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INTERNATIONAL TECHNICAL COOPERATION NEWSLETTER

Contents

This newsletter is a twice-yearly publication intended to inform readers regularly about international technical cooperation at the Bank of Italy, especially seminars and workshops.

The Bank of Italy is engaged in technical cooperation activities (i.e. seminars and workshops, bilateral staff training and institution building) to strengthen the institutional capabilities of the beneficiaries. The beneficiary institutions are generally in new EU member states that have not yet adopted the euro, EU candidate and potential candidate countries, Mediterranean countries, Eastern European and Caucasian countries within the European Neighbourhood Policy area, BRICS and other emerging countries.

The areas of cooperation relate to the Bank's institutional functions (central banking including market operations, payment systems and treasury services, economic research and statistics, banking and financial supervision, and currency circulation) and some support activities (IT, internal auditing, controls).

Further details on https://www.bancaditalia.it/compiti/ricerca-economica/cooperazione-tecnica-internazionale/index.html

2015 (2nd Semester) Highlights

Overall, our TC activities in the second half of 2015 comprised 2 international seminars, 3 workshops and 14 bilateral initiatives (study visits or meetings in Rome and missions abroad). We hosted 148 foreign participants in the initiatives held in Rome. In 2015, the Bank of Italy considerably increased its provision of international training initiatives. In particular, 3 workshops have been included in the program, in addition to our traditional 4 annual seminars. The workshops are addressed to small groups of specialists and are shorter and more focused on more precise themes than the seminars. The large number of applications we have received shows that this addition has been greatly appreciated. In 2016, we expect to offer even more initiatives.
Details concerning the activities of the second semester of 2015 are inside.

Seminars & Workshops

Workshop on "The Bank of Italy's Experience in Managing Operational Risks"
(Rome, 2-3 July 2015)
Participants: 21

When they hear the term 'operational risk management' (ORM)', central bankers may think it has something to do with the financial institutions they supervise. However, central banks are exposed to operational risk just as much as any other institution and, in order to manage it, most of them have a dedicated framework in place. Others have been setting up such frameworks lately or considering doing so. Central banks are growing more and more aware of the serious consequences that may arise if they do not run their own business processes effectively - not only in financial terms, but there are also reputational or business risks. [Read more on page 7]

Workshop on "Macroprudential Analysis and Supervision"
(Rome, 25-26 September 2015)
Participants: 18

The macroprudential approach to financial stability gained momentum with the global financial crisis. Lack of attention to the system-wide implications of financial activity and policy actions as well as a lack of specific powers and tools to address systemic risk were deemed to be among the main causes of the crisis and contributed to its severity. The G20 and the Standard-Setting Bodies encouraged the development of a macroprudential culture. Nowadays macroprudential analysis is well incorporated into national regulatory frameworks and supervision goes beyond its traditional microprudential remit to take systemic issues into account. [Read more on page 8]

Seminar on "The Quality of Banknote Circulation and Banca d'Italia Monitoring Activity on Professional Cash Handlers"
(Rome, 21-23 October 2015)
Participants: 26

The quality of banknote circulation, within the broader objective of an effective and resilient cash cycle, is a major concern for central banks more and more oriented towards efficiency in a quickly changing environment, characterized by ongoing developments of different payment instruments currently used in the settlement of transactions. The cash cycle involves different actors - central banks, commercial banks, cash-in-transit companies (CITs) and retailers - engaged in the recirculation of cash in the market. This means putting back into circulation banknotes that they have received either from the public as payments, or as a deposit in a bank account, or from another cash handler, after checking them for authenticity and fitness. [Read more on page 9]

Seminar on "Innovation, Retail Payment Instruments and Systems: Market Developments, Regulatory Initiatives and Effects on Oversight"
Rome, 18-20 November 2015
Participants: 24

