

EBA/DP/2017/02

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Discussion Paper

on the EBA's approach to financial technology (FinTech)

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Practical information

The EBA welcomes comments on this Discussion Paper on financial technology (FinTech) and in particular on the specific questions set out in Chapter 4.

Comments can be sent by clicking on the 'send your comments' button on the consultation page of the EBA website. Please note that the deadline for the submission of comments is 06/11/2017. Comments submitted after this deadline, or submitted via other means, may not be processed.

Comments are most helpful if they:

- a. respond to the question stated;
- b. indicate the specific question or point to which a comment relates;
- c. are supported by a clear rationale; and
- d. provide evidence to support the views expressed/rationale proposed.

It is important to note that although you may not be able to respond to each and every question, the EBA would encourage partial responses from stakeholders on those questions that they believe are most relevant to them.

All contributions received will be published following the close of the consultation unless you request otherwise by ticking the relevant box in the consultation form. If you request that your response be treated as confidential, it will not be published on the EBA website or shared with any third parties.

Please note that a request to access a confidential response may be submitted in accordance with the EBA's rules on public access to documents. We may consult you if we receive such a request. Any decision we make not to disclose the response is reviewable by the EBA Board of Appeal and the European Ombudsman.

Executive summary

Article 1(5) of the Regulation establishing the EBA (Regulation (EU) No 1093/2010) requires the EBA to contribute to enhancing consumer protection, promoting a sound, effective and consistent level of regulation and supervision, ensuring the integrity, transparency, efficiency and orderly functioning of financial markets, preventing regulatory arbitrage and promoting equal competition. In addition, Article 9(2) requires the EBA to monitor new and existing financial activities.

These mandates are key motivations underpinning the EBA's interest in financial innovation in general and more specifically FinTech, which can be defined as 'technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services'.¹

To gain a better insight into the financial services offered and financial innovations applied by FinTech firms in the EU, and their regulatory treatment, in spring 2017 the EBA undertook a FinTech mapping exercise. Competent authorities in 22 Member States and 2 EEA States provided estimates on the current number and expected growth of FinTech firms established in their respective jurisdictions and detailed information on a sample of FinTech firms, including information on main financial innovations applied, main financial services provided, regulatory status and target end-users.

Based on the mapping exercise, the work done by other intergovernmental and EU bodies related to FinTech and previous work that the EBA has conducted on specific innovations, this Discussion Paper (DP) suggests that there is merit in the EBA carrying out follow-up work in a number of areas. These are: authorisation and sandboxing regimes; prudential risks for credit institutions, payment institutions and electronic money institutions; the impact of FinTech on the business models of these institutions; consumer protection and retail conduct of business issues; the impact of FinTech on the resolution of financial firms; and the impact of FinTech on anti-money laundering and countering the financing of terrorism.

For each of these six areas, the DP identifies a number of issues, summarises the EBA's work to date to address them, identifies possible gaps and outlines the additional work that the EBA may wish to pursue. The aim of the DP is to seek the views of external stakeholders on the EBA's assessment and on the comprehensiveness and viability of the possible future work in the areas identified.

NEXT STEPS

After the three-month consultation period, the EBA will assess the responses with a view to deciding what further steps to take during 2018.

¹ See <http://www.fsb.org/what-we-do/policy-development/additional-policy-areas/monitoring-of-fintech/>.

