SSM fintech supervision - industry dialogue: topics for discussion

21 and 22 May 2019
European Central Bank
Frankfurt am Main

The **main objectives** of this fintech industry dialogue are to:

✓ **Enhance visibility and transparency** of SSM fintech supervisory initiatives.

✓ **Gain a deeper insight** into banks' use of fintech and how this affects their business models and risk management frameworks.

✓ **Exchange views** with banks to inform the SSM fintech supervisory approach.

✓ **Build an open communication channel** with the banking industry.

❑ Financial technology (fintech) is **transforming the business models** of financial service providers.

❑ **New entities are entering the market** with business models in which the production and delivery of banking products and services are based on technology-enabled innovation.

❑ These entities are characterised by leaner structures (fewer staff), little or no high street presence, greater use of outsourcing and the use of technological innovation to deliver standard banking services.

❑ Meanwhile, incumbent banks are **increasing investment in technological innovation** by:
  ▪ establishing horizontal units within their organisations;
  ▪ partnering with third parties offering specialised services;
  ▪ acquiring fintech start-ups.

❑ Incumbent institutions may also face **challenges from non-bank fintech entities** offering innovative products and services.

❑ The ECB and the national supervisors (NCAs) acknowledge the **benefits emerging from fintech**, which offers significant opportunities for both banks and consumers and can contribute to the stability of the financial system.

❑ Our philosophy is **technology-neutral** and seeks neither to support nor to discourage the use of any particular fintech solution.

❑ **All SSM banks**, both incumbents and market entrants, regardless of their business model, **are responsible** for putting in place adequate risk management processes to address the risks they face, **including emerging fintech-related risks**.

❑ **Supervisors need to understand** the impact of fintech on banks' business models, as well as on their risk management frameworks.

❑ Against this background, our objective is to promote a **common understanding of fintech-related risks and to ensure a consistent supervisory approach** across the SSM, based on the current regulatory framework and fully aligned with the European Banking Authority (EBA).

❑ The **ECB,** together with the **NCAs** and in cooperation with the **EBA,** is analysing technologies which are having an **impact on the business models and risk control frameworks** of incumbents and market entrants.

❑ In developing its approach to fintech supervision, the ECB engages in an open dialogue with banks, collaborates with the EBA, draws upon expertise from across SSM supervision and engages with non-SSM competent authorities.

Dialogue with banks drawing on their experience

Engagement within the ECB and with the NCAs

Collaboration with the EBA

Exchanges with competent authorities in third countries

❑ The fintech industry dialogue marks the first in a **series of such dialogues** which should help to facilitate **information-sharing** between banks and supervisors and ultimately contribute to the development of a common SSM approach to fintech supervision. The ECB envisages further such events touching on other technologies.

❑ The development of an SSM approach to fintech supervision follows the publication in March 2018 of the ECB **Guide to assessments of fintech credit institution licence applications,** which ensures that all SSM banks are **licensed in a consistent manner**, taking account of their specificities.

Based on this approach, the following technologies have been selected for this first industry dialogue:

- **Credit scoring** using artificial intelligence (including machine learning) and big data;
- **Robo-advisory** services;
- **Cloud computing.**

These technologies were identified on the basis of:
- their **business model** impact;
- their **maturity** as a technology;
- their potential **risk impact** and implications for banking supervision.

The **approach** followed for each topic is as follows:

✓ A **definition** and description of the technology/business solution in focus is provided.

✓ Potential **business model implications** arising from the use of the technology are identified.

✓ Various perspectives on the main **risks associated with the use of the technology/ solution** are given, followed by *tentative* areas of **supervisory focus.**

✓ **Discussion questions** are provided on each *tentative* area of supervisory focus to steer the discussion.

Definitions	**Artificial intelligence (AI)**: *"the theory and development of computer systems able to perform tasks that traditionally have required human intelligence"* (FSB*) **Machine learning (ML)**: *"a method of designing a sequence of actions to solve a problem, known as algorithms, which optimize automatically through experience and with limited or no human intervention"* (FSB*) **Big data (BD)**: *the collection, storage and analysis of large and/or complex datasets, using a variety of techniques, including AI and ML algorithms*. * Financial Stability Board
Potential business model implications	**Upscaling** – by leveraging a large pool of data, banks could provide credit scores also for clients with limited or no credit history. **Consistency** – automation may decrease potential human bias. **Cost efficiency** – it may help banks to make more efficient use of big data. **Improves client experience** – AI/ML/BD could help to streamline customer interactions (such as applying for a loan) by removing burdensome, manual steps.