ICT technologies are rapidly changing the retail payments landscape. The developments in high-speed data networks, mobile devices, digital currencies, peer-to-peer payment solutions and real time information are strengthening the expectations for an increase in the efficiency of the payment industry, despite the possible drawbacks and threats implicit in new technologies. Focusing on the EU regulatory framework, the seminar analysed innovation in retail payment instruments and systems from four different perspectives: efficiency, security, welfare improvement and governance. [Read more on page 10]

Workshop on "Macroeconomic Modelling and Forecasting"
Rome, 10-11 December 2015
Participants: 19

According to a famous quote, any attempt to fine-tune the economy on the basis of current economic conditions is like driving a car with the front-windshield and side-windows blackened, with only the rearview mirror to see where the car has been, but without the ability to see where it is going. [Read more on page 11]

Bilateral Activities
(study visits to Italy & missions)

Study visits and missions are organised at the direct request of the beneficiary central bank/supervisory authority or other supranational entities, such as the European Commission and the IMF, which sometimes finance the initiatives.

Activities were focused in particular on banking supervision, monetary policy operations and payment systems. Moreover, there has been an increasing number of requests for information on banking system support to SMEs.

Bilateral Activities (in figures)
(1st July - 31st December 2015)

Study visits: 13
On-site missions: 1
Number of participants in study visits: 40

A Focus on...

Nowcasting Indonesia

In 2014 and 2015 the Bank of Italy collaborated with the Asian Development Bank (ADB) on a technical assistance project in the area of economic research, aimed at providing a structured approach to macroeconomic modelling and macroeconomic assessment for the ADB member countries. The project, which included a number of lectures on state of the art forecasting techniques, led to the development of a pilot macroeconomic forecasting framework for Indonesia's economy. The result of the collaboration is presented in the paper "Nowcasting Indonesia", published in the ADB Economics Working Papers Series in 2015.

http://www.adb.org/publications/nowcasting-indonesia

2016 Seminar Catalogue

Seminar on "Internal Audit in a Central Bank"

(Rome, 6-8 April 2016)

The objective of the seminar is to enhance common understanding of the role and the functioning of an internal audit department in a central bank. The Bank of Italy's Internal Audit Department will describe its organization, methods and techniques to foster benchmarking within central banks. Interactive sessions will be held to share experience of off-site activities, quality programme, risk assessment, and audit approaches.

Seminar on "Financial Risk Management for Central Banks: Implementing a Comprehensive Framework to Deal with Institutional and Investment Challenges"

(Rome, 15-17 June 2016)

In recent years, the Bank of Italy has put considerable effort into developing a comprehensive framework, both methodological and organizational, that encompasses the different risks for a central bank posed by its institutional and investment functions. Further effort has been devoted to creating an In-house Credit Assessment System consistent with Basel II principles and Eurosystem standards. The system, which has been operational since 2013, was developed with the contribution of experts from several sectors of the Bank with experience in credit risk assessment (Supervision, Research, Risk Management and Monetary Policy). The seminar will illustrate how risk analysis is carried out at the Bank of Italy, providing ample illustration of modelling techniques for market, credit, liquidity, and operational risk; the scope for strategic asset allocation by central banks within an asset and liability management framework; and the use of the credit risk framework in monetary policy operations.

Seminar on "Regulatory and Supervisory Issues of Small Banking and Financial Entities, with Special Focus on SME and Household Financing"

(Rome, 14-16 September 2016)

The seminar provides a comprehensive overview of the main and most common regulatory and supervisory aspects of SME and household financing, with special focus on a) the scope of regulation and supervision: the main types of intermediaries involved in SME/household financing (small banks, mutual funds and non-bank intermediaries), licensing, activities, instruments, and shadow-banking issues; b) prudential regulation and supervision, especially the application of Basel requirements concerning SME and retail financing; c) supervisory approaches and tools used with small banks and financial intermediaries; d) macroprudential issues; and e) transparency requirements and customer protection.