Abbreviations

AMLD	Anti-Money Laundering Directive (Directive 2015/849/EU)
AML/ CFT	anti-money laundering and countering the financing of terrorism
BCBS	Basel Committee on Banking Supervision
BRRD	Bank Recovery and Resolution Directive (Directive 2014/59/EU)
CDD	customer due diligence
CRD/CRR	Capital Requirements Directive/Regulation (Directive 2013/36/EU and Regulation (EU) No 575/2013)
DGSD	Deposit Guarantee Schemes Directive (Directive 2014/49/EU)
DLT	distributed ledger technology
DP	discussion paper
EBA	European Banking Authority
ECB	European Central Bank
EIOPA	European Insurance and Occupational Pensions Authority
ESAs	European Supervisory Authorities (the EBA, ESMA and EIOPA)
ESMA	European Securities and Markets Authority
FSB	Financial Stability Board
EMD	Electronic Money Directive 2 (Directive 2009/110/EC)
FATF	Financial Action Task Force
ICT	information and communication technology
ITS	implementing technical standards
MCD	Mortgage Credit Directive (Directive 2014/17/EU)
MiFID	Markets in Financial Instruments Directive (Directive 2004/39/EC)
PAD	Payment Accounts Directive (Directive 2014/92/EU)
PSD	Payment Services Directive 1 (Directive 2007/64/EC)
PSD2	Payment Services Directive 2 (Directive 2015/2366/EU)
RTS	regulatory technical standards
SREP	Supervisory Review and Evaluation Process
TFFT	Task Force on Financial Technology
VC	virtual currency

Introduction

1. Until the early 1990s there was a strict alignment between types of financial contracts, types of risks and types of financial services firms managing those risks. It was therefore possible for regulatory and supervisory authorities to partition financial services firms into readily distinguishable categories according to the activities performed, the risks prevailing on their balance sheets and the corresponding risks posed to customers and to the economy as a whole.
2. Over the years the financial landscape has started to look very different as a number of waves of financial and technological innovation have eroded the boundaries between financial products and services and those providing them or enabling their provision. For example, the set of products that for a long time have been within the exclusive remit of licensed credit institutions – payment services and loans – have been unbundled and in some jurisdictions are now offered separately by a much wider array of firms.
3. The use of technologies by financial services firms is not new per se. Financial services firms have long implemented internal technological solutions to support the provision of services to their customers (e.g. to handle certain types of data) and to ensure that they comply with their regulatory obligations (e.g. prudential reporting). They have also long relied on outsourcing arrangements with external service providers for the provision of technological solutions. However, the more recent phenomenon of 'FinTech' appears to be elevating this process to a new level, as a result of significant investments in new technologies and the blend of new firms entering the market, which is now populated by incumbent financial services firms and specialised start-ups as well as global technology/telecoms companies.
4. FinTech, which is defined by the FSB on a working basis as 'technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services',² has the potential to transform further the provision of financial products and services. The current growth of FinTech may also alter the scope and objectives of regulatory and supervisory authorities as they adjust to market developments and may result in the revision of risk appetite.
5. It comes as little surprise therefore that public authorities in the EU and beyond have started to investigate the impact that FinTech is having on the financial system, and on the regulation and supervision thereof. This includes work by the BCBS³ as well as the European Commission's consultation FinTech: A more competitive and innovative

² See <http://www.fsb.org/what-we-do/policy-development/additional-policy-areas/monitoring-of-fintech/>.

³ See <http://www.bis.org/speeches/sp161026.htm>.

European financial sector⁴ and Consumer Financial Services Action Plan.⁵ The Commission's work is specifically aimed, among other things, at informing the actions, if any, required to support the development of FinTech in retail financial services in order to overcome some of the existing barriers of the single market.

6. The EBA is taking forward work in relation to FinTech and is keen to articulate its views and contribute to the policy debates at EU and international levels because of the impact that FinTech may have on the fulfilment of the EBA's statutory objective of protecting the public interest by contributing to the short, medium and long-term stability and effectiveness of the financial system, for the EU economy, its citizens and business, including by enhancing consumer protection and promoting a sound, effective and consistent level of regulation and supervision across the EU.⁶ To that end, the EBA has decided to publish a DP, which is structured in four chapters.
7. Chapter 1 provides a summary of relevant work on FinTech conducted at EU and international levels.
8. Chapter 2 provides factual information on the EBA's objectives and scope of work on FinTech.
9. Chapter 3 sets out the EBA's preliminary findings on FinTech activities in the EU, based on the results of an EBA FinTech survey issued to the competent authorities in the EU Member States and the EEA States. The preliminary findings and observations from the survey set out in Chapter 3 relate to the type of innovative technologies that are being applied, the financial services that are being provided, the extent to which the provision of these financial services is subject to an authorisation and/or registration scheme (under EU or national law) and supervisory approaches to FinTech, such as 'innovation hubs'⁷ and regulatory 'sandboxes'.⁸
10. Chapter 4 sets out the EBA's preliminary views and the next steps required to analyse further and address specific issues that have emerged from the preliminary analysis of the responses to the FinTech survey set out in Chapter 3 and the work done by the EBA to date on specific FinTech-related innovations such as crowdlending and VCs. This includes further work relating to the perimeter of regulation and the suitability of regulation more