Risk category	Areas of supervisory focus *(tentative)*
Governance, risk management & compliance	• Assessing management's technical skills, knowledge and experience • Assessing banks' performance metrics designed to capture innovative aspects of credit scoring • Ensuring that banks have the appropriate know-how and processes to identify and manage potential incremental risks, related to customer or third-party data privacy and use • Ensuring that banks consider whether the use of AI/ML could inadvertently lead to proxy discrimination, given the potential opacity of algorithms
Operational risk	• Ensuring that banks have in place appropriate safeguards to check data integrity • Ensuring that banks have in place verification and validation techniques to detect and mitigate security and operational risks
Operational risk	• Assessing whether banks have in place safeguards to manage incremental needs for cyber risk management, cyber hygiene and cyber resilience • Ensuring that banks develop metrics which flag data quality issues in a timely manner

Questions on credit scoring using AI, ML and BD

1. Do you have any feedback on the supervisory areas of focus?

2. Based on your experience, what further issues could be considered regarding artificial intelligence (AI), machine learning (ML) and big data (BD) in credit scoring?

3. Describe the impact of using AI/ML/BD in credit scoring on your business model. For example, what is the impact on profitability?

4. What impact does the use of AI/ML/BD in credit scoring have on the types and range of banking services you provide?

5. Which control mechanisms relating to governance and risk mitigation would you consider appropriate for algorithmic oversight?

Definition	**Robo-advisory** is defined by the Basel Committee on Banking Supervision (BCBS) as: *"applications that combine digital interfaces and algorithms, and can also include machine learning, in order to provide services ranging from automated financial recommendations to contract brokering to portfolio management to their clients, with limited human intervention or none. Such advisors may be standalone firms and platforms, or can be the in-house applications of incumbent financial institutions"*.
Potential business model implications	**Revenue** – robo-advice services are often open to clients with a much lower level of investable capital, especially when compared with more traditional private banking services, and so this could increase the client base. **Cost of operations** – robo-advisors often invest in exchange-traded funds or mutual funds which enable the construction of globally diversified portfolios, and may therefore enhance cost efficiency.

Risk category	Areas of supervisory focus *(tentative)*
Governance and risk management	• Assessing how banks oversee the development and implementation of the robo-advisory model • Assessing whether banks have sufficient oversight of third-party tools/providers • Assessing the governance process if the development of the algorithm has been outsourced • Reviewing the robo-advisory's remuneration policy, including a review of the principles of the fee structure
Operational risk	• Assessing how banks perform monitoring and testing of the algorithm that underpins the advice • Reviewing whether banks have effectively implemented precautionary mechanisms (e.g. halting service in the event of errors or bias; business continuity plans)
Business model risk	• Ensuring that banks include in their business plans an assessment of vulnerabilities related to the use of robo-advisory services

Questions on robo-advisory services

1. Do you have any feedback on the supervisory areas of focus?

2. Based on your experience, what further issues could be considered regarding robo-advisory services?

3. Describe the impact of using robo-advisory services on your business model. For example, what is the impact on profitability?

4. What impact does the use of robo-advisory services have on the types and range of banking services you provide?

5. How could the use of robo-advisory services affect your client base?

6. What are your views on the viability of robo-advisory services?

Definition	**Cloud computing** is defined by National Institute of Standards and Technology (NIST) as a model for enabling *"ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g. networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction"*.
Potential business model implications	**Potential for cost reductions** – a large capital expenditure could be turned into an ongoing operational expenditure. **Flexibility and scalability** – this may allow banks to meet changing levels of demand more efficiently. **Cybersecurity** – cloud service providers could offer more efficient and resilient IT systems than incumbent banks. **Better client relationships** – Banks' use of cloud computing could improve their ability to handle large volumes of data and make better decisions for customers.

Risk category	Areas of supervisory focus *(tentative)*
Governance and risk management	• Assessing whether banks have sufficient oversight of their outsourced activities • Assessing the extent to which banks can review and adjust aspects of their contracts with cloud service providers (CSPs) • Ensuring that both banks and competent authorities have adequate audit rights • Ensuring that chain outsourcing is not to the detriment of the contractual arrangements between banks and CSPs • Ensuring that banks contractually ensure that CSPs maintain an effective contingency plan in the event of system failure
Operational risk	• Evaluating banks' criticality assessment, covering the risk profile of the outsourced activities • Assessing whether banks have given due consideration to the impact that any disruption will have on their activities • Assessing the potential impact of a confidentiality breach on banks and their customers • Assessing how banks manage vendor lock-in • Reviewing the level of in-house expertise at banks if activities need to be brought back in-house in the event of contract termination

Questions on cloud computing

1. Do you have any feedback on the supervisory areas of focus?

2. Based on your experience, what further issues could be considered regarding cloud computing?

3. Describe the impact of using cloud computing on your business model. For example, what is the impact on profitability?

4. What impact does the use of cloud computing have on the types and range of banking services you provide?

5. What measures do you take to ensure adequate audit rights?

6. What measures have you taken to adequately manage vendor lock-in?

❑ This presentation serves as input for the discussions at the ECB fintech industry dialogue.

❑ You are invited to **submit further written comments** by 24 June 2019 to FintechDialogue@ecb.europa.eu