Seminar on "Payment Systems and Market Infrastructures in the EU; Policy, Operation, Oversight: the Bank of Italy's Experience"

(Rome, 14-16 December 2016)

The seminar aims to improve participants' knowledge of EU payment systems and market infrastructures from a policy, operational, technical and oversight point of view. Considering the role played by the European System of Central Banks (ESCB) in this field, the seminar will look at the services offered in large-value payment systems, TARGET2, and in the securities clearing and settlement systems, TARGET2-Securities (T2S), as well as the oversight functions performed by the Bank of Italy and its involvement in retail payment services and instruments within the Single Euro Payments Area (SEPA). Presentations will be supplemented with a visit to the Service Desk of the TARGET2-T2S Single Shared Platform (SSP), the Eurosystem's Financial Market Infrastructure jointly operated by the Bank of Italy and the Deutsche Bundesbank.

2016 Workshop(*) Catalogue

Workshop on "Building the Backbone of the Organisation: Internal Rules, Processes and Procedures"

(Rome, 10-11 March 2016)

The workshop discusses how to shape the central bank as a lean organization by adopting a process-oriented approach, keeping the impact of internal rules to a minimum, and making the most of information technology and of managerial skills. Specific case studies and examples from the Bank of Italy's experience will be provided: simplification of internal rules, adoption of an Enterprise Resources Planning (ERP) system, dematerialization of all internal papers, and introduction of more flexible work times. Finally, the importance of a synergic interaction between the variables at stake and of a comprehensive vision of the organization as a system is highlighted and discussed.

Workshop on "Euro Banknote Production with a Focus on Design and Origination: The Experience of the Bank of Italy "

(Rome, 26-27 May 2016)

The workshop will provide a general overview of the framework for euro banknote production (reference context and principles; ECB and NCB roles; Eurosystem requirements for banknote production); an outline of the Bank of Italy's Banknote Directorate (resources and activities; organization; machinery and equipment); a description of the main manufacturing steps (printing stages and cutting and finishing process) and a visit on site. Special focus will be placed on design and origination (D&O) facilities and expertise, including a description of the process and of the key achievements in the field; the production of offset and intaglio plates using the most advanced 'computer-to-plate' techniques; and the contribution to the ES2 project and innovative pre-press activities.

Workshop on " Financial Statistics in Central Banks"

(Rome, 13-14 October 2016)

The post-financial turmoil poses new and demanding challenges not only to policy-makers, but also to statisticians and national accounts experts, who are called upon to provide suitable and timely statistical data to support policy decisions and help identify macroeconomic imbalances. The workshop describes the latest developments in methods and in the scope of the financial statistics produced by central banks. Topics will include an overview of the current Italian financial accounts framework as a part of the Eurosystem, focusing on sources, methods and uses of financial accounts produced by the Bank of Italy. The Bank's IT platform for financial statistics will also be illustrated.

Workshop on "Anti-Money Laundering "

(Rome, 17-18 November 2016)

The workshop on anti-money-laundering will provide an overview of the actions taken by the Bank of Italy to prevent supervised entities from being used for criminal purposes. Following a general presentation of the supervisory activities for the prevention of criminal activities, the workshop will focus on Italian legislation on anti-money-laundering and counter-terrorism-financing (AML/CTF), describing the competencies of the different authorities involved. A description of the Bank of Italy's risk-based supervisory model on AML will be provided, and case studies will be presented. The workshop will also include an overview of the anti-money-laundering regime following the introduction of the new payment methods. The workshop will feature a contribution from the Italian Financial Intelligence Unit (FIU), which will illustrate its activities and the results of its analysis of suspicious transaction reports.

(*)Workshops are organized as short seminars with a narrow thematic focus, addressed to small groups of specialists.

General Information

Participation in seminars and workshops is by invitation.

Requests from institutions other than the regular beneficiaries are considered on a case-by-case basis.

The working language is English.

Participation is free of charge.

In some cases hotel accommodation is provided by the Bank of Italy.

Travel expenses to and from Rome are not reimbursed.

Seminar duration is usually 3 days; workshops last 2 days at the most.

