“Last year, the Deutsche Bundesbank celebrated its 60th anniversary. This means that, since 1957, the Bundesbank has been ensuring a stable currency – first with sole responsibility for the D-Mark and now, in conjunction with the ECB and our fellow central banks within the Eurozone, for the euro. With regard to the single currency, monetary policy has not only become more European over the years, but also, in the wake of technological progress and increasing globalisation, more international. Against this backdrop, autonomous decisions invariably also have cross-border ramifications; conversely, it is now all but impossible to solve regional or worldwide systemic problems by acting alone. From the outset, the Bundesbank’s response to the growing complexity in the world of banking has been dialogue with its partner institutions all over the world, which it has always adapted to current trends and developments.

The continuing accommodative stance of monetary policy in the euro area and enhancing the resilience of the global financial system – above all of the banking sector – remained the dominant topics of discussion last year. The political events of 2017 have, if anything, intensified the need for dialogue on such issues. The far-reaching effects of digitalisation (Bitcoin, blockchains, digital currency) and artificial intelligence on operational responsibilities have now also become evident in the daily business of central banks and are playing an ever broader role in shaping opinion.

We met the challenge posed by this debate not only in 40 target group-oriented international central bank courses – two of them in cooperation with the Joint Vienna Institute – thus providing a platform for an interinstitutional exchange of ideas and opinions. We also tackled practical issues during made-to-measure expert visits at home and abroad and, together with our colleagues at our partner institutions, tried to find appropriate solutions. We arranged over 200 activities in total, which were attended by more than 3,200 central bank employees from all around the world. Our approach has thus proved its effectiveness so successfully again that we shall be carrying it forward in 2018.

As in previous years, this Annual Report aims to provide an introductory overview of the Deutsche Bundesbank’s wide range of activities in the area of technical central bank cooperation. I hope that you find the overview informative and that our portfolio of seminars and collaborative ventures will again attract your interest in the coming year.”

Dr Andreas Dombret  
Member of the Executive Board  
Deutsche Bundesbank
The Deutsche Bundesbank’s Centre for Technical Central Bank Cooperation (TCBC) supports central banks around the world in their efforts to set up and expand market-based central bank systems with a focus on stability. Our aim is to share our knowledge and experience, to foster expert and personal dialogue among central banks and thus to contribute to global monetary and financial stability.

The experts at the Centre for Technical Central Bank Cooperation and specialists throughout the Bundesbank cover the entire range of business, economic and legal issues facing central banks today. Our expertise centres on the Bundesbank’s five core business areas – monetary policy, the financial and monetary system, banking supervision, cash management, and payment systems – as well as on the topics of good governance and statistics.
Our mission

Exchanging knowledge and experience
Our work focuses primarily on exchanging knowledge and experience in practical central banking business, and less on imparting theoretical knowledge. In dialogue with our partners, we examine specific local circumstances and needs as precisely as possible and together attempt to develop solutions for their questions and issues. The feedback from this exchange of views is of great value to the Bundesbank’s work.

Networking
Establishing and maintaining close personal relationships is the key to sound and rewarding international cooperation. The work we do with our partner central banks benefits from partnerships we have built up over many years with monetary and financial supervisory authorities around the world. This is our way of fostering dialogue among central bank personnel and creating expert networks worldwide.

Openness and respect
Our offering is open to central banks and financial supervisory authorities the world over. We cultivate frank and unforced debate, giving due respect to foreign cultures and systems. Our overriding aim is to promote the intercultural exchange of knowledge, experience, ideas and opinions and to strengthen mutual understanding and trust. We welcome any suggestions for our future work that result from this.

We would be delighted to work with staff from your institution here in Frankfurt or in your home country.
What we offer

We provide a wide variety of flexible services.

In addition to our standardised international central banking courses, which are described in detail in our annual seminar brochure (www.bundesbank.de/tzk), we also offer activities tailored to the particular needs of our partner organisations. Besides running our own projects, we also take part in third-party-funded projects, most of which are financed by the EU. We are also increasingly involved in international activities, and work closely with regional cooperation partners.

International central banking courses

Our international central banking courses cover a wide range of central bank-related topics. Attended by up to 25 participants – all from different countries and institutions – they also provide an ideal platform to exchange views and opinions with international peers. Courses are held in English in the form of traditional seminars, workshops and expert panels. Seminars focus on core aspects of central banking and are mostly aimed at newcomers. Workshops look in greater detail at specific subject areas and are intended primarily for employees with the relevant expertise. Expert panels, meanwhile, are designed exclusively for highly experienced employees, who are asked to give a presentation during the panel. The various course formats help attract a broad group of participants, from junior central bank staff to specialists. In 2017, we hosted 40 international central banking courses with a total of 677 participants from 85 countries. A form to register for courses may be found at www.bundesbank.de/courseregistration.

Bilateral projects

Bilateral projects are tailored to suit our partners’ individual needs and demands. They cover the full range of central banking and usually take the form of seminars, study visits, conferences and consultancy services. If the expertise of more than one Bundesbank specialist is required, these projects can be hosted in Germany; if a larger audience is to be reached, they can be organised in the partner’s home country. In 2017, we ran 160 bilateral projects attended by 2,551 participants from 53 countries. A bilateral project may be requested using the online form at www.bundesbank.de/request.

214 activities with 3,290 participants in total.
External projects

The Bundesbank supports EU-funded projects promoting close ties with beneficiary countries. These include Twinning, TAIEX and ESCB projects funded by the European Commission. Beneficiaries include candidate countries and potential candidates for EU membership, as well as countries covered by the European Neighbourhood Policy. The Bundesbank has been taking part in these projects since 2004 and will continue to do so in the future. In 2017, the Bundesbank provided experts for 14 activities.

International cooperation

For many years now, we have been liaising with higher education institutions across the world as a way of pooling resources in the sharing of international best practices in central banking. For example, Bundesbank experts deliver lectures as part of cooperation with the Center for Latin American Monetary Studies (CEMLA) in Mexico, the Joint Vienna Institute (JVI) in Austria, and the Bank Indonesia Institute (BI Institute) in Indonesia. Contacts also exist with the Arab Monetary Fund (AMF), the West African Monetary Institute (WAMI), the Central Bank of West African States (BCEAO), the Eurasian Economic Union (EAEU), and the Kenya School of Monetary Studies (KSMS).

63 % of activities took place in Germany, 37 % abroad.
Our team

Back (left to right): Jens Fuhrmann, Daniel Januschka, Dr Sonja Juko, Jan Eckert, Jörn Fiegler, Dr Martin Pontzen

Middle (left to right): Anika Hollmann, Ralf Hannemann, Silke Frühklug, Maximilian Paulus, Malte Vieth, Katja Hofmann

Front (left to right): Christoph Stute, Christa Lampe, Birgit Engelmann, Lisa Bauscher, Martin Dinkelborg (Director), Claudia Brune (Deputy Director), Dr Martine Niederkorn, Silke Schrupp
On 22 December 2017 the Twinning Contract1 “Strengthening the National Bank of the Republic of Belarus” with financial support from the European Union was signed at the National Bank of the Republic of Belarus by the Head of the European Union Delegation to the Republic of Belarus, the Director of the Centre for Technical Central Bank Cooperation of the Deutsche Bundesbank, and the Deputy Chairman of the Board of the National Bank of the Republic of Belarus.

