



Session 1 – Managing the twin goals of central banks: financial stability and price stability



Speakers in the first session (from left): Ludovít Ódor, Anil Kashyap, Jiří Rusnok, Tuomas Peltonen, and Frank Smets. (Foto: Roman Benický)

¹ European Banking Authority, European Securities and Markets Authority and European Insurance and Occupational Pensions Authority.

Speakers in the first session emphasized interconnections in the transmission channels of monetary and macroprudential policies. It included the practical experience of several countries with the implementation of macroprudential policies in the Czech Republic; and **theoretical considerations** and institutional framework concerning the twin goals of central banks.

Jiří Rusnok (Governor, Česká národní banka) noted that managing both price and financial stability in the recent low interest rate environment represents a growing challenge. He argued that monetary and macroprudential policies both affect credit growth, hence their transmission to the economy is interconnected and the two policies can hardly be separated.

As regards the Czech experience with macroprudential policies in the recent years, Governor Rusnok first mentioned instruments aimed at enhancing the resilience of the banking sector. The instruments have been activated since 2014. First, the capital conservation buffer, a Basel III regulation, is set at 2.5% above the regular minimum capital requirement. Banks are able to draw down this buffer in case losses are incurred. Second, the systemic risk buffer varies from 1 to 3% and applies to the 4-5 largest banks in the Czech Republic. Third, the countercyclical capital buffer is designed to increase resilience of the banking sector to fluctuations associated with the financial cycle. Currently, the countercyclical buffer rate is set at 0.5 %.

The second types of macroprudential instruments are to mitigate the risks of growing residential real estate credit exposures. Loan to value (LTV) limits for mortgages are applied since 2015 in the form of a recommendation. For individual loans, a 90% LTV ratio should not be exceeded. On the institutional level, the share of new loans with a 80-90% LTV rate should not exceed 15%. Further, the LTVs of investment type mortgages, which are used to finance real estate to let, should stay below 60%. Finally, credit institutions must monitor and set internal limits for debt to income (DTI) and debt service to income (DSTI) ratios of their clients.

Governor Rusnok concluded his speech by pointing out the usefulness of macroprudential tightening several years ahead of monetary tightening. This mitigates the risk of overheating in certain credit segments in the overly low inflation and interest rate environment.

Frank Smets (General Director, European Central Bank) first described the institutional framework for safeguarding price stability and financial stability in the European Union (EU). While the European Central Bank (ECB) is responsible for monetary policy in the euro area, in case of financial stability, the ECB has a monitoring role. On the EU level, the European Systemic Risk Board and the European Financial Authorities (EBA, ESMA, EIOPA¹) are responsible for monitoring financial stability.

Mr. Smets emphasized that monetary policy and macroprudential policies have different



objectives, however their policy instruments interact. In particular, monetary policy affects the general financial conditions of the corporate sector by setting the risk free interest rate. The transmission from interest rates to prices is then reached via influencing the expectations of economic agents. Whereas macroprudential policies set specific regulatory measures for banks and the financial stability goal is to keep a healthy structure of banks' balance sheets.

Regarding the interactions between monetary and macroprudential policies, Mr. Smets drew a parallel with Tinbergen's optimal policy assignment problem. Both monetary policy and macroprudential policy have an impact on the two goals of price and financial stability, thus monetary and macroprudential measures need to be coordinated. Relative efficiency of monetary stability is higher in achieving price stability, while macroprudential policy is more effective in influencing financial stability.

Several recent studies estimated costs and benefits of monetary versus macroprudential policies. The estimates refer to the case of "leaning against the wind" (LAW), i.e. precautionary interest rate hikes to curb an asset price boom. According to the estimates based on a structural model, the net macroeconomic benefits of macroprudential policies well exceed those of monetary policy as far as LAW is considered.

Further, Mr. Smets expressed his view that assigning the supervision of macroprudential policies to central banks has several advantages. Those include better coordination with monetary policy, central banks' expertise in macroeconomic and financial surveillance, and incentives as a lender of last resort to prevent financial crises.

Before concluding, Mr. Smets discussed the potential risk of financial dominance of monetary policy. This relates to the consequences of a passive macroprudential policy for price stability. For example, an excessively loose monetary policy to deal with debt overhang may produce an inflation bias. Alternatively, an excessively tight monetary policy to avoid possible financial instability due to low interest rates may lead to a deflation bias. Mr. Smets argued that the above risks can be avoided if price stability remains the primary objective for monetary policy and safeguarding financial stability has a clear and separate policy preparation within the central bank.