Lunches are covered for the duration of the seminar/workshop. A courtesy dinner is also offered.

We usually accept up to 25 participants in the seminars and only one representative from each institutions. As far as workshops are concerned, groups are not larger than 15 participants.

Our seminars and workshops are as interactive as possible. Short presentations by selected participants are usually invited in order to stimulate discussion and debate.

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The Bank of Italy's new conference center

Seminars & Workshops *(...continued)*

(Workshop on "The Bank of Italy's Experience in Managing Operational Risks", *continued from page 2)* New threats are emerging every day, in line with the evolution of the complex environment in which central banks perform their tasks; operational risks may thus need to be managed in a systematic manner, within a specifically designed framework.

The workshop aimed at sharing the practical experience gained by the Bank of Italy in managing operational risk within its own ORM framework. The contents were selected with a view to maintaining – as much as possible - a hands-on approach, therefore they included not only traditional presentations on what operational risk is or how central banks (and more specifically the Bank of Italy) manage it, but there were also risk assessment exercises. In particular, taking a typical central bank process i.e. foreign reserve management, the speakers from the Bank tried to "do the job" (identify, assess and respond to operational risks) along with all the participants at the workshop.

Risk identification and risk assessment (in terms of the likelihood of the event and the impact that it would cause) and risk response (i.e. the decision to accept, mitigate, transfer or refuse the risk) are the core steps of the ORM cycle, i.e. the sequence of day-to-day activities that need to be carried out – one after another - in order to manage operational risks in a systematic manner. Since a thorough risk analysis may require a certain effort, it is usually performed only on the most critical operational processes, i.e. those for which a worst case scenario may lead to an impact that is higher than a defined threshold.

A scenario that particularly worries central banks is unavailability. For some business processes (e.g those involving payment systems), the adverse consequences of an operational process that suddenly stops or, in any case, fails to produce its required output in time may be extremely serious. That is why ORM may be usefully complemented by the more specialized subject of Business Continuity Management (BCM). As the Bank of Italy has a dedicated framework for BCM as well, the workshop touched upon this issue too.

Within the Bank of Italy's ORM framework both risk analysis and scenario analysis are mostly qualitative exercises, based on the professional judgment of the parties involved. This judgment must also take into account the information coming from actual incidents. As was stressed during the workshop, it is therefore of paramount importance to track all the incidents (even those that only by chance did not produce an actual impact), to identify and assess their causes. The number of operational incidents that take place in central banks may not – fortunately! - be very large and that is

Workshop on Operational Risk

The views expressed during the seminars and workshops do not necessarily reflect the position of the Bank of Italy why it is so important to be sure that all of them are properly treated within the ORM framework.

The last part of the workshop sought to provide the participants with tips on how to put ORM principles into practice: including setting up a dedicated framework from scratch and choosing the most appropriate IT tool to support ORM activities.

(Workshop on "Macroprudential Analysis and Supervision", ***continued from page 2*****)** The main objective of the workshop was to share knowledge and practices that the Bank of Italy and the guest institutions have gained to address some key issues relating to macroprudential analysis and supervision. The issues touched upon in the workshop range from the identification and measurement of systemic risk to the appropriate setup of the institutional framework to address such risk, in particular within a complex and integrated financial system such as that of the European Union. Other key aspects for effective macroprudential policy include the choice and calibration of macroprudential tools, which are heterogeneous in nature, and the possible interactions of macroprudential tasks with other functions such as microprudential supervision and monetary policy. This point is particularly important since the implementation of macroprudential policies is often entrusted directly or indirectly to the central bank within the overarching mandate to ensure financial stability.

As to the appropriateness of the legal and institutional framework, the workshop offered a description of the solutions designed at European and national level, highlighting how Italy and other EU countries tried to organise the macroprudential responsibilities so as to exploit the synergies with both financial supervision and monetary policy. On this subject the Croatian National Bank made a valuable presentation. The EU framework inevitably poses unique challenges related to the coordination and cooperation between several authorities acting at both national and supranational level.