The project will be implemented by a consortium of banks: the Deutsche Bundesbank, Narodowy Bank Polski and Lietuvos bankas, which will be supported by further national central banks of the European System of Central Banks (eg Estonia, Finland, Romania, the Slovak Republic).

The overall objective of the project is to effectively enhance the ability of the National Bank of the Republic of Belarus (NBRB) to address the major challenges that it faces as an independent central bank, thus engendering its citizens’ trust in the currency/financial system and contributing to sustainable growth in the wider economy. To implement modern central banking structures and procedures, the planned activities will cover six components: payment systems, financial stability, banking supervision, financial risk management, financial consumer protection, and communication policy. The project has a budget of EUR 1.15 million and the term of implementation is 2018-19.

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1 Twinning is a European Union instrument for institutional cooperation between public administrations of EU member states and of EU candidate and potential candidate countries, as well as neighbouring countries. Twinning projects bring together public sector expertise from EU member states and beneficiary countries with the aim of achieving concrete mandatory operational results through peer-to-peer activities.
Monetary policy
Overview of our activities in 2017

Public interest in the topic of monetary policy was as strong as ever in 2017. Media coverage of the debate centred mainly on strategic and policy issues surrounding the role of monetary policy, with the pros and cons of the current monetary policy stance and its impact on economy and society proving to be major talking points. Activities in the field of monetary policy contrasted with the public debate in that they revolved primarily around the practical side of putting monetary policy into practice. Implementation issues featured prominently in both the international central banking courses and bilateral monetary policy projects offered on this subject.

Key issues in the field of monetary policy and the economy in 2017

– Operational frameworks for managing interest rates

– Possible applications of selected monetary policy instruments

– Liquidity analysis and management

– Collateral management in a monetary policy context
International central banking courses

The Implementing monetary policy course, which was once again a firm fixture in TCBC’s international course programme, aims to familiarise participants with monetary policy implementation within the Eurosystem and with the role played by national central banks in this area. For the first time, the course programme included a visit to the European Central Bank’s new headquarters, where participants took part in a guided tour and attended talks by ECB specialists on liquidity management.

Another premiere was the five-day course entitled Theoretical pricing of central bank collateral, which gave the central bankers from all over the world an opportunity to learn more about this subject and share their views. The idea behind this course was to provide an overview of the financial instruments typically accepted as collateral by central banks. Many of these instruments lack robust market prices, however, which is why the course focused on their theoretical pricing and discussed the various mathematical models and their allocation to the individual instruments.

In response to strong demand, the Bundesbank organised two international courses in 2017 which were devoted to matters of monetary policy analysis and forecasting. The first, Macroeconomic analysis and forecasting, saw experts from the Bank’s Directorate General Economics familiarise participants with the institution’s activities in this field, while the second, Analytical tools of monetary policy, dealt with various aspects of monetary analysis.

Bilateral projects

In 2017 TCBC broadened the range of bilateral monetary policy projects it offers in partnership with institutions catering for participants within a particular region.

The Bank continued its cooperation with the Arab Monetary Fund (AMF) last year and added to the range of topics covered. Besides running the Implementing monetary policy course, Bundesbank experts for the first time offered training on Central bank transparency and monetary policy communication, which attracted a great deal of interest among participants. Clearly, this is a topic which has gained importance in the region. The interactive course module, especially, which saw participants act out a mock press conference, met with an enthusiastic response, while the topics covered in the presentations, which included forward guidance as well as central bank independence and transparency, also sparked a lively debate.

Another addition to the Bank’s educational repertoire was its cooperation with the BI Institute, which is Bank Indonesia’s training institution, for whom TCBC ran an Implementing monetary policy course in Indonesia. Participants came from central banks across South East Asia. Varied as the participating countries were, this course set out to present and discuss fundamental concepts and approaches in matters of operationalising monetary policy. The topics covered met with strong interest, not least thanks to the course’s interactive format, and inspired lively debate. This course is to be held annually in future as part of the BI Institute’s range of flagship courses.
International cooperation

For the third year in succession, TCBC ran its five-day Implementing monetary policy course in cooperation with the Joint Vienna Institute (JVI). As in the previous year, this event offered insights into key aspects of monetary policy implementation, singling out matters of interest rate and liquidity management. One enduring highlight of this course is the mock central bank auction, in which participants witness for themselves how events unfold from a commercial bank’s perspective and experience at first hand how different auction procedures work. These modules were flanked by discussions about the pros and cons of differently designed monetary policy tools.
Financial and monetary system
Financial system stability is essential for keeping the value of money stable. Being an integral part of the European System of Central Banks, the Bundesbank has a mandate to help preserve the stability of the financial system.

2017 saw a turnaround in the international macro-economic and financial environment following two years of dwindling global growth rates and a downward drift in interest rates over a number of years. Robust global economic growth is fostering a gradual resurgence in interest rates, from a low starting level, in the euro area and the United States. This is impacting on the risks which have accumulated in the financial system during the protracted spell of low interest rates.

Key issues in the field of the financial and monetary system in 2017

– Structural changes in the financial system (eg digitalisation)

– Supervisory and regulatory issues relating to FinTech in a financial stability context

– Early warning models for systemic banking crises

– Interconnectedness in the banking sector

– Risks for insurers, pension institutions and investment funds

– Evaluation of financial market reforms
International central banking courses

Our core training programme in the field of financial stability includes courses on Financial stability, systemic risk and macroprudential policy. Course level I focuses on giving participants a grounding in financial stability analysis and macroprudential oversight, while course level II is dedicated to advanced applications such as the role played by early warning systems, network analysis in the banking sector, and indicators for systemic liquidity risk. Input from participants on current developments in their countries and case studies geared to specific applications round out these courses.

The expert panel on Recovery and resolution with a focus on credit institutions mainly enabled participants to report on their experiences with the new European regime for recovering and winding up credit institutions. One of the overarching aims of the reform initiatives adopted since the last financial crisis was to resolve the “too big to fail” issue. The new bank recovery and resolution regime introduced in Europe at the beginning of 2015 is designed to facilitate the orderly resolution of even systemically important institutions without endangering financial stability or exposing taxpayers to loss. Key topics this year were the implementation of recovery plans, the formulation of resolution plans, the analysis and determination of the minimum requirements for own funds and eligible liabilities, and valuation issues in connection with the restructuring of credit institutions. The expert panel benefited quite substantially from other countries’ experience of restructuring financial institutions.

A fresh addition to our programme was the expert panel on Issues related to monetary policy and financial stability. The global financial crisis sparked intense debate amongst economists over the future configuration and role of monetary policy. Certain elements of the pre-crisis monetary policy consensus remain valid to this day – chief among them being the enduring overriding importance of price stability. Yet opinion is less clear-cut on the relationship between monetary policy and financial stability. These were the aspects which the expert panel set out to explore by giving participants an opportunity to critique the various approaches to this topic, using their own countries as examples.
Bilateral projects

As part of the bilateral cooperation with the Central Bank of Uruguay, a three-day workshop on Stress testing was held in Montevideo in mid-November 2017, at which Bundesbank experts offered detailed insights into the methodology and implementation of the credit risk stress tests conducted by the Bundesbank. Particular attention was devoted to how the stress testing models are operationalised in the statistical software R, which enables stress tests to be conducted and evaluated in a highly automated fashion. Being a bilateral event, the models used at Uruguay’s central bank to stress test credit risk were likewise presented and discussed in detail.