Anil Kashyap (Member of the Financial Policy Committee, Bank of England and Professor, University of Chicago Booth School of Business) focused on the Bank of England's experience and explained how the mandates of financial and monetary policies can be made compatible.

There are two separate committees in the UK: a Financial Policy Committee (FPC) that is in charge of financial stability and a Monetary Policy Committee (MPC) that is in charge of price stability. Each committee has several internal and external members that are unique to that committee. But

there is an important overlap in the membership over the two committees.

Besides the two committees above, there is a third one dealing with prudential regulatory issues. The three committees coordinate their agenda intensively, especially regarding stress tests.

Professor Kashyap highlighted three main questions relevant when setting up a structure as described. First, one could ask why separate bodies are needed. The theoretical justification relates to accountability. Even though, committees interact, they have different objectives. Especially, in case if something goes wrong, we need to understand who is responsible for what.

From a practical point of view, he mentions that monetary policy focuses on the centre of the distribution of risky outcomes, while financial policy is occupied with managing tail risks. In addition, we must keep in mind that financial and business cycles are not aligned in general. At the same time, monetary and financial policies use different tools. Having a single committee would be difficult and we would achieve less satisfactory outcomes.

The second question asks whether and why we need separate people in the committees. The main answer is that expertise required is different. Monetary policy committees around the world are dominated by PhDs in economics, who are capable of solving highly specialized tasks and have an appropriate technical background. On the contrary, solutions of financial policy issues need to rely more on experience from senior positions gained at the private sector, i.e. people who have experience in decision making and understand possible reactions of markets and regulated firms. In the field of financial policy we have less experience and research available, but it is also important to spot the problem and have people with different perspectives.

The last question Prof. Kashyap raised was why we need personal overlaps in the committees. The reason is that interactions between monetary and financial policies need to be communicated between committees. As an illustrative example, he mentioned an MPC statement introducing forward guidance in the UK. The statement included a knockout clause that guidance ceases to apply if MPC recognises that the stance of monetary policy causes significant threat to financial stability that cannot be contained by regulatory actions. Having an overlap in membership helps ensure that interactions in policy decisions are managed smoothly. The overlap in membership also prevents potential conflicts between committees and makes it harder for committees to blame each other if something goes wrong.

Tuomas Peltonen (Deputy Head of the Secretariat, European Systemic Risk Board) described the framework of macroprudential policy in the EU. As he noted, ESRB was the youngest institution represented at the conference, established in re-



sponse to the global financial crisis. It was formed to oversee the financial system of the EU and prevent and mitigate systemic risk. In pursuit of its macroprudential mandate, the ESRB monitors and assesses systemic risks and, where appropriate, issues warnings and recommendations.

The ESRB brings together EU central banks, supervisory authorities and EU institutions. The forum provides helps to solve many issues even before any warning or recommendation is communicated. The decisions are made at the General Board, chaired by the ECB President.

Macroprudential policy interacts with various other policies (fiscal policy, microprudential policy, monetary policy, etc.) Concerning the interactions between macroprudential and monetary policies, Mr. Peltonen mentioned that although each of the policies has its own primary objective, they interact extensively. Macroprudential policy impacts the monetary policy transmission mechanisms, while monetary policy impacts financial stability. At the same time financial stability provides ground for effective monetary transmission, thus the tools complement each other. Their common denominator is that both policies impact the incentives and payoffs of lenders and borrowers.

What makes macroprudential policy different from monetary policy is that the monetary policy is common for the involved countries, but macroprudential policy is a national policy tool. The main benefit of the macroprudential policy is then the fact that it can be used in a more targeted way. It can more efficiently address asymmetric developments and shocks at the country or even sectoral level.

However, the timing of macroprudential policies is essential. It is important to identify the early phase of the financial cycle in order to avoid procyclicality.

In a short history of European macroprudential policies many successful instruments have been implemented. The overview of implemented tools and their distribution across countries confirm that the EU countries are in different phases of the financial cycle. As Mr. Peltonen added, Slovakia, the country that organised the conference, was taking a leading position in the number of substantial macroprudential measures implemented in the last few years, followed by the Czech Republic and Cyprus.

Looking forward, the three main challenges are as follows. First, we need to ensure that all European macroprudential authorities have the necessary tools available to address systemic risks. Second, we need to broaden the mandatory reciprocity framework to ensure the effective mitigation of cross-border spillover effects and regulatory arbitrage. Third, we need to extend the

macroprudential framework to non-bank financial institutions in all EU countries.