⁴ See https://ec.europa.eu/info/finance-consultations-2017-fintech_en.

⁵ See https://ec.europa.eu/info/publications/consumer-financial-services-action-plan_en.

⁶ The EBA Regulation is available here: <https://www.eba.europa.eu/about-us/legal-framework/founding-texts-and-mandates>.

⁷ For the purposes of this report, 'innovation hub' means an institutional arrangement whereby regulated or unregulated entities (i.e. unauthorised firms) engage with the competent authority to discuss FinTech-related issues (share information and views, etc.) and seek clarification on the conformity of business models with the regulatory framework or on regulatory/licensing requirements (i.e. individual guidance to a firm on the interpretation of applicable rules).

⁸ Regulatory 'sandboxes' provide financial institutions and non-financial firms with a controlled space in which they can test innovative FinTech solutions with the support of an authority for a limited period of time, allowing them to validate and test their business model in a safe environment.

generally, the risks and opportunities for credit institutions, payment services institutions and electronic money institutions, the impact on the business models of such firms, and consumer protection and retail conduct of business issues.

11. The EBA is interested in receiving views from external stakeholders about the scope of its proposed work as set out in Chapter 4 and has therefore inserted several questions at the end of each section of Chapter 4. The EBA will use the responses to these questions to inform its future work. As financial innovation continues to emerge, the EBA's analysis and assessment of risks in this regard will remain an ongoing endeavour.

1. Relevant work conducted at EU and international levels

12. A number of initiatives in relation to FinTech have been taken by EU and international regulatory and supervisory bodies, including the publication of research papers on FinTech, the implementation of strategies to foster proactive engagement with financial services firms and new entrant FinTech firms (e.g. the establishment of regulatory sandboxes and innovation hubs⁹), modifications to supervisory processes and the issuance of new regulatory requirements or guidance to address specific issues arising from FinTech.

1.1 EU initiatives

13. At the EU level, the EU institutions (the European Parliament, the Council and the European Commission), the ESAs and the competent authorities have undertaken a number of initiatives on FinTech. Indicatively, in December 2016 the Joint Committee of the ESAs published a report presenting the conclusions of its assessment of automation in financial advice, with a particular focus on the risks and benefits to consumers and financial firms,¹⁰ and in February 2017 ESMA released a report¹¹ analysing the key benefits and risks of DLT applied to securities markets and its interaction with the existing EU regulatory framework.¹² Since 2014 the European Commission has been reviewing developments in the area of crowdfunding across the EU for the purposes of exploring the opportunities and risks to identify if EU-level policy action is needed.

14. Recognising the recent cross-sectoral transformations of the financial sector through a number of work streams (e.g. legislative work on PSD2, the proposals for a Capital Markets Union¹³ and the *Green Paper on retail financial services*¹⁴), the European Commission has decided to take a cross-services and cross-sectoral approach on these issues and, in November 2016, set up an internal Task Force on Financial Technology. The main objectives of this Task Force are to assess technological developments and new

⁹ See footnotes 7 and 8.

¹⁰ See

<https://www.eba.europa.eu/documents/10180/1299866/JC+2015+080+Discussion+Paper+on+automation+in+financial+advice.pdf>.