International cooperation

A workshop on Macroprudential and monetary policies for small open economies was held in November 2017 in cooperation with CEMLA and the Central Bank of the Bahamas. This event covered current issues in the field of financial stability, the role of central banks in macroprudential oversight, and developments in the macroprudential policy cycle. Another major agenda item was the interaction between monetary policy and macroprudential policy-making, particularly in small open economies. The workshop also shed light on the importance of micro-data for economic analysis and the broad subject of big data. Around 30 experts from ten central banks in the region contributed to the debate on current aspects of financial stability in the Caribbean.
Last year saw the Bundesbank run its first ever expert panel dedicated to the topic of Blockchain technology and FinTech. Technology-enabled financial innovation (FinTech) is a segment of the financial system that is gaining significance worldwide, and in Germany, too, on account of its rapid growth. Its emergence is projected to intensify competition in some parts of the financial system. Gauging how FinTech might impact on the structure of the financial system from today’s perspective is highly challenging, given the early stage of innovation, the insufficient data pool and the endogenous response to the changing environment on the part of established financial intermediaries.

Distributed ledger technology (DLT) has made huge strides in recent years, and it has now become a major testing ground for financial service providers, financial market infrastructure operators, central banks and the like. The Bundesbank’s interest in this topic centres around how DLT could be incorporated into the world of payments and settlement systems.

This expert panel focused on the latest developments in Europe concerning the role of FinTech in payments, the potential and risks presented by DLT in payments and in securities settlement, the joint Bundesbank-Deutsche Börse blockchain research project, and the role of digital currencies.

Participants enriched the debate with contributions on the importance of FinTech in their own countries and discussed what implications these developments might have for central banks.
Banking supervision
A functioning economy requires a stable banking system. That is why banking supervisors are responsible for monitoring credit institutions’ business activity and preserving investor confidence. The task of banking supervision in Germany is shared by the Bundesbank and BaFin, and in this capacity they are both also members of the Basel Committee on Banking Supervision. Topics of global importance in 2017 included the negotiations on reforming the global capital requirements for banks – that is, the finalisation of the Basel III reform package. One key aspect of these negotiations was the extent to which institutions should be permitted to use internal models to calculate the risk on their balance sheets. Within Europe, the Single Supervisory Mechanism (SSM) focused its priorities on examining business models and investigating profit drivers. Attention centred primarily around the topics of Brexit, interest rate risk and FinTech as a source of mounting competition, and these are issues which look set to gain ever greater significance beyond the year 2017, but interest in the issues of responsibility and sustainable finance is also on the increase.

Key issues in the field of banking supervision in 2017

− Finalisation of the Basel III reform package
− Brexit
− Interest rate risk
− Digitalisation
− FinTech competition
− Sustainable finance
Current developments in Europe on the path towards establishing a single supervisory regime were also reflected in the range of TCBC seminars. **Towards a European banking union: the Single Supervisory Mechanism for banks** was a seminar dedicated to exploring the institutional and methodological foundations underpinning the Single Supervisory Mechanism and the Single Resolution Mechanism.

For years now, our core offering in the field of banking supervision has included the seminars **Banking supervision under the Basel framework** (course levels I–II) and **On-site banking supervision**, which we regularly update to keep pace with regulatory advances. The two Basel seminars this year focused notably on the topics of digitalisation, corporate governance and recent developments in the supervisory review process, while the on-site banking supervision course concentrated, amongst other things, on the ICAAP review and IT risk inspections.

Major topics covered by our expert panel on **Stress tests – methods and areas of application** included current developments in the world of stress testing at the Bundesbank and in Europe, and the groundwork and research which individual participating countries had conducted. One agenda item, alongside the EU-wide stress test, was the resilience of less significant institutions (LSIs) in the historically low-interest-rate environment. A case study gave participants the opportunity to generate scenarios of their own and apply them to a specific case.

Requests for bilateral projects in 2017 mainly concerned **stress testing, market risk, recovery and resolution** and, on a more general note, aspects relating to the implementation of the Basel III regime. One such project saw two Bundesbank experts from the Regional Office in North Rhine-Westphalia visit the **Superintendency of Banks and Financial Institutions of Chile** in Santiago de Chile, where they shared views with local officials on the topic of banking supervision in the context of Basel III. Talk focused on the practical side of implementing the Basel III regime – for example, whether it makes sense to distinguish between small and medium-sized institutions.

The Bundesbank continued its intense dialogue with the **Banco Central do Brasil** last year. For example, colleagues from the Directorate General Banking and Financial Supervision and the Bundesbank’s University of Applied Sciences travelled to Brasília to talk about **recovery and resolution**.
International cooperation

TCBC teamed up with the Joint Vienna Institute and the Oesterreichische Nationalbank (OeNB) to run a seminar on banking supervision in Vienna last year. Entitled Banking supervision under the Basel framework, this one-week course dealt primarily with the implementation of Basel II and III. Experts from the Bundesbank, the OeNB, the Czech National Bank and the Joint Vienna Institute used a variety of formats including talks, case studies and expert panels to discuss key elements of the Basel framework (ICAAP, SREP, credit risk, liquidity risk, stress testing and macroprudential policy). The seminar was rounded off by contributions from participants about banking supervision developments in their countries.

External projects

April 2017 saw two colleagues from the banking supervision unit at the Regional Office in Bremen, Lower Saxony and Saxony-Anhalt visit Montenegro on an advisory mission in response to a request from the European Commission, which provided funding under the TAIEX instrument. Over almost two days, the two experts presented the Eurosystem’s Bank Lending Survey, which asks credit institutions to report on their credit conditions, and explained how the survey is conducted in Germany. They also discussed ways in which it could be implemented in Montenegro. This seminar was attended by 15 Central Bank of Montenegro employees from the areas of financial stability and banking supervision.
Liquidity and credit risk/
credit risk modelling

Bilateral seminars with the Reserve Bank of India
Chennai, 16 – 20 January 2017/
12 – 14 December 2017

Two bilateral projects on banking supervision took place with the Reserve Bank of India in 2017. Two representatives from the Regional Office in Munich spent three days in Chennai at the beginning of the year giving talks on liquidity and credit risk. They presented the supervisory approach taken to these two types of risk in Germany and in Europe. The talks and presentations were enriched by examples and experiences from day-to-day supervisory practice. Participants were particularly interested to hear what the speakers had to say about the current implementation of liquidity and credit risk management in Germany, which was evident in the large number of questions asked.

In addition, two representatives from Central Office and the Deutsche Bank JST travelled to Chennai to talk about credit risk modelling. The standardised approach for credit risk currently has a large role to play in India. Nonetheless, modelling banks’ internal metrics – estimating the probability of default or loss given default, say – is of increasing importance as Indian banks are currently developing internal models and, not least, due to the concept of lifetime expected loss to determine impairment, which was introduced with IFRS 9.

Both seminars were rated very positively by both the Reserve Bank of India and the Bundesbank experts. The debate centred not only on the theoretical basis but also turned again and again to practical implementation in the two countries. It frequently emerged that supervisors in both countries are grappling with the same underlying issues, such as, for instance, how to ensure sufficient data quality.