Ludovít Ódor (Deputy Governor, Národná banka Slovenska) opened his talk by projecting a comprehensive list of challenges for managing the twin goals of price stability and financial stability. At the same time, only a limited set of solutions can be offered. In his view, the issue of twin goals has emerged since the recent global financial crisis. At least in case of the U.S. economy, inflation has been relatively stable since the mid 1990s, while output has failed to reach to the pre-crisis trend level. Regarding the implications for monetary policy, the main focus before the crisis was setting short-term interest rates. Since the crisis, the attention turned to managing the whole yield curve by forward guidance, asset purchases, funding for lending and other tools.

The main lessons learnt, according to Deputy Governor Ódor, include the separation of financial stability from medium-term price and economic stability. He added an observation that financial crises can have a substantial and prolonged impact on real activity. Next, he pointed out that microprudential regulation often neglects negative externalities. This means that the focus on individual institutions may lead to the omission of consequences for systemic risk. The recent experience of monetary policy at the zero lower bound highlighted the need for additional financial stability measures.

Among the main challenges, Deputy Governor Ódor noted several unknown features of the transmission mechanisms of monetary and financial stability instruments, including possible interlinkages. As regards the discussion on the optimal institutional setup for financial stability, several questions remain open. For example, the degree of coordination with monetary policy, organization inside or outside the central bank, setting up joint or separate committees with monetary policy, special financial stability issues on the euro area or EU levels, etc.

As for some tentative answers, the speaker adhered to the view that a hierarchical approach to the objectives of price and financial stability is advisable. At the same time he was not fully convinced that leaning against the wind would be currently occurring. Further, he expressed his opinion that central banks should have at least some role in supervising financial stability. Finally he pointed out the scarcity of research results on interactions between fiscal, monetary, macroprudential and microprudential policies, which may be relevant for setting up institutions efficiently.

(Compiled by Tibor Lalinský and Peter Tóth)



Session 2 – Measuring, navigating and responding to financial cycles



Speakers in the second session (from left): Balázs Égert, Tommaso Mancini-Griffoli, Ewald Nowotny, Athanasios Orphanides, and Alexander Michaelides (Foto: Roman Benický)

The second session addressed two topics: The nature and characteristics of financial cycles and specifically the impact of the last downturn on particularly vulnerable economies of the southern EU periphery.

With regards to the topics of financial cycles, the debate focused on certain ambiguity of the concept, namely the difficulties of measuring the financial cycles, the complexity of their relation with real business cycles, and the shifting nature of both the financial cycles and their relation to the real economy. An alternative view downplayed the importance of financial cycles for central bank policies, and instead proposed to shift the attention towards management of vulnerabilities to avoid “dark corners”, which could potentially cause relatively small shocks to have grave consequences.

A good potential example of a “dark corner” is the current state of financial system in the euro area, due to underdeveloped financial stability regulation within the currency union. Using examples of struggling southern EU countries Cyprus and Italy, the speakers stressed the need for considering the heterogenous nature of impact of ECB policies on financial systems of various countries, with particularly grave implications for the southern periphery.

The debate was chaired by **Ewald Nowotny**, Governor of the Oesterreichische Nationalbank. In his opening remarks the governor congratulated the NBS on its anniversary and stressed fruitful

and long lasting cooperation between the two central banks. Governor Nowotny defined the financial cycles as self-reinforcing cycles of booms and busts in different market with a duration of approximately sixteen years, noting Hyman Minsky tradition in studying them. Pointing out the time which has passed since the last peak of the financial cycle in 2007 and the signs suggesting that we are nearing another peak, he stressed the importance of meticulous “leaning against the wind” counter-cyclical policies in both monetary and macroprudential areas.

After the introductory remarks by the Governor, the individual speakers presented their contributions. Due to the dual focus of the panel, the upcoming summary lists the speakers based on the content of their contribution, instead of the actual order in which the speakers took floor at the conference.

Balázs Égert, Senior Economist of the OECD, delivered a presentation on the Nature of financial and real business cycles in OECD. He showed historical evidence suggesting potential divergence between real and financial cycles with regards to their volatility. As the former got progressively less volatile, the volatility of the latter has increased. Contrasting the two cycles, he pointed out that the real cycles have become more asymmetric with longer and larger periods of expansion. Additionally, in particular among European countries, the real cycles have become quite strongly correlated with the passage of time.



