up to one and a half hours long) as well as short explanatory and educational videos (of up to five minutes long). Some also post commentaries on new banknotes. In fact, it is the banknote videos of the ECB, the BoC and the BoE – describing banknote production details or security features – that attract the largest audiences (several hundred thousand views, and in some cases more than a million). Several-minute-long videos explaining current economic issues, such as the ECB’s bond purchase programme (the ECB, more than 20,000 views) and money creation (the BoE, more than 12,000 views), also have a large number of views. Most banks sort their videos into channels, making the account easier to negotiate. Videos are in local languages, sometimes with English subtitles (e.g. the NB). Comments on videos are usually disabled, and where they are enabled they tend to be irrelevant. The same goes for the discussion section enabled by YouTube.

All the banks monitored also have **LinkedIn** accounts in the visually attractive Company Beta format. This enables current job vacancies at each bank to be displayed clearly on the front page of the account if the bank uses a LinkedIn form to advertise jobs (only the Fed, the BoE, the Riksbank and the BoC make active use of this function). Other banks advertise jobs in the text of their posts (the ECB, the NBP and the NB). Some other banks’ accounts are virtually unused (the MNB, the SNB and the RBNZ). LinkedIn is now slowly converging towards Twitter and Facebook in the sense that it is being used – for example by the ECB, the Fed, the BoE and the BoC – to publish posts and news that are not directly job-search-related. This makes the accounts more attractive to users, which is reflected, in turn, in more followers (although the number of followers also depends on the language used: all these accounts are in English).

Facebook is penetrating only gradually into central bank communication. Three of the banks we monitor have no profile at all (the ECB, the SNB and the BoC), two of them established profiles only last year (the Fed and the BoE) and the rest set up their accounts in the few preceding years. The Swedish Riksbank only has monothematic Facebook pages relating to the exchange of money, and the Norwegian NB has a careers page intended mainly for students. The RBNZ runs a student competition page. The banks’ official pages are usually available in the local language only and are used mostly to address a wider lay public, so the posts tend to contain fun facts rather than expert information. All the banks enable comments on posts, and some posts stimulate (often negative) discussions. Banks do not usually respond to the comments, answering only relevant questions and often referring to information on their websites.

All the banks except the MNB have **Twitter** accounts. Some administer multiple language versions (the SNB has four accounts, the BoC two), others post tweets in the local language and selected tweets also in English, and the Riksbank has an account in Swedish only. The tweets mostly contain news with links to the central bank’s website, quotations from press releases, photos of events and sometimes videos. The Fed and the BoC run other special Twitter accounts for job advertisements only. Most of the banks prefer one-way communication, i.e. they only tweet and do not respond to comments. The BoE and the ECB have also trialled an interactive form of communication, responding to questions from the public tagged with a pre-announced hashtag on a pre-announced date and time. According,

among other things, to comments in the media, these on-line debates were successful, and most of the questions asked related to the work of the central bank.

Official website in English (link)	ECB	Fed	BoE	Riksbank	MNB	NBP	Norges Bank	SNB	RBNZ	BoC
										
Educational website	section of website	Federal Reserve Education + reg. Feds	Knowledge Bank	in sections	special section	---	---	Our National Bank	section of website	section of website
Blogsite	---	blogs of reg. Feds	BankUnderground	on intranet	---	---	---	---	---	on intranet
Mobile apps	ECBstats App	FRED	Bank of England Banknotes			NBP Safe		Our National Bank		
YouTube 	active	active	active	active	active	active	active	active	active	active
videos	approx. 750	approx. 130	approx. 200	approx. 200	approx. 60	approx. 400	approx. 150	approx. 80	approx. 120	approx. 160
views/video	>18,600	>5,000	>8,000	>400	>1,000	>3,000	>250	>1,500	>1,000	>15,500
LinkedIn 	news, including vacancies	adverts and news	adverts and news	adverts, news only for work	empty	text = two vacancies	news = only vacancies	empty	empty	adverts and news
followers	>45,500	>23,500	>38,500	>5,000	>2,000	>2,000	>7,500	>2,500	>3,000	>17,000
Facebook 	---	formal	active	only about exchange of money	active	active	only careers at NB	---	only student competition	---
followers		>17,000	>9,500	>6,500	>14,000	>12,500	>3,500		>300	
Twitter 	very active	formal	very active	active, in Swedish	---	formal	active, Norwegian + English	formal	not very active	active
tweets	>8,000	>3,000	>6,500	>900		>2,000	>1,200	>400	>300	>2,000
followers	>360,000	>380,000	>200,000	>7,000		>11,700	>10,500	>850	>4,500	>95,000
Flickr 	very active	active	active	---	---	active	active	---	---	active
photos	>2,500	>200	>700			>950	>850			>300
followers	>120	>180	>150			>20	>30			>100
Google+ 	old	---	old	nothing	nothing	active account	old	nothing	nothing	nothing
followers	>2,000		?	>5	>15	>200	>10	>1	>5	>35
Periscope 	---	---	one broadcast	---	---	---	---	---	---	---
followers			>1,400							
SoundCloud 	---	---	---	---	---	---	---	---	several audio uploads	---
followers									2	

Note: Information valid as of 22 February 2017. For most networks the English language channels have more followers as their audience is not limited to the "home" state. See the text for more details about each network.