(Bettina Meister, Tobias Schlaffer, Thomas Rassat, Dr Klaas Schulze, Deutsche Bundesbank)
Cash management
Section 3 of the Bundesbank Act (Bundesbankgesetz) states that the Deutsche Bundesbank shall arrange for the execution of domestic and cross-border payments. Consequently, the Bundesbank must also do all it can to keep the cash cycle free of counterfeit money. The introduction of the new €50 banknote in 2017 is helping to keep the number of counterfeit notes low. The new banknote is equipped with a number of innovative security features, and its specific design as well as the combination of authentication attributes make it difficult to imitate. In arithmetic terms, there are just ten counterfeits for every 10,000 inhabitants in Germany, which demonstrates that very little counterfeit money enters the cash cycle.

Another of the Bundesbank’s tasks is to ensure that the cash supply and infrastructure are efficient and that the banknotes in circulation are of high quality. With this in mind, the Bundesbank has further modernised cash processing and purchased a new generation of machines. Since 2017, new M7 type banknote processing systems are gradually being installed at the branches, replacing the old BPS 1120 banknote processing systems. The exchange of the machines is scheduled to be completed by the end of 2020.

In order to ensure a smooth cash supply even in emergency or crisis situations, the Bank decided several years back to set up a new branch and close five older branches. In 2019, the new “superbranch” in Dortmund will be the largest and most modern branch in the Bundesbank’s network and will supply 12 million people with cash.

Key issues in cash management in 2017

- What security features help make the new euro banknote series more difficult to counterfeit?
- How can the Bundesbank ensure a high quality of banknotes in the cash cycle despite some elements of processing taking place outside of the Bundesbank’s branches?
- Why did the Bundesbank decide to purchase the M7?
- How are relations between the Bundesbank and the other cash handlers organised?
- How does the superbranch differ from other Bundesbank branches in terms of security features? What type of communication solutions, IT infrastructure and software systems will the new branch use?
- What importance does cash have at the point of sale in Germany, and what is its future?
International central banking courses

The seminar Cash management and combating counterfeit money provided participants with a good insight into the Bundesbank’s key cash handling activities. Starting with requirement planning for euro banknotes in the European context right up to the destruction of banknotes by cash processing machines, all aspects were touched upon and, where necessary, discussed in greater depth. Not surprisingly, the major project that is the Bundesbank’s new superbranch was discussed in some detail. Participants learned that what makes the branch, which will be Germany’s largest branch when it opens in 2019, state-of-the-art is mainly the design of its logistics. The vault will have high-bay racking. Internal banknote transport will take place via driverless transport systems and conveyor belts. Fifteen ultramodern banknote processing systems, whose performance will be significantly higher than that of their predecessor models, will be used for cash processing. When the superbranch is opened, older branches will be closed, which of course raised the question of how the Bundesbank will deal with staff who become redundant as a result. Participants were surprised to hear that the new branch will be manned by a team of no less than 200. They were also very interested to hear the results of an international study in which the Bundesbank was involved, which had, for the first time, examined the question of what influence the quality of banknotes has on the recognition of counterfeit notes. As is customary, the seminar concluded with a visit to the Frankfurt Branch to inspect the new generation of cash processing machines and learn all about their various functions.

There was plenty of time on the expert panel entitled Current challenges for cash management to discuss technical matters. One such issue was the ECB’s decision to stop issuing €500 notes, another concerned deliberations among policymakers on imposing a €5,000 ceiling on cash payments. A lot of participants viewed this as a clear sign of an imminent end to the use of cash. However, studies which the Bundesbank has commissioned on payment behaviour in Germany appear to paint a different picture. The majority of purchases are still paid for in cash at the point of sale. In terms of the number of payment transactions, the percentage of cash is, in fact, almost 80%. The participants agreed that the anonymity of cash is one of its key advantages over other payment instruments. One conclusion was that demand for cash remains unbroken, which is why the volume of banknotes in circulation in Germany is increasing steadily. Another interesting debate was how central banks should deal with critical reports on cash. Participants also used presentations to report on the cash management challenges faced in their own countries. This gave the other participants valuable ideas on how to organise day-to-day operations in their home countries.

Bilateral projects

Bilateral projects relate, first, to the exchange of knowledge and experience in workshops and seminars and, second, to advisory services in the context of concrete projects. We have, for some time now, been receiving a growing number of queries from Central Asia asking for advice on the construction of cash centres and national cash logistics.

The Bundesbank is, in cooperation with the Swiss National Bank (SNB), advising the National Bank of the Kyrgyz Republic on planning and building a new cash centre close to the capital of Bishkek. To date, meetings and workshops have taken place in Kyrgyzstan, Germany and Switzerland with the objective being to define the basic framework and start construction work.

Like its neighbour, the National Bank of Kazakhstan is also planning a comprehensive overhaul of its
national cash logistics. This will include the construction of modern cash centres. Planning is, however, still at a very early stage. In the meantime, Kazakh construction engineers have visited the Bundesbank to learn about the quality and security standards in place at Bundesbank branches. A cooperation agreement has also been signed to place technical cooperation on a formal footing going forward. The benchmark for the cooperation are the cash centre projects in Botswana and Georgia, which TCBC has accompanied and successfully concluded. Based on the positive experiences it has made cooperating with TCBC, the Bank of Botswana is planning another joint construction project with the Bundesbank for the coming years.

Over the course of the year, numerous central bank guests from Egypt, Brazil, Iran, Saudi Arabia and Mozambique attended Bundesbank workshops and seminars to learn about many different aspects of cash handling. Subjects included how the Bundesbank deals with damaged banknotes that have been exposed to water for an extended period due to flooding, or what distribution policy the Bundesbank pursues when issuing banknote denominations to commercial banks.

During a five-day seminar for the People’s Bank of China, topics such as issuance policy for banknotes and coins and cash requirement planning were discussed, as were questions concerning manufacturer equipment tests by the Bundesbank in the context of cash recycling. There was also much interest in the Bundesbank’s cash management system and in the question of what experiences the Bundesbank has made with internally developed system components. The presentation on payment behaviour in Germany sparked a lively debate on the importance and the future of cash. Seminar participants were astonished to hear that as much as 80% of payment transactions at the point of sale are settled in cash. In this context, innovative China appears increasingly to be consider-

International cooperation

A tailored seminar on cash circulation for participants from the Eurasian Economic Union (EAEU) took place in Frankfurt again this year. The three-day seminar provided representatives of the central banks in Belarus, Kazakhstan and Russia with information on various cash-related subjects. The large catalogue of questions that participants had submitted beforehand allowed specialist speakers to tailor their presentations to focus on these issues. As a result, a lively exchange of ideas ensued between participants and speakers. When looking at counterfeit deterrence, questions related to the use of innovative security features on banknotes. In addition, the Bundesbank’s CashEDI information system was presented and its benefits discussed. In cash processing, there was much interest in the fact that the Bundesbank has, for years, pursued a multi-denomination approach and has had very good experiences with it. Participants could see this for themselves when they visited the Frankfurt Branch and saw the newly installed M7 machines in action. At the end, there was hardly enough time to discuss the many subjects of interest.
Combating money laundering

International central banking course
Course level II, Frankfurt
27 November – 1 December 2017

The traditional seminar on Combating money laundering was offered again this year. It is aimed primarily at money laundering experts at non-EU central banks. A particular feature of this event is that the seminar lecturers approach the subject of money laundering from very different angles. This gives participants the opportunity to exchange ideas with experts from the Bundesbank as well as representatives from Germany’s public prosecutor’s office, the Federal Financial Supervisory Authority (BaFin), the Federal Criminal Police Office, an accounting firm and representatives from major international financial institutions. In addition, we were able to get a speaker from the Banque de France to give us valuable insights into French methods for fighting money laundering.