The shorter, volatile finance cycles have likewise become gradually more asymmetric, with expansion longer and more pronounced, marking a contrast with the past, when they used to be more symmetrical. Just like the real business cycles, financial cycles have also gotten quite well synchronized across OECD. Although they are not necessarily correlated with the real business cycles, the level of correlation appears to have increased over time. In closing, Mr. Égert argued that banking sectors has become increasingly pro-cyclical, in particular as far as the commercial and mortgage bank capital is concerned.

An additional way of looking at the stability in financial way has been presented by **Tommaso Mancini-Griffoli**, who serves as the Deputy Division Chief of Monetary and Capital Markets Department at the IMF. Instead of focusing at the characteristics of the cycle, he suggested focusing on the vulnerabilities, such as balance sheet mismatches, too much leverage, asymmetric information, externalities and mispricing of risk, which could potentially amplify the GDP drop caused by economic shocks. As a way of accomplishing this objective, he proposed shifting attention towards the “Growth-at-Risk” concept as a policy objective, policy modelling tool and concept useful for policy discussion and communication. “Growth-at-Risk” is a concept similar to Value at risk. When it is used to identify weaknesses in the economy, two steps are necessary: estimation of distribution of GDP growth and modelling its dependence on financial conditions. The concept was illustrated by the comparison of the distribution of GDP growth immediately after monetary policy loosening and ten quarters after loosening. The former had a higher kurtosis with very thin left tail (corresponding to a recession), whereas the latter was more flat with fatter tails. The policy loosening is thus stabilizing in the short run, but destabilizing in the medium run. It actually increased the likelihood of recession, creating a “dark corner”. Rather than looking at the median growth impact of policies, he suggested looking at the size of downside risks.

In policy terms, Mr. Mancini-Griffoli argued against explicit targeting of financial stability in “normal” times. Instead, he suggested using macroprudential tools to limit vulnerabilities of being caught in a “dark corner”, where a modest downturn could lead to a potentially massive crisis. While doing this, the policy agents should be mindful of non-linearity of vulnerabilities (the growth at risk might grow exponentially beyond a certain threshold, and of the intertemporal trade-offs where some short term risk decreasing measure might actually lead to more risk in the long term.

The remaining two speakers focused on the situation in the euro area. **Alexander Michaelides**,

the Head of the Department of Finance at the Imperial College London, began his presentation by pointing out his own experience of living in Cyprus at the time the country was hit by a vicious crisis. He stressed the vulnerability of small, open economies in a currency union with a weak fiscal position combined with trade imbalances, credit growth and weak corporate governance. The speaker named three aspects of crisis: the information leakage, transparency and political repercussions.

To address these potential vulnerabilities, he suggested being mindful of a number of hazards. Firstly, he stressed the largely unavoidable information leakages, which might allow highly informed individuals to engage in a rent seeking behaviour and avoid negative impact of policy changes on their personal wealth. The risk is particularly great if decisions of Central Banks are not transparent and predictable. As a final point, he stressed the need to be mindful of the costs of delay to implementation of policies, which can cause unnecessary suffering and destruction of wealth. All the listed vulnerabilities, he argued, are further exacerbated by political considerations. As a potential remedy for the vulnerabilities of the small open economies he suggested promotion of financial literacy among the population, which also helps to limit the unequal impact on individuals due to factors such as information leakages.

Athanasios Orphanides, Professor at Massachusetts Institute of Technology, discussed the unique challenges to monetary and financial in the euro area. He stressed the incomplete nature of the currency union lacking financial union, resulting in heterogeneous effects of common monetary policy across member states. Problems caused by heterogeneity can be corrected or amplified by policy. Within this context, he stressed the over-reliance of the ECB on markets, in particular the rating agencies, which in light of the existing multiple equilibria in sovereign debt markets in the euro area create “cliff edges” for countries for which a risk of rating downgrade becomes a self-fulfilling prophecy due to the risk of being rendered ineligible for monetary policy operations in spite of their sound fundamentals. To stress his point, he compared the situation of Italy to the one in Japan, arguing that the risks of financial instability in the southern European country are much greater, even though when looking at fundamentals, it is actually Japan that comes weaker from the comparison. To address this weakness, he suggests a shift of focus towards the fundamentals, which could result in a more efficient policy without introducing arbitrariness to policy making.