Macroprudential authorities are currently working on the identification and measurement of systemic risk. The Bank of Italy's biannual Financial Stability Report, hinges on analytical models which are framed in a common setup of early identification and quantification of systemic risks whose methodology is under revision and includes the refinement of the risk dashboard and the development of heat and financial stability maps.

During the workshop specific attention was given to the development and implementation of early warning indicators aimed at the identification of financial stability risks arising from the real estate and financial markets. Since Italy has not experienced any systemic banking crisis related to real estate sector, the Bank considers the ratio of the annual flow of new bad debts from the real estate sector to banks' capital and reserves as a vulnerability indicator. The focus is on households and firms engaged in construction, management, and investment services in real estate, separately. The risk assessment framework that has been implemented consists of two blocks: several complementary early warning models (EWMs) and a broad set of indicators related to the real estate market, to credit and to households. Similarly, the Bank of Italy is defining indicators to estimate the probability that banks would face a joint probability of distress; such indicators are based on market data such as CDS, log-returns and market capitalization.

The countercyclical capital buffer is one of the most important macroprudential policy tools. The Bank of Italy and the Czech National Bank compared their experience concerning the measurement of the credit cycle and in particular the predictive power of the Credit-to-GDP gap. Both experiences show that this indicator provides a basic measure and should be complemented by other indicators based on both macroeconomic and banking activity variables.

Finally, the workshop addressed issues concerning the interactions between micro and macroprudential supervision. The international and EU experience relating to the identification and allocating of Global Systemically Important Banks to "buckets" clearly shows how microprudential instruments may serve also macroprudential purposes and demonstrates the need to rely on an appropriate analytical and statistical apparatus. Stress tests are analysis tools which provide an assessment of the financial system's ability to withstand adverse scenarios. They are regularly conducted by supervisory authorities, both at system-wide level (e.g. the EU-wide stress test exercises) and at the level of individu-

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al institutions, as an input to individual banks' Supervisory Review and Evaluation Process (SREP). Given that stress tests might be vulnerable to model risk related to scenario design, the reliance of stress test outcomes on regulatory risk weights, limitations of modelling techniques, and the treatment of banks' balance sheets, they can be considered as an addition, rather than a substitute for other supervisory tools.

(Seminar on The Quality of Banknote Circulation and Banca d'Italia Monitoring Activity on Professional Cash Handlers", ***continued from page 2*****)** There is no single model of the cash cycle. Instead the cash cycle varies greatly across the world in terms of: i) the different roles played by the different actors, including central banks, based on national peculiarities; ii) the existing infrastructure of the cash cycle (a central bank's branch network, the ATM network and sorting equipment used by cash handlers); and iii) the type of banknote which is recirculated (i.e. paper notes or polymer notes).

The heterogeneity of existing models poses significant challenges to central banks in monitoring the cash cycle; exchange of mutual information and experience in the field are therefore highly beneficial to a continuous enhancement of methodologies and policies. Cash still remains essential in retail transactions for the smooth functioning of the economy, notwithstanding the variety in the use of alternative payment instruments from country to country. Furthermore, adequate banknote quality standards contribute to minimizing the risk of counterfeiting that must be carefully monitored by central banks in order to maintain public confidence in the currency.

This first seminar took an overview of the Italian cash cycle and of the role played by the Bank of Italy in preserving the quality of banknote circulation, also in relation to other central banks of the Eurosystem. The major role played by CITs in banknote recirculation compared with central bank players, well explains the need for the Bank of Italy to closely monitor the activity of these companies. Consistently, inspection procedures go well beyond technical checks on the compliance of sorting equipment used by professional cash handlers to include a broad range of checks relating to the organization and the internal control system of the company under inspection.