One of the focal points of the debate was the transposition of the Fourth EU Money Laundering Directive, which entered into force in 2017, into national law using Germany as an example. This essentially brings the legal framework into line with the international standards set by the Financial Action Task Force (FATF) on money laundering and terrorism financing. It became clear that strengthening the risk-based approach is associated, in particular, with requirements for a transparent documentation of one’s own actions and a much stricter toolkit of sanctions for supervisors. The catalogue of fines for institutions covered by the German Money Laundering Act (Geldwäschegesetz) has therefore been noticeably tightened, with fines of up to €5 million now stipulated for contraventions. As part of the risk analysis, institutions covered by the act must draw up and document in a transparent manner a client risk profile. Here, participants agreed that only the future would show whether the cost of implementing these requirements would remain manageable for individual institutions. In order to meet the legal requirements, banks must do a lot to improve information management, risk analysis, and monitoring and surveillance systems. With a draft for a fifth EU Money Laundering Directive already in the pipeline (which will probably be discussed at the next anti-money laundering seminar), those involved in the Money Laundering Act are unlikely to run out of work anytime soon. The plan is to invite a representative from the German Financial Intelligence Unit (FIU) as a speaker again in the coming year, which will further expand and round off the range of issues covered.
Payment systems
The Eurosystem is making further advances in the market infrastructure for payments and securities settlement in order to support the smooth and efficient functioning of the financial markets on the one hand, and to comply with current developments and standards as well as meeting the needs of market participants on the other. In keeping with this, three new project initiatives relating to market infrastructures were launched in 2016: 1) TARGET instant payment settlement (TIPS), 2) TARGET2/TARGET2-Securities consolidation and 3) Eurosystem collateral management system (ECMS). In June 2017, the Governing Council of the ECB decided that TIPS should commence operation in November 2018. Thanks to TIPS, individuals and enterprises across the euro area will be able to make instant retail payments via their bank 365 days a year. In December 2017, the green light was given for the T2/T2S consolidation project as well as for the establishment of the ECMS. A key component of the T2/T2S consolidation project is the introduction of central liquidity management. The ECMS will see the management of collateral in connection with the Eurosystem’s credit operations integrated onto a central technical platform from 2022. This will eliminate the fragmentation in collateral management. The European Banking Authority (EBA) has now presented its final draft regulatory technical standards (RTS) on strong customer authentication and secure communication. Once approved by the European Parliament and European Council, the RTS can enter into force shortly thereafter.

Key issues in the field of payment systems in 2017

– What is the impact of the new European Payment Services Directive (PSD2) on the cashless payment systems of commercial banks?

– What measures need to be taken to attain a high degree of cybersecurity in payment systems?

– What challenges do the commercial banks perceive in relation to the launch of instant payments?

– What potential does blockchain technology harbour that could be tapped for payment systems?

– How will the competitive landscape evolve at the level of payment solutions and payment providers?
  • What chance does smartphone technology have in Germany as a future payment solution?
  • What is the future of paydirekt, the online payment method developed by German banks and savings banks?

– How can the commercial banks ensure that customer data are protected given the advent of big data?
International central banking courses

This year, as in previous years, the standard international course Payment and securities settlement systems was offered twice due to high demand. The mix of presentations from experts in the field of payment systems and workshops on the topics of oversight, innovations and TARGET2-Securities provides participants with a varied array of activities, allowing them to approach the seminar topic from various perspectives. As in earlier years, the issue of innovations in payment systems was hotly debated by participants. During the workshop on this topic, participants presented the newest technological innovations in their countries, and it quickly became clear that each country has to find its own solutions to the different challenges facing each of them. It was particularly interesting to explore why, in a tech-savvy country like Germany, smartphone technology for payments has not yet broken through to market success. Participants agreed that part of the appeal of smartphone payment solutions is that different technologies can be linked up. Transaction data can be transmitted using NFC, but also by QR code or barcode, for example. There was consensus on the idea that mobile payment methods can only have a future if they offer the customer an added benefit compared to established payment methods. While the course participants agreed that the launch of instant payments offered an added advantage, they were still fairly vague about the prospects for the use of blockchain technology. Market participants and numerous central banks around the world are testing this technology against criteria such as security, efficiency, stability and cost. Only after this test phase will we see what kind of potential blockchain technology can unleash for payment systems.

Bilateral projects

From 8 to 10 August 2017, the Central Bank of Brazil Corporate University (UniBacen) hosted a seminar by experts of the Deutsche Bundesbank on the oversight of payment systems and payment instruments. More than 40 employees of the Banco Central do Brazil took the opportunity to participate and gain insights into current topics, covering recent developments in the oversight of financial market infrastructures as well as topics such as instant payments and TARGET2. The attendees came from several departments, including the Department of Banking Operations and Payment Systems and the Information Technology Department. The main focus of the seminar, as intended by our colleagues of the UniBacen, was to offer their employees professional training. Therefore, in the run-up to the seminar a detailed list of topics of interest was communicated, which the Bundesbank lecturers summed up in eight presentations: TARGET2, instant payments, tiered participation arrangements, CPMI-IOSCO Principles of Financial Market Infrastructures (PFMI), oversight of payment instruments, governance of retail payments, EU regulation related to retail payments, and cyber resilience. The subject of instant payments was of particular interest, given that the Brazilian central bank does not provide such a service, but is considering doing so. The Bundesbank experts gave a detailed overview of the national services already offered in Europa, the instant payment scheme of EBA Clearing, RT1, and especially TARGET Instant Payment Settlement (TIPS), the instant payment service which will be provided by the Eurosystem as of November 2018. Furthermore, recent regulations, such as the Interchange Fee Regulation (IFR) of the EU and the Payment Services Directive II (PSD II), were also of great interest for the participants. This was
demonstrated by the many questions on the details of the regulations and the discussions which followed. All in all, the very lively audience participation and the outstanding hospitality of our Brazilian colleagues along with the perfect organisation made the seminar and stay in Brasilia a very pleasant experience.
Innovation in retail payment systems: Issues, challenges and policies

Deutsche Bundesbank contribution to an international workshop and seminar held by Bank Indonesia Yogyakarta (Java, Indonesia), 11 – 15 November 2017

On the first and second day of the seminar, the Bundesbank gave presentations on current innovations in European payment systems, oversight of payment systems, and blockchain and digital central bank money. There was particularly great interest in the new European procedure for the settlement of retail payments in real time (instant payments), the key changes arising from PSD II, and the Bundesbank’s view of virtual currencies, especially Bitcoin.

The participants were by and large staff of Bank Indonesia, and experts in payment systems from a range of south-east Asian countries and Africa (Vietnam, Thailand, the Philippines, Kenya etc) also attended. Altogether, around 100-150 people took part.