(Compiled by Brian Fabo and Michal Benčík)



Session 3 – Shaping the Future of Financial Services



Speakers in the third session (from left): Gernot Mittendorfer, Thomas Jordan, José Manuel González-Páramo, and Ľuboš Pástor (Foto: Roman Benický)

Thomas Jordan, José Manuel González-Páramo, Gernot Mittendorfer and Ľuboš Pástor met to discuss the future of financial services which has been brought by the progress in IT industry. They focused on the implications of new technologies for banks, investors and regulators.

The advent of Fintech brings substantial changes in the financial industry core functions (lending, savings, giving advice and risk management, and executing payments). As outlined by **Thomas Jordan**, Chairman of the Governing Board of the Swiss National Bank, these changes take place across three dimensions: technology, products, and product providers.

Advances in technology which influence financial industry take place in several areas. Rising computational power allows companies to combine efficiently many signals and use this large information set in price creation. The ability to store large data sets enables estimating demand functions of specific customers with a tailored price and product. Machine learning brings changes to trading and financial advice when both financial industry functions are substituted by artificial intelligence. Smart mobile phones changed the communication with banks. Nowadays most clients talk with banks through internet banking. Blockchain technology is changing the settlement of financial transactions from several days to instantaneous clearing.

New technology has triggered the development of new financial products. The most influential are mobile payments, crypto-currencies, direct lending (no need for financial intermediary), quantitative investments and automated financial advice.

Consequently, these products fostered the emergence of new product providers along traditional banks. Innovative start-ups as well as Bigtech companies (e.g. Amazon, Google, Samsung, Facebook) entered the financial industry.

These enormous changes in the industry call for new regulation to level the playing field between new and traditional product providers. Regulation is especially needed to eliminate uncertainty of what is subject to current regulation and what is not. The uncertainty among financial industry players how the data can be utilized distorts the markets. There should be unifying framework regulating data confidentiality and protection against cyber-crime. In the design of regulations, regulators should consider that barriers across sectors (e.g. Bigtech sector and financial sector) and across countries are gradually disappearing. Finally, regulation should be more dynamic to accompany the rapid Fintech evolutions.

Ľuboš Pástor (Professor, University of Chicago Booth School of Business and Board Member, Národná banka Slovenska) has focused in his talk on the technology and products from the Asset Management point of view. He identifies three trends related to Fintech emerge in Asset Management.

First, there has been a move from active to passive investing, which is driven by the long run underperformance of active managers to passive investments. This has led to enormous emergence of index funds and ETF's.

The second trend lies in shift from fundamental to quantitative investment. Investment analysts do not scrutinize in detail individual companies (visit companies, meet the management teams or



1 A smart Beta ETF is a type of exchange-traded fund that uses alternative index construction rules instead of the typical cap-weighted index strategy, in a transparent way. It takes into account factors such as size, value and volatility. It utilizes both passive and active methods of investing – passive, because it follows an index, but active, because it considers alternative factors. Smart Beta ETFs are ideal for investors hoping to maximize their income and returns and minimize risk.

research the products the firms sell) in an effort to identify a competitive edge. They rely purely on mathematical and statistical concepts to make investment decisions. Combining this trend with the passive investment, Prof. Pástor sees the future mainly in the smart beta ETFs' type of products.

The third trend he identifies stems from financial advice. It used to be that financial advice was solely human based but recently with the new tech generation of millennials the financial advice becomes more and more automated – robotized. Younger generation feels comfortable to take financial advice from the algorithms based on machine learning.

These trends can be seen in US as well as in Europe. In Europe we often see that investment pretends to be active but in fact it is close to passive. Asset managers used this strategy to charge higher fees.

The fundamental question is why active managers underperform? Are we going to see extinction of active management in the future? Prof. Pástor argues that active management is an essential part of price determination. Fundamental analysis of the underlying asset brings the most important part of information into price formation. The reason for the shift from active management is that there is just too much competition on the financial market. There are too many of active managers and since active management is costly the pie of profits is not big enough for everybody. He also believes that active management is likely to become more efficient and more automated in the future and thus become less costly. There will be more space for smart beta type of products.

What are the challenges for regulators? Some people are worried that the sudden outflows from ETFs may destabilize the market. Prof. Pástor is not concerned by the risk represented by sudden outflows. He sees ETFs as well diversified products which are not concentrated in certain type of investment. Therefore the outflow of funds will be proportional – in well diversified way.