¹¹ See https://www.esma.europa.eu/sites/default/files/library/dlt_report_-_esma50-1121423017-285.pdf.

¹² In particular, ESMA has not identified major impediments in the EU regulatory framework that would prevent the emergence of DLT in the short term. Meanwhile, a number of concepts or principles, e.g. the legal certainty attached to DLT records and settlement finality, still require clarification. In addition, ESMA has stated that, beyond pure financial regulation, broader legal issues, such as corporate law, contract law, insolvency law and competition law, may impact on the deployment of DLT (ESMA, *The DLT applied to securities markets*, February 2017, p. 3).

¹³ See https://ec.europa.eu/info/business-economy-euro/growth-and-investment/capital-markets-union_en.

¹⁴ See http://ec.europa.eu/finance/consultations/2015/retail-financial-services/index_en.htm.

business models and determine whether or not existing rules and policies are fit for purpose. As a result of a preliminary assessment, the European Commission launched in March 2017 a *Public Consultation on the role of FinTech in building a more competitive and innovative financial sector*,¹⁵ which focuses on the following aspects: (1) accessibility of financial services to customers, (2) bringing down operational costs and increasing the efficiency of the financial services sector, (3) enhancing competition in the Single Market by lowering barriers to entry, and (4) balancing greater data sharing and transparency with data security and protection needs. The consultation ended in June 2017; 226 responses were received, which are currently being assessed. Based on the outcomes of this consultation, the European Commission will determine the follow-up initiatives to be taken at EU level. The European Commission also issued on 23 March 2017 a Consumer Financial Services Action Plan¹⁶ including a number of actions aimed at supporting the development of an innovative digital world in retail financial services. In parallel, in May 2017 the European Parliament adopted its *Report on FinTech: the influence of technology on the future of the financial sector*,¹⁷ calling on the European Commission to draw up a FinTech Action Plan and deploy a cross-sectoral, holistic approach in its work on FinTech.

15. At the level of the Single Supervisory Mechanism (SSM), the ECB has developed a policy on the assessment of licensing applications for FinTech credit institutions and is addressing other areas of FinTech-related work, in particular how to ensure consistency across the growing number of national initiatives in the SSM, including regulatory sandboxes and innovation hubs.

1.2 International initiatives

16. At international level, the FSB is actively monitoring and assessing developments in FinTech, given its mandate to promote international financial stability.¹⁸ The BCBS TFFT is also working on an assessment of the risks, opportunities and supervisory challenges associated with the innovation and technological changes affecting incumbent banks, their business models and banking supervision. The TFFT is intended to advance improvements in practices and the principles for the management and supervision of risks arising from FinTech. The TFFT coordinates its work with the FSB's Financial Innovation Network. The work of the Financial Innovation Network is focused on considering the effects of FinTech on the broader financial system, market structure and interconnections. The EBA participates in the TFFT and is actively involved in this work.

17. In recent years, the FATF, an international anti-money laundering and countering the financing of terrorism (AML/CFT) standard-setter, has recognised that there are particular

¹⁵ See https://ec.europa.eu/info/finance-consultations-2017-fintech_en.

¹⁶ See https://ec.europa.eu/info/publications/consumer-financial-services-action-plan_en.

¹⁷ See <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+REPORT+A8-2017-0176+0+DOC+XML+V0//EN>.

¹⁸ See <http://www.fsb.org/2017/06/financial-stability-implications-from-fintech>.

money laundering and terrorist financing risks associated with innovative payment products and services and has published a number of typologies and guidance notes on this topic.¹⁹ Most recently, the FATF has recognised the importance of FinTech and RegTech²⁰ within the financial services sector and has expressed its commitment to supporting innovation in financial services by exploring with the FinTech and RegTech communities the opportunities that financial innovation brings to the fight against money laundering and terrorist financing and the challenges faced by the private sector in this area. The EBA's work on FinTech is consistent with the FATF's approach and will feed into the FATF's future work.