The seminar facilitated a robust exchange of knowledge. A presentation by Bank Indonesia highlighted the challenges facing the Indonesian financial and payments infrastructure. Indonesia has roughly 261 million inhabitants (fourth-largest population in the world), but only 36% of them have a bank account. In addition, Indonesia is made up of around 17,000 islands, many of which are hard to reach, which means that a technician could have to travel for up to a week to repair a single ATM, for example. At the same time, Indonesia has more mobile phones than inhabitants.

A presentation by Indonesia’s largest telecommunications provider, Telkomsel, which is currently establishing a mobile payment system called T-CASH, therefore met with great interest. Customers without a bank account can load their mobile e-wallet with e-money at cash-in points and use their balance for P2P payments to other users and payments in shops (there are both NFC-based solutions and QR code solutions). New technologies can help developing and emerging market economies to simply skip certain stages of development. Moreover, the Kenyan central bank gave two highly informative presentations on M-Pesa. There were also valuable contributions from the Turkish and Finnish central banks and private sector representatives. The seminar participants were highly engaged and actively participated in the presentations given by the Bundesbank as well as those of other speakers.

(Dirk Schrade, Jan Lukas Korella, Deutsche Bundesbank)
Good governance
Proper central bank governance is fundamental for monetary stability and the protection of state assets. There has been increased emphasis on good corporate governance since the OECD principles were issued in 1999. Good governance describes in general how public institutions conduct public affairs and manage public resources. The range of subjects discussed this year was again very broad. Aside from issues surrounding ongoing digitalisation that are facing central banks around the world, there was a particular focus on changes in the international accounting rules. The various central banks’ approaches to issues such as sustainability and gender mainstreaming were also revealed.

Key issues in the field of good governance in 2017

- Approaches to stemming corruption
- New IFRS 9 requirements
- Ongoing digitalisation
- Environmental protection
- Gender mainstreaming
International central banking courses

The objective of the expert panel Economic education – the role of central banks was to provide central bank experts from all over the world with a forum to present their economic education strategies and discuss their experiences. The discussion focused on questions concerning the concepts, aims and target groups of economic education programmes, as well as the role of central banks. Contributions by participating central banks on educational initiatives in their countries rounded out the multifaceted picture painted of economic education activities.

The many aspects of good governance were very well reflected in the Central bank governance course. Bundesbank experts provided an insight into the Deutsche Bundesbank’s tools and rules for good governance. The issues discussed included financial control, HR instruments, risk management, codes of conduct and the prevention of corruption. Participants found it particularly interesting to learn about best practices in all these areas and to discuss the issues among the group while exchanging views and ideas.

Internal auditing has a vital function and position in every central bank. As most central banks follow the international standards of the International Actuarial Association (IAA), the Bundesbank offered seminars and expert panels on specific and current issues; some of these events were IT auditing, Cash-related processes at a central bank – risk coverage by the internal audit function and Design and application of a risk-oriented/risk-centric audit approach – best practices.

Topics surrounding operational risk management, business continuity planning and crisis management were handled in an expert panel, with each expert presenting the approaches pursued by their institution. Both positive and negative experiences were discussed and viewed from various angles. In many central banks, the activities of both the operational risk management and business continuity management functions are bundled into one organisational unit for the most important core tasks. As a result, there was a great deal of interest in the Bundesbank’s organisational separation of these areas. The Bundesbank’s crisis management concept represented a new approach for most participants. Crisis management largely involves setting out organisational tasks and responsibilities so as to mitigate or prevent the negative repercussions of crises.

The five-day Human resources management seminar provided a comprehensive overview of the Bundesbank’s approach to human resources. The topics raised included the recruitment and promotion process, professional development and training, remuneration and social benefits. Additionally, future challenges such as demographic change and female leadership opportunities were discussed. Another focus area was change processes. The Bundesbank presented its experience of structural reform, which included a vast organisational restructuring and assistance to affected staff members. A workshop session provided room to discuss both best practices and difficult change processes from the participants’ experiences. Thanks to the lively exchange during the seminar, the participants not only learnt about the Bundesbank but were also able to take away knowledge and ideas from each other.
Bilateral projects

A group of central bankers from Macedonia and Belarus were given the opportunity to learn about the Bundesbank’s document management system (DMS). This system increases productivity on the one hand, while helping to store information and knowledge and make it accessible as a resource on the other. The guests were not only given a detailed explanation of the system, but were also able to work on specific tasks using a demo version. This practical exercise provided a special insight into the advantages of the system.

A three-day seminar in Bishkek (Kyrgyzstan) was devoted to the strategic planning and budgeting process. Participants focused in particular on upstream instruments such as organisational analyses, HR control and project control. The close integration of strategic and operational planning was also discussed in detail.

The National Bank of the Republic of Macedonia is one of the most modern central banks in south-eastern Europe. All international accounting standards have already been adopted into national law and are successfully applied in practice. The Macedonian central bank also plans to bring its accounting more closely into line with the ECB Guideline. At the same time, it intends to automate accounting processes, following the Bundesbank model. The ECB’s accounting rules, as applied at the Bundesbank, were presented at a five-day seminar in Frankfurt. The seminar concentrated on the features that distinguish European central bank accounting from the international standards. The presentation was rounded out by an overview of the accounting software.

A seminar held for central bank staff from Serbia dealt with the link between the requirements of international accounting and of banking supervisors. Risk reporting rules (IFRS 7) and the new rules for the recognition of financial instruments (IFRS 9) were discussed in connection with the Basel II and III regimes, with a main focus on newer methods of establishing provisions for non-marketable financial instruments. The Serbian guests were also keen to learn about the new IFRS 15 standard, which provides the first comprehensive concept for the recognition and management of revenues in banking.

A large group from the People’s Bank of China was instructed in various aspects of risk management, financial investment and the central bank budget, notably looking at the Bundesbank’s management of investment and liabilities. This also included the relevant rules and regulations on risk management. In addition, the group was introduced to the legal requirements and procedures for securing claims at the Bundesbank and in the Eurosystem. The focus here was on the development of an internal rating toolkit. A description of the Bundesbank’s budget and financial planning rounded off the series of presentations.

An enquiry from the National Bank of Ukraine prompted the Bank to offer a three-day bilateral seminar on the topic of general communication strategy in Frankfurt, an event which was also opened up to other central banks. Besides colleagues from Ukraine, communication experts from the National Bank of Moldova and the National Bank of the Republic of Macedonia attended the seminar. The programme covered the core elements of external
communication such as media relations, communication with the general public and communication on monetary policy. In addition, more specific topics were discussed, such as communication on banking supervision, communication in the field of cash and cashless payments, communication with financial market participants and political communication. The seminar proved to be highly interactive thanks to the participants’ tremendous interest and lively input. Thus, both sides – the Bank’s communication experts as well as the participants themselves – benefited from the exchange of views. At the end of the seminar, participants were invited on a guided tour of the new Money Museum.

International cooperation

The seminar on central bank credit registers, which drew attendees from the Eurasian Economic Union (EAEU) coming from Belarus, Kazakhstan and Armenia, focused on various aspects relating to credit registers and credit offices. Credit register monitoring by the central bank was of particular interest. The seminar commenced with an overview of the legal requirements relating to data protection, particularly noting what data may be held for how long by credit registers and whether there would be separate rules for individuals and enterprises. There was also discussion about the extent to which central banks may access the data collected by credit offices. The Jalys data management system, which was still used up until a few years ago, was cited as an example.
Financial consumer protection

International central banking course
Expert panel, Frankfurt am Main
6 – 8 November 2017

The expert panel on Financial consumer protection, which was organised in cooperation with the Federal Financial Supervisory Authority (BaFin), dealt with what is currently a hot topic for supervisors. The range of issues covered by consumer protection reflected the entire spectrum of the financial and capital market, with all its products and services.