Roughly half of the central banks under review use a **Flickr** account to share photos. They organise these photos into well-arranged albums. The albums and individual photos can be

downloaded in preferred quality, so banks often put official photographs of their top management on Flickr.

All the central banks monitored have **Google+** accounts (except for the Fed, although the regional Feds have opened accounts). Apart from the NBP, however, none of them now post to their accounts, and some of them never started posting. Some banks are also trying out less common social networks. The BoE has registered with **Periscope**² and streamed one of its [events](#) there live in November 2015. The RBNZ has created an account on **SoundCloud**³ and uploads selected speeches there.

Conclusion

Central banks today use a far larger number of tools for communicating with the general public and experts than they did a mere ten years ago. There is still no substitute for personal communication by bank representatives, be it through the media or speeches at seminars, conferences and roundtables with experts. However, electronic media and modern forms of communication are gaining in importance, while traditional hard-copies of bank reports are slowly becoming a thing of the past; banks always make their publications available in PDF format on their websites. It goes without saying that banks now have high-quality websites, but they are also gradually turning to more modern, responsive and graphically more attractive formats on this platform. Banks use modern social networks and are also trialling interactive forms of communication. Given the constant development of information technology, the process of opening up to modern communication tools in central banking is definitely not at an end.

² Periscope is an app for live streaming videos. Videos can also be viewed in a browser only.

³ SoundCloud is a website and app for sharing music and audio recordings on-line. It is used mainly by musicians, but is also used, for example, by The Economist for its podcasts.

4. SELECTED SPEECH: ARE FIRMS UNDERINVESTING – AND IF SO WHY?

In his February [speech](#) to the Birmingham Chamber of Commerce, Bank of England Deputy Governor Sir Jon Cunliffe presented the results of a BoE [survey](#) aimed at fostering a better understanding of the investment behaviour of firms and thus of monetary policy transmission.

Over the last decade the UK economy has experienced weak productivity growth accompanied by weak business investment. Given the stable capital stock-to-GDP ratio, the slower GDP growth post crisis has caused, among other things, a slowdown in investment growth. This can lead to a vicious circle in which a demand shock can end up as a supply shock. Another possible explanation of the weak investment growth is a lack of finance for investment. To get a better understanding of this problem, the BoE conducted a survey of the investment behaviour of firms at the end of last year. The survey sheds light on a number of interesting aspects of firms' behaviour and on the availability of finance.

The first interesting finding is that firms have been underinvesting. Two-thirds of the firms surveyed said they had invested "appropriately" over the past five years. However, one-third judged that they had invested too little. And two-thirds of these reported external financial constraints as an obstacle to investment. These constraints were higher for smaller firms. Moreover, a number of small firms did not even apply for external finance for fear of rejection. Most of the underinvesting firms cited other obstacles to investment as well. The most important of these was constraints on using internal funds for investment as a result of other use of profits. Only a quarter of all firms prioritised using their internally generated funds for investment purposes, while three-quarters put investment behind distribution to shareholders and investment in financial assets. For this reason, a number of firms saw financial market pressure for short-term returns to shareholders as an obstacle to investment.

Non-financial obstacles – mainly greater risk aversion and uncertainty about the economic environment, including uncertainty about the returns to investment – have played as big a role as financial ones in the investment decisions of underinvesting firms. According to Cunliffe, any policy initiative to address underinvestment would thus need to address a wider agenda than just constraints on external financing.

The survey also shed light on the approach used by firms to decide whether to take an investment opportunity. The results reinforced other evidence that suggests that investment projects may now face a stiffer test than pre-crisis because firms are implicitly applying a higher risk premium in their decision-making. The target rate of return (or "hurdle rate" – the cost of capital plus a hurdle premium) used by firms to decide if the investment was worth making is 12% on average. Hurdle rates were surprisingly close to 12% even before the crisis and thus do not reflect the post-crisis decline in rates and the cost of corporate borrowing. There may be several reasons for this. One is inertia, as the survey results suggest that firms adjust their investment targets infrequently and slowly. Uncertainty and risk aversion, which were the predominant non-financial obstacles to investment, may also have played a role. They were caused by negative experiences in recent years, when investment has often not met expectations. Cunliffe believes that a higher hurdle rate risk premium, in addition to the higher risk premium embodied in the cost of external financing, may have led to underinvestment, even among firms that had invested appropriately. The question is how persistent the risk aversion will be and whether the higher premium will persist at a time of rising rates.

The adverse impact of the recent financial crisis on investment is clear. Cunliffe believes it is important to understand the drivers and obstacles to investment, even if the policy responses are not primarily the central bank's responsibility. Understanding how businesses make investment decisions informs our understanding of the monetary transmission mechanism.

This document is produced by the Monetary Department of the Czech National Bank and is freely distributable. Closing date 9 March 2017. Current and past issues can be downloaded free from the Monetary Policy section of the CNB website. Contact: <http://www.cnb.cz> or podatelna@cnb.cz.