¹⁹ See, inter alia, the following FATF publications: *Money laundering using new payment methods* (October 2010) (<http://www.fatf-gafi.org/publications/methodsandtrends/documents/moneylaunderingusingnewpaymentmethods.html>), *Guidance for a risk-based approach to prepaid cards, mobile payments and internet-based payment services* (June 2013) (<http://www.fatf-gafi.org/publications/fatfrecommendations/documents/rba-npps-2013.html>), *Virtual currencies: key definitions and potential AML/CFT risks* (June 2014) (<http://www.fatf-gafi.org/publications/methodsandtrends/documents/virtual-currency-definitions-aml-cft-risk.html>), and *Guidance for a risk-based approach to virtual currencies* (June 2015) (<http://www.fatf-gafi.org/publications/fatfgeneral/documents/guidance-rba-virtual-currencies.html>).

²⁰ 'RegTech' is defined by the Institute of International Finance as 'the use of new technologies to solve regulatory and compliance requirements more effectively and efficiently'. It is also described as 'a sub-set of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities'.

2. Objectives and scope of the EBA's FinTech work

18. The EBA's work on FinTech is informed by the objectives and tasks that have been conferred on the EBA pursuant to its Founding Regulation,²¹ the legal instruments available to the EBA under that Regulation and its scope of action.

2.1 Objectives of the EBA

19. Article 1(5) of the Founding Regulation specifies that the EBA shall contribute to enhancing consumer protection, promoting a sound, effective and consistent level of regulation and supervision, ensuring the integrity, transparency, efficiency and orderly functioning of financial markets, preventing regulatory arbitrage and promoting equal competition. These are key motivations underpinning the EBA's interest in financial innovation in general and FinTech more specifically.

2.2 The EBA's tasks and scope of action

20. The EBA's remit is framed by reference to the EU directives and regulations that are allocated to the EBA's scope of action. The most relevant in this context are:

- a. the Payment Accounts Directive (PAD);²²
- b. the Electronic Money Directive (EMD);²³
- c. the Payment Services Directives 1²⁴ and 2²⁵ (PSD/PSD2);
- d. the Mortgage Credit Directive (MCD);²⁶
- e. the Capital Requirements Directive IV and the Capital Requirements Regulation (CRD/CRR);²⁷
- f. the Anti-Money Laundering Directive (AMLD);²⁸

²¹ <http://www.eba.europa.eu/about-us/legal-framework/founding-texts-and-mandates>.

²² <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0092>.

²³ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32009L0110>.

²⁴ https://ec.europa.eu/info/law/payment-services-psd-1-directive-2007-64-ec/law-details_en.

²⁵ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32015L2366>.

²⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0017>.

²⁷ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-supervision-and-risk-management/managing-risks-banks-and-financial-institutions/prudential-requirements_en.

- g. the Markets in Financial Instruments Directive 2 and the Markets in Financial Instruments Regulation (MiFID2/MiFIR),²⁹
- h. the Bank Recovery and Resolution Directive (BRRD);³⁰
- i. the Deposit Guarantee Schemes Directive (DGSD).³¹

21. The EBA's Founding Regulation also mandates the EBA to act in the field of activities of credit institutions, financial conglomerates, investment firms, payment institutions and electronic money institutions in relation to issues not directly covered in the legal acts referred to above, including matters of corporate governance, auditing and financial reporting, and consumer protection, provided that such actions by the EBA are necessary to ensure the effective and consistent application of those acts.

22. Furthermore, the EBA is tasked with monitoring new and existing financial activities. In this capacity, it may adopt guidelines and recommendations with a view to promoting the safety and soundness of markets and convergence of regulatory and supervisory practices and to achieving a coordinated approach to the regulatory and supervisory treatment of new or innovative financial activities. Advice may also be provided to the European Parliament, the Council and the European Commission.