The topic was dealt with in the context of the Eurosystem regulations and on the way they have been implemented in Italy. The approach followed was initially fairly general since it aimed to stimulate debate on the different models of the cash cycle in the countries of the participants. In this context the interest shown by the attendees and their active participation in the debate contributed greatly to the discussion and to increasing knowledge of the topic. Particularly valuable were the contribution of the central banks of Romania and Israel through their presentations on

Workshop on Macroprudential Analysis

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their respective national cash cycles. At a second stage a more analytical approach was favoured, focusing on the methodologies and procedures followed by the Bank of Italy, from the details of the inspection process on cash handlers to the corrective actions and sanctions that are undertaken or given in cases of observed non-compliance with regulations. A risk-based approach in the development of the inspection methodology was underlined, taking into account a broad variety of possible risks: counterfeiting and money laundering, risks of disruptions in the cash cycle that have entailed the development of business continuity policies. Efforts to further develop existing cooperation with the stakeholders were also mentioned as, more generally, was the important role assigned by the Bank to financial education. In this respect, the recent project of an e-book to give more information about the banknote to the general public was introduced and also the organization of school competitions to design "imaginary" banknotes, in order to familiarize young people with the Bank of Italy and with how banknotes are produced.

Seminar on The Quality of Banknote Circulation

The communication approach adopted during the seminar was by choice informal and interactive as much as possible, including the projection of videos and use of online surveys, to gather and exchange information quickly, raise interest and enrich the debate on a very challenging subject.

(Seminar on "Innovation, Retail Payment Instruments and Systems: Market Developments, Regulatory Initiatives and Effects on Oversight", *continued from page 2*) The scope was to give information on the main initiatives in Europe (instant payments, app-based mobile payments, contact-less proximity payments, digital wallets, payment initiation services, virtual currencies, e-invoicing and e-identity) and to pinpoint possible innovation-friendly regulations by public authorities. The seminar also hosted the points of view of a commercial bank (Intesa Sanpaolo), of the Association of Corporate Treasurers (AITI), and of the Agency for Digital Italy (AgID). Participants were involved in a role-playing game designed to simulate the interactions between payment providers and overseers in the case of the launch of an innovative payment services on the marketplace.

Over the past decade European regulations for payment systems have mainly been driven by three macro-goals: the promotion of wider competition between operators (new payment providers), the integration of national markets into a single European area (SEPA end-date, MIF Regulation), and the enhancement of the security of payment systems and services (PSD2, Internet payments). Recently the promotion of innovative payment systems and the introduction of transaction accounts were included in financial inclusion programmes.

Today European banks execute more than 90% of payment transactions, but they are facing strong competition from internet platforms and financial technology companies at the initiation phase of a payment and in managing customer relationships. This development increases the need for a faster European integration process, with the definition of standards for the SEPA 2.0 payment services (i.e. pan-European instant euro credit transfer scheme, SCTinst) and the reduction of market fragmentations (requirements to access customer account information). The need to contain risks of systemic failure is pushing the Eurosystem to define security requirements for Internet payments (SecurePay recommendations), improve the cooperation with oth-

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er regulatory bodies (i.e. EBA) and participate in international security initiatives (i.e. cyber risks).

The coordination problems faced by the European banking sector in governing the SEPA project were addressed by the European Retail Payment Board (ERPB), where industry associations, consumers and self-regulatory bodies interact with regulators and other stakeholders to set new standards and build confidence in innovations (last summer, the ERPB mandated the payments industry to design a scheme for instant payment services by November 2015).

The Bank of Italy has been promoting innovation in the Italian payment industry for a long time. As a direct supplier of payment services for financial institutions , together with the Eurosystem, the Bank has developed two major innovations in market infrastructure over the past 15 years: TARGET (now TARGET2) and TARGET2-Securities. As designated competent authority, the Bank supported the implementation of SEPA by all Italian payment sector stakeholders, fostering agreements on value added services beyond the basic SEPA instruments (e.g. the SEPA-compliant Electronic Database Alignment for direct debits).