Protecting consumers as a group has long been one of BaFin’s tasks. Since 2015, collective consumer protection has been written into law as one of BaFin’s supervisory objectives. In order to meet this objective, BaFin created a division dedicated to consumer protection-related issues at the beginning of 2016. Alongside organisational aspects, individual issues such as how consumer complaints are treated or the German Retail Investor Protection Act (Kleinanlegerschutzgesetz) were on the agenda. The role of the ombudsman in the financial sector was another important topic. Overall, the participants engaged in a high-quality and lively exchange of know-how and experience on the multi-faceted tasks in consumer protection.
Statistics
Core tasks in statistics include supplying high-quality statistics and indicator systems as well as providing data infrastructures and advisory services for analysis and research purposes. The Bundesbank aims to collect data only once and use them for different purposes in order to minimise the response burden. One example is the Eurosystem’s money market statistical reporting (MMSR), which will be used in future not only to analyse and assess the state of the euro money market but also to enable the Eurosystem to provide an unsecured overnight reference interest rate. The ESCB statistics on the assets and liabilities of insurance corporations is another example. A new reporting flow was introduced to collect data jointly for both supervisory and statistical purposes. Having identified standardisation as a key infrastructure investment for the future, we are enforcing the usage of the international data classification standard SDMX in our systems.

As part of the strategic objective of improving data quality in the field of external statistics, further projects were provided concerning, for example, the implementation of electronic data processing systems for handling statistical reports and analysing external statistics data. In addition, work was continued on enhancing the capabilities of the seasonal adjustment program JDemetra+ for practical use.

Key issues in the field of statistics in 2017

– **Fulfilling user needs:**
  Identifying demand for new data with regard to monetary policy, financial stability analysis and research, and finding adequate statistical answers

– **International and European initiatives:**
  Conceptual and practical work on international and European standards and their practical implementation (e.g. in the context of the second phase of the G20 Data Gaps Initiative, the Balance of Payments Manual and European microdata initiatives on securities statistics)

– **Digitalisation:**
  Developing concepts for measuring the digital transition, appropriate concepts for data collection, integrating new techniques for data processing (e.g. machine learning) and new data dissemination approaches
International central banking courses

A growing number of important topics for central banks and supervisory authorities such as monetary policy and its implementation, macroprudential supervision, high-frequency trading and statistics require a strict evaluation of enormous and constantly growing volumes of data. Insufficient knowledge and inadequate technical infrastructures at this point can impair the quality of the assessment and of decision-making.

Technological advances and digitalisation have had a tremendous impact on many industries’ business models and at the same time substantially increased the amount of various sorts of data. Consequently, big data has become a topic of interest for public institutions like central banks, for example for purposes of policymaking and analysis, research and statistics.

Against this backdrop, and for the second time, the TCBC expert panel on Big data and central banking provided a valuable platform for fostering the exchange of knowledge among colleagues from different central banks and areas of expertise on this topic. Bundesbank experts from Statistics, Markets and Banking Supervision gave insights into their approaches in handling big data in a central banking context. This comprised, for example, the analysis of high-frequency trading strategies and of qualitative textual financial data.

Participating countries contributed to the panel’s success by presenting their own research approaches, for example in the fields of producing new economic indicators or using web-scraping techniques. This year’s panel also benefited from the contribution of two colleagues from Banque de France, who presented results of various innovative approaches used by their interdisciplinary data science teams at the French central bank. A third expert panel on Big data and central banking is scheduled for 2018. Moreover, a course on data sharing will be offered in 2018.

Seasonal fluctuations constitute a common feature of many countries’ key macroeconomic indicators, such as gross domestic product and industrial production. Usually, such movements hamper the monitoring and assessment of current economic developments. For that reason, seasonal adjustment of economic data is of fundamental importance for economists and statisticians as well as for decision and policy-makers. A five-day workshop held at the Bundesbank in Frankfurt and a similar workshop at the Centro de Estudios Monetarios Latinoamericanos in Mexico covered all the fundamental aspects of the two most commonly used approaches in official statistics. Numerous practical applications, such as taking national calendars into account, performing seasonal adjustment of aggregates and possible revision policies as well as more technical issues related to software and data storage were discussed. A total of 43 participants from 25 countries attended these workshops. It is planned to offer this workshop again in 2018.

New challenges in statistics were also discussed in the workshop on Price and volume indices in official statistics. Besides giving a comprehensive overview of index theory and its different applications to time series and micro data, the course also covered new techniques in price measurement such as web scraping and scanner data. The participating central bankers also gained an insight into recent developments at the European level and state-of-the-art research in this growing field of statistics.

Bilateral projects

In November 2017, a seminar on Retail business and household finance surveys was organised for a delegation from the Bank of Indonesia. The seminar featured experts from several Bundesbank divisions and covered different types of survey and register data. Experts from the Research Centre reported on the Panel of Household Finances (PHF) methodology, a
large-scale survey on households’ wealth. The first day ended with a presentation by the Bank of Indonesia on their household survey and a discussion of the results. The Bundesbank’s Communications Directorate presented results from their image and opinion survey of private individuals, and the Banking Department contributed two presentations on surveys for supervisory purposes and the central credit register. The last day of the three-day seminar was dedicated to issues related to data access for research projects. Experts from the Research Data and Service Centre covered, amongst other things, data management and anonymisation.

Given the high demand for courses on External statistics, in 2017 various seminars focusing on external statistics in general and on international investment positions and balance of payments in particular took place in Thailand and Germany. External statistics provide policy-makers, economic units, researchers and the general public with important information on the interconnectedness of an economy with the rest of the world. These data have gained even more in significance as globalisation has intensified.

For many years now, experts from the External Statistics Division of the Deutsche Bundesbank have offered seminars for experts from other central banks within the Technical Central Bank Cooperation framework. In 2017, staff from the central banks of Ethiopia, Thailand, Serbia, Macedonia and Montenegro made use of the Bundesbank’s experience in external statistics.

In April, a Balance of payments statistics seminar was held in Frankfurt with colleagues from Ethiopia; it dealt with reports on international transactions and the changes resulting from the switch to a new standard, the Balance of Payments and International Investment Position Manual (BPM6). As a special topic, an expert from the Federal Statistical Office presented the method for calculating Financial Intermediation Services, Indirectly Measured (FISIM). Furthermore, the Ethiopian experts showed interest in the German compilation of the International Investment Position (IIP). A colleague from the Bundesbank explained the underlying concept and the compilation of the German IIP. The presentation concluded with the results of IIP data published by the Bundesbank and disseminated to certain European organisations as well as to the Bank for International Settlements (BIS) and the International Monetary Fund (IMF). Our foreign visitors were interested, in particular, in the compilation of external assets and liabilities of enterprises and the government sector as well as the IT system used for data aggregation and analysis. In addition, the German compilation system of the Foreign Direct Investment statistics (FDI) was introduced to the seminar participants. The presentation gave a broad overview of FDI stocks and flows statistics and highlighted the respective methodological concepts and compilation techniques.