23. The EBA is also tasked with monitoring and assessing market developments in the area of its competence and, where necessary, informing the European Parliament, the Council, the European Commission, the ESAs and the ESRB about the relevant micro-prudential trends, potential risks and vulnerabilities.

2.3 The EBA's work to date

24. In relation to FinTech, the EBA has delivered on the mandates outlined in section 2.2 on a number of occasions. In the process, the EBA has made use of the range of legal instruments available, including draft technical standards for adoption by the European Commission, which are directly applicable Union law, guidelines addressed to financial institutions, opinions addressed to the European Parliament, the Council and European Commission, and reports that provide factual summaries of the EBA's analysis. In contrast to the cross-cutting scope of the present DP, however, most of these initiatives focused on one specific FinTech innovation only. These initiatives include:

²⁸ http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2015_141_R_0003&from=ES.

²⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0065> and <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014R0600>.

³⁰ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0059>.

³¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32014L0049>.

- The EBA warning to consumers December 2013 on virtual currencies (VCs), to make consumers aware of the risks arising from the use of VCs as a means of paying for goods and services.³² This was followed, in July 2014 and August 2016, by two EBA opinions on the same topic,³³ which inter alia recommended to the European Parliament, the Council and the European Commission to bring certain VC actors into the scope of the AMLD. As at the date of this DP, the EU legislators were in the process of implementing the EBA's recommendation.
- The EBA Opinion in February 2015 on lending-based crowdfunding, addressed to the European Parliament, the Council and the European Commission, recommending that the EU legislators seize the growth potential of this burgeoning market segment in the EU, not by creating new sector-specific EU law, but by clarifying the limits of the applicability of already existing EU law, such as the PSD.³⁴
- The December 2016 Joint Committee report of the EBA, ESMA and EIOPA on robo-advice in which the three ESAs identified the potential benefits and risks of the innovation; and concluded that no additional regulation specific to this innovation was required, given that robo-advice is subject to various requirements that apply to advice more widely.³⁵
- The final draft EBA RTS in February 2017 on strong customer authentication and common and secure communication under the PSD2, which specified the security standards for all payment service providers, including for third party payment service providers, and communication channels for third party payment service providers to use when accessing customer payment accounts data held by account servicing payment service providers (mostly banks).³⁶
- The draft EBA recommendations in May 2017 on the use of cloud services by credit institutions and investment firms covering, inter alia, the security of data and systems, the location of data and data processing, access and audit rights, chain outsourcing, and contingency plans and exit strategies.³⁷

³² See <http://www.eba.europa.eu/-/eba-warns-consumers-on-virtual-currencies>.

³³ See <http://www.eba.europa.eu/-/eba-publishes-an-opinion-on-the-commission-s-proposal-to-bring-virtual-currency-entities-in-the-scope-of-the-anti-money-laundering-directive> and <https://www.eba.europa.eu/documents/10180/1547217/EBA+Opinion+on+the+Commission%E2%80%99s+proposal+to+bring+virtual+currency+entities+into+the+scope+of+4AMLD>.

³⁴ See <https://www.eba.europa.eu/-/eba-recommends-convergence-of-lending-based-crowdfunding-regulation-across-the-eu>.

³⁵ See <https://esas-joint-committee.europa.eu/Pages/News/European-Supervisory-Authorities-publish-conclusions-on-automation-in-financial-advice.aspx>.

³⁶ See <http://www.eba.europa.eu/regulation-and-policy/payment-services-and-electronic-money/regulatory-technical-standards-on-strong-customer-authentication-and-secure-communication-under-psd2>.

³⁷ See <https://www.eba.europa.eu/-/eba-consults-on-its-guidance-for-the-use-of-cloud-computing>.