As overseer, the Bank of Italy collaborated with the Eurosystem and the Commission to: identify the legal and organizational obstacles to digital payments; assess the risks/benefits of e-payments and define the security requirements and standard for payment service providers in e-commerce. The Bank of Italy supports legislation by respecting the principle of technical neutrality, sustains public-private cooperation in the implementation of innovative payment services (e.g. digital payments in the public sector/ administration), promotes close cooperation between national and international authorities. The recently created Comitato Pagamenti Italia (CPI) fosters dialogue among stakeholders and the national implementation of Eurosystem projects - action is urgently needed since, despite the changes induced by the SEPA programmes, in Italy the use of electronic instruments is still far below the European average (below 80 payments per inhabitant against more than 200 in EU).

(Workshop on "Macroeconomic Modelling and Forecasting", ***continued from page 2*****)**

Applied to monetary policy, this means that models and forecasts are a vital ingredient of policymaking, as decisions are by necessity forward looking: as monetary impulses affect the economy with a lag – be they short-term interest rate adjustments or changes in the size of the central bank's balance sheet, any action taken by the central bank must be tailored so as to be fully effective at the right moment, dampening rather than strengthening aggregate demand fluctuations. Models are the tools that help us to evaluate how policy interventions are transmitted to the economy, while forecasts serve the purpose of assessing whether the size and timing of the stimulus is appropriate.

Once the relevance of models and forecasts is acknowledged, other questions remain: What features must the models used for monetary policymaking have? Should they be reduced-form or structural models? What is the appropriate size? Is a single model enough for all purposes or is a suite of models more effective in handling the information on which monetary decisions depend? Which forecast horizon is

Seminar on Innovation, Retail Payment Instruments and Systems

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better suited for gauging the impact of a change in the stance? Are point or interval projections more effective in guiding monetary decisions? How should the interaction of policies be modelled, e.g. between monetary policy on the one hand and fiscal or macroprudential policy on the other?

The workshop programme was designed to provide attendees with a quick but exhaustive overview of the tools and procedures used at the Bank of Italy in support of monetary policy. Besides methodological issues, presentations also provided an outline of the institutional framework in which projections at the Bank of Italy are conducted in order to comply with the requirements implied by participation in the European Monetary Union.

The first session of the workshop covered the main techniques used for backcasting, nowcasting and short-run forecasting of economic activity. The correct assessment of the ongoing business cycle phase is important to detect timely turning points and to send policymakers early warning signals. Two types of models were discussed in depth: factor models and bridge equations. Factor models allow us to handle large sets of data and to remove the noise from cyclical indicators, but they are challenging to set up, difficult to interpret and costly to maintain; bridge equations are less sophisticated, but exhibit high predictive accuracy. The common feature of these models is that they are reduced-form: their only purpose is predicting, which does not require the identification of the channels through which shocks are transmitted to the economy. Vector Error Correction Models for forecasting inflation were also discussed. The following session was devoted to the presentation of the theoretical structure and applications of the Bank of Italy's quarterly model (BIQM). Unlike previous models, the BIQM is a (semi-)structural model used for medium-term forecasting and policy evaluation exercises. The discussion centred on two issues: the setting of the add-factors, which are the channel through which judgment is incorporated in the projections, and the assessment of uncertainty, typically pictured by means of fan charts. An exercise was presented using the BIQM to account for the contribution of different factors to the 2011-12 recession. The third and fourth sessions showed examples on how satellite models can be used in forecasting and outlined models and procedures for dealing with budget policy and wage developments. The workshop ended with a presentation on macroprudential policies that focused on the countercyclical capital buffer as a device for mitigating bank deleveraging after negative shocks and for weakening the financial accelerator.

The sessions were supplemented by two speeches on the short-term forecasting system in Armenia and on monitoring and forecasting the real sector developments in Turkey, given respectively by participating experts from the Central Bank of Armenia and the Central Bank of the Republic of Turkey.

Workshop on Macroeconomic Modelling and Forecasting

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