In June, two executives of the Bundesbank travelled to Thailand to present selected topics of the International Investment Position and to exchange experiences with colleagues from the Bank of Thailand. The lively participation of and the questions asked by the Thai colleagues made the seminar a mutually beneficial experience. First, the Bundesbank gave several well received presentations on topics such as the macroeconomic significance and analytical value of the IIP, the German presentation scheme of IIP developments and some stylised facts on the German IIP. Afterwards, more technical aspects were discussed following the presentation on how Germany compiles the German IIP and how it deals with data gaps and necessary estimates. Of special interest for the Thai experts was how to reconcile preliminary stock flow data with final stock data as is necessary for FDI equity data. The Thai experts concluded that the German approach might prove to be an inspiring blueprint to improve their compilation system.
Statistics

Seminar with the National Bank of Serbia, the National Bank of the Republic of Macedonia and the Central Bank of Montenegro, Frankfurt
21 – 23 November 2017

Experts from the central banks of Serbia, Macedonia and Montenegro visited the Bundesbank in Frankfurt to learn about the German compilation system for the IIP and selected topics from FDI statistics. Of particular interest were the German method of calculating reinvested earnings, the application of a) the accrual principle and b) the ultimate controlling parent (UCP) concept. With regard to reinvested earnings, the presentation highlighted the methodological aspects of the current operating profit concept (COPC) and gave insight into the German approach to applying this concept with a special focus on methodological challenges such as estimation and smoothing techniques. One presentation on the application of the accrual principle focused on the German approach to estimating and forecasting interests in order to meet the accrual requirements until reported data are available. The presentation on the UCP concept provided an overview of the variety of different “ultimate” concepts and their methodological differences and concluded with a description of the German method for compiling UCPs. The concepts, data sources and data collection of the German IIP were also presented. The compilation practice of FDI statistics in real estate in the IIP met with particular interest. A further topic concerned the exchange of experiences and the current state of play regarding the German project to harmonise the financial account of balance of payments and IIP with financial sector accounts. The seminar wrapped up with a session focusing on technical solutions regarding the development and automation of SDMX message reports. The presentation outlined the central statistical infrastructure at the Bundesbank and the ISO standard SDMX, which is used as an information model. The SDMX-based production line and the presented tools for data analysis were especially well received. The talk concluded with the Bundesbank’s initiative for a bank-wide sharing of microdata (IMIDIAS). Here, the central statistical infrastructure in the form of the House of Microdata constitutes one of the core components.
In March 2018 in Pretoria, the Bundesbank held a joint conference with the South African Reserve Bank (SARB) on local currency bond markets (LCBMs). This event is linked to Germany’s G20 presidency in 2017 and to the Compact with Africa initiative. The mobilisation of long-term financial resources is of key importance for improving local and regional infrastructure across Africa. LCBMs can become an important means of long-term financing for both governments and companies and can reduce the financial vulnerability associated with foreign currency borrowing.

In addition, 2018 will see the conclusion of the contract on the twinning project Support to regulation of financial services with Montenegro, under which Bundesbank experts will conduct advisory missions. The purpose of this project is to provide crucial support for the further alignment of legislation in the area of financial services in Montenegro with the Union acquis, with a view to strengthening regulatory and supervisory capacities. The main beneficiary institutions of this twinning project are the Central Bank of Montenegro (CBM), the Insurance Supervision Agency (ISA) and the Securities and Exchange Commission of Montenegro (SECMN). A consortium of institutions from Germany, Croatia and the Netherlands has been formed under the lead management of the German Federal Ministry of Finance to implement the project.
## List of abbreviations

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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AMF</td>
<td>Arab Monetary Fund</td>
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<td>AML</td>
<td>Anti-Money Laundering</td>
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<td>BaFin</td>
<td>Federal Financial Supervisory Authority</td>
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<td>BCEAO</td>
<td>Central Bank of West African States</td>
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<td>BI Institute</td>
<td>Bank Indonesia Institute</td>
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<td>BIS</td>
<td>Bank for International Settlements</td>
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<td>BOP</td>
<td>Balance of Payments</td>
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<td>BSP</td>
<td>Bangko Sentral ng Pilipinas</td>
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<td>CBM</td>
<td>Central Bank of Montenegro</td>
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<td>CEMLA</td>
<td>Center for Latin American Monetary Studies</td>
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<td>DLT</td>
<td>Distributed Ledger Technology</td>
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<td>DMS</td>
<td>Document Management System</td>
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<td>EAEU</td>
<td>Eurasian Economic Union</td>
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<td>EBA</td>
<td>European Banking Authority</td>
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<td>ECB</td>
<td>European Central Bank</td>
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<td>ECMS</td>
<td>Eurosystem Collateral Management Service</td>
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<td>ESCB</td>
<td>European System of Central Banks</td>
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<td>EU</td>
<td>European Union</td>
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<td>FATF</td>
<td>Financial Action Task Force</td>
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<td>FDI</td>
<td>Foreign Direct Investment statistics</td>
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<td>FIU</td>
<td>Financial Intelligence Unit</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GwG</td>
<td>Geldwäschegesetz (German Money Laundering Act)</td>
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<td>ICAAP</td>
<td>Internal Capital Adequacy Assessment Process</td>
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<td>IFR</td>
<td>Interchange Fee Regulation</td>
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<td>IFRS</td>
<td>International Financial Reporting Standard</td>
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<td>IIP</td>
<td>International Investment Position</td>
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<td>IMF</td>
<td>International Monetary Fund</td>
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<td>ISA</td>
<td>Insurance Supervision Agency</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>JST</td>
<td>Joint Supervisory Team</td>
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<td>JVI</td>
<td>Joint Vienna Institute</td>
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<td>KSMS</td>
<td>Kenya School of Monetary Studies</td>
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<td>LCBM</td>
<td>Local currency bond markets</td>
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<td>MMSR</td>
<td>Money market statistical reporting</td>
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<td>Acronym</td>
<td>Full Form</td>
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<td>NFC</td>
<td>Near-field communication</td>
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<td>OeNB</td>
<td>Oesterreichische Nationalbank</td>
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<td>PhilPaSS</td>
<td>Philippine Real Time Gross Settlement System</td>
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<td>PSD</td>
<td>Payment Services Directive</td>
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<td>QR-Code</td>
<td>quick response code</td>
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<td>RTS</td>
<td>Regulatory Technical Standards</td>
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<td>SARB</td>
<td>South African Reserve Bank</td>
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<td>SEACEN</td>
<td>South East Asian Central Banks Research and Training Centre</td>
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<td>SECMN</td>
<td>Securities and Exchange Commission of Montenegro</td>
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<td>SNB</td>
<td>Swiss National Bank</td>
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<td>SREP</td>
<td>Supervisory Review and Evaluation Process</td>
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<td>SSM</td>
<td>Single Supervisory Mechanism</td>
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<tr>
<td>TAIEX</td>
<td>Technical Assistance and Information Exchange Instrument</td>
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<tr>
<td>TARGET</td>
<td>Trans-European Automated Real-time Gross Settlement Express Transfer System</td>
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<tr>
<td>TCBC</td>
<td>Technical Central Bank Cooperation</td>
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<tr>
<td>TIPS</td>
<td>TARGET Instant Payment Settlement Service</td>
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<td>University of Banco Central do Brasil</td>
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