- The EBA Guidelines on information and communication technology (ICT) risks in May 2017, in the context of the supervisory review and evaluation process (SREP) for credit institutions.³⁸
- The EBA report in June 2017 on innovative uses of consumer data by financial institutions, which identified the risks and potential benefits of such innovation and set out a number of requirements under EU law that apply to financial institutions and mitigate many of the risks identified by the EBA³⁹ and ongoing Joint Committee work in relation to the use of Big Data by financial institutions.⁴⁰
- The Joint Committee of the ESAs has also started work on Big Data technology and its impact on consumers. A DP has been issued for consultation (now closed).⁴¹

25. As a result of the above, the EBA's objectives, tasks and scope of action have a direct bearing on FinTech. In fact, a range of firms can be regarded as offering 'technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services'. Some of these may be authorised or registered under EU or national financial services legislation or otherwise regulated pursuant to an EU framework; others may not be subject to any EU or national regime.

³⁸ See <https://www.eba.europa.eu/-/eba-publishes-final-guidelines-to-assess-ict-risk?doAsGroupId=10180>.

³⁹ See <https://www.eba.europa.eu/-/eba-publishes-report-on-consumer-data-and-identifies-a-number-of-applicable-requirements-under-eu-law>.

⁴⁰ See https://esas-joint-committee.europa.eu/publications/discussion%20paper/jc-2016-86_discussion_paper_big_data.pdf.

⁴¹ See https://esas-joint-committee.europa.eu/Publications/Discussion%20Paper/jc-2016-86_discussion_paper_big_data.pdf.

3. Results of the FinTech mapping exercise

26. In spring 2017 the EBA undertook a mapping exercise to gain a better insight into the financial services offered, and innovations applied, by FinTech firms in the EU, and their regulatory treatment. This is the first time any such exercise has been conducted at the EU level and, in addition to other EBA work in relation to FinTech (see in particular Chapter 2), will help inform the EBA's proposed future work described in Chapter 4. The exercise was limited to a sample of 282 FinTech firms reported by competent authorities, some of which are regulated pursuant to EU or national financial services legislation, and some of which are identified as not being regulated pursuant to financial services legislation. In relation to those reported FinTech firms not within the direct remit of the competent authorities, information was provided on a best efforts basis. The observations extracted therefore are preliminary and are intended to promote the understanding of the activities and status of FinTech firms in the EU but should not be taken as a general statement of the market.

3.1 Methodology and scope of the mapping exercise

27. For the purposes of the mapping exercise the EBA launched a survey in relation to FinTech (the FinTech survey). The survey was issued to the competent authorities in all Member States and EEA States. Twenty-four responses were received, of which twenty-two are from Member States and two are from EEA States.

28. The EBA defined the scope of the FinTech survey by reference to firms using technologically enabled financial innovation (of a kind referred to in paragraph 34) for the purposes of the provision, or enabling the provision by another entity, of one or more of the financial services listed in Table 1 (FinTech firms). For the purposes of the FinTech survey, the definition of 'FinTech' was that applied by the BCBS: 'technologically enabled financial innovation that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services'.

29. Consistent with the approach adopted by the BCBS, and as acknowledged by the European Parliament in its resolution of 17 May 2017, the EBA requested that the competent authorities report on both regulated FinTech firms and, on a best efforts basis, FinTech firms that are not regulated pursuant to a regime within the competent authorities' direct regulatory remit.

30. Regarding firms operating on a cross-border basis, competent authorities were:

- a. requested to provide information only on firms established (e.g. incorporated, formed under a partnership, etc.) in their jurisdiction;
- b. instructed not to provide information on firms incorporated in third countries and operating in their jurisdiction and, to avoid double counting, on firms providing services in their jurisdiction (i.e. as a host Member State) under either the right of establishment or the free provision of services (passporting).

31. Competent authorities were requested to report on a best efforts basis information on:

- a. the total estimated number of FinTech firms established in each jurisdiction and anticipated growth trends;
- b. a sample of a minimum of five FinTech firms per financial service cluster (see Table 1) for the jurisdiction, including information on main financial innovations used, main financial services provided, regulatory status (including, where relevant, under national authorisation or registration regimes) and target end-users;
- c. for the FinTech firms in the sample, any national authorisation or registration regimes applicable and the prudential and conduct of business requirements under these regimes;
- d. the policy approaches used by the jurisdictions to facilitate the development of FinTech (e.g. regulatory sandboxing regimes and innovation hubs).