Prof. Pástor is however concerned about the liquidity issues. There is a large proportion of ETFs with underlying assets with low liquidity. Hence, in case of a sudden outflow it might be difficult to find a buyer in the short run. Further, he shared his concerns about leverage, inverse and volatility ETFs. These assets are traded with so called zero sum game. This means the proportion of losers is equal to winners and this type of investment has similar characters as a bet. This type of investment is risky because investors often do not realize the betting character of these products. They are part of their retirement portfolios even if the expected value of the investment is zero.

How is the new era of computerized investing going to impact regulation? Prof. Pástor first lays out a small model of how the near future is going to look. He predicts further expansion of smart beta products and quantitative hedge funds. The use of machine learning and big data to get the best information set for the trading. Investors will

increasingly use information such as satellite images to get very quick information on trade activity and electricity consumption, they will calculate number of ships going from place to place. However, he notes that even this very good and quick information will translate into trading because of the heterogeneity in the interpretation of the data. Another example of the use of information is that quant market players with large data set and quick computers can utilize instantly the information from credit card payments of millions of people.

Is this bad or good for regulators? He argues it is a good thing. Markets will be more efficient because of the use of better information to form prices. Hedge funds used to trade on limited set of signals. Nowadays they collect enormous amount of information in price discovery and trading. Automated advice is good for regulators because it is less expensive for clients (lower fees) and more transparent (less likely to be subject to fraud).

Gernot Mittendorfer (Chief Financial Officer, Erste Group Bank AG) focused on the link between new products and emergence of new providers of financial services. New financial products foster the emergence of new product providers along traditional banks. Innovative start-ups as well as Bigtech companies with technological know-how, huge capital, large customers base and excellent data (e.g. Amazon, Google, Samsung) enter the financial industry.

The entry of new product providers in the financial industry is facilitated by the fact that new providers are often not subject to or do not comply with the tight regulations faced by banks.

The entry of new product providers reduces banks' revenues and margins. Banks respond by creating independent start-ups that explore Fintech opportunities and by increasing banking digitalization.

In retail banking digitalization engenders a hybrid model of banking. Since young generations adopt technology faster than old generations, young generations use digital banking while old generations use traditional banking.

Surprisingly, Fintech does not affect commercial banking in Eastern Europe. This is the case because only 16% of corporate investments (vs. 97% in the UK) are financed through capital markets. Nevertheless, the advent of Fintech may help to increase the share of corporate investments not financed through banks.

Fintech start-ups constitute a limited threat for traditional banks. Start-ups tend to be extremely flexible and innovative. However, they often lack the data, customer base, and capital necessary to compete with banks

Yet, Bigtech companies entering the financial industry pose a serious threat to traditional banks. While Bigtech (e.g. Amazon, Google, Samsung, Facebook) are less innovative than start-ups, they have technological know-how, huge capital, large customers base and excellent data.



In an industry centered around trust and confidentiality, the high protection of data and savings is banks competitive advantage with respect to Bigtech companies (and fintech startups). In this sense, recent scandals related to data protection (e.g. Facebook collaboration with Cambridge Analytics) represent an obstacle that slows the entry of Fintech start-ups and Bigtech companies into the financial industry.

José Manuel González-Páramo (Executive Board Director, Banco Bilbao Vizcaya Argentaria) has focused in his talk on the role of regulation in the new era. He argues that the advent of Fintech engenders new risks for the financial industry and identifies three main risk channels.

First, new technologies, new products, and new product providers are not regulated (or do not comply with regulation) and so create regulation uncertainty. Second, new product providers frequently come from different sectors (e.g. Bigtech) or different countries. They are often not subject to the same regulations as local banks or simply they do not comply with regulations. Third, new

technologies increasing computational power (e.g. quantum computers, cloud computing) can empower cybercrime.

In particular, the second and the third elements of risk pose a threat for data protection and data confidentiality. Regulation is needed to eliminate uncertainty, level the playing field between new and traditional product providers, and protect data confidentiality, contrast cybercrime, and accompanying technological innovation in the financial industry.

In the design of regulations, regulators should consider that barriers across sectors (e.g. Bigtech sector and financial sector) and across countries are gradually disappearing. Furthermore, regulation should be more dynamic to accompany the rapid Fintech evolutions.

From the supervisory perspective, it is valuable to invest in skills and technology such as cloud computing and big data. The use of these technologies will make supervision of banks less expensive and more efficient.

(Compiled by Aleš Maršál and Michele Dell'Era)



Foto: Roman Benický

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