32. Further to the data requests described in the preceding paragraph, the EBA received from the competent authorities (i) information that suggests that there are over 1 500 FinTech firms in the EU falling within the definition used by the EBA for the purposes of the FinTech survey, (ii) specific information on a sample of 282 FinTech firms, which has informed the preliminary findings and observations set out in section 3.2 (while the FinTech sample is not a statistically representative sample, it does provide policy makers with a useful indication of the FinTech market in the EU), and (iii) information on policy approaches used in the jurisdictions to facilitate the development of FinTech, which has informed the preliminary observations and findings set out in section 3.3.

3.1.1 Financial services

33. For the purposes of the FinTech survey, the EBA defined financial services as those listed in Table 1.⁴² These were grouped into four clusters.

⁴² In compiling the list of financial services, the EBA had regard to services listed in EU legislative measures, such as those listed in Annex I to the CRD and the annexes to the PSD1 and PSD2, and also conducted a desktop analysis of the types of services reported as being offered by FinTech firms. While referencing financial services that are subject to authorisation and supervision under EU law, respondents were asked to already classify FinTech firms into these categories if they judged the activities conducted by FinTech firms to be broadly connected to the financial services

Table 1 Financial service type/cluster

Credit, deposit, and capital raising services (Cluster A)	A1 Taking deposits; A2 Taking other repayable funds (i.e. funds other than deposits); A3 Lending, including, inter alia, consumer credit, credit agreements relating to immovable property, factoring, with or without recourse, financing of commercial transactions (including forfeiting); A4 Financial leasing; A5 Guarantees and commitments; A6 Credit intermediation under Article 4(5) of Directive 2014/17/EU (MCD); A7 Money broking; A8 Any other financial services of a kind within in this cluster
Payments, clearing and settlement services (Cluster B)	B1 Provision of payment accounts; B2 Services enabling cash to be placed on a payment account as well as all the operations required for operating a payment account; B3 Services enabling cash withdrawals from a payment account as well as all the operations required for operating a payment account; B4 Execution of direct debits including one-off direct debits; B5 Execution of payment transactions through a payment card or a similar device; B6 Execution of credit transfers; B7 Issuing of payment instruments; B8 Acquiring of payment transactions; B9 Money remittance; B10 Issuing and administering means of payment other than those referred to in Article 4(3) of Directive 2007/64/EU (e.g. travellers' cheques and bankers' drafts); B11 Services to initiate payment orders at the request of the payment service user with respect to a payment account held with another payment service provider; B12 Services to provide consolidated information on one or more payment accounts held by the payment service user with another payment services provider; B13 Operation of a payment system; B14 Ancillary services to payment and/or e-money services (Article 16(1)(a) of PSD); B15 Issuance of e-money; B16 Distribution of e-money; B17 Redemption of e-money; B18 Currency exchange; B19 Any other financial services of a kind within this cluster
Investment services/Investment management services (Cluster C)	C1 Trading for own account or for account of customers in any of the items referred to in point 7 of Annex I to Directive 2013/36/EU; C2 Participation in securities issues and provision of services relating to such issues; C3 Advice to undertakings on capital structure, industrial strategy etc. (e.g. as referred to in point 9 of Annex I to Directive 2013/36/EU); C4 Portfolio management and advice; C5 Safekeeping and administration of securities; C6 Safe custody services; C7 Advisory services (e.g. under Article 7 of Directive 2014/17/EU); C8 Any other financial services of a kind within this cluster
Other financial-related activities (Cluster D)	D1 Credit reference services (e.g. as referred to in point 13 of Annex I to Directive 2013/36/EU); D2 Comparison services; D3 Compliance services related to know your customer/AML; D4 Compliance services – other; D5 Any other services of a kind within this cluster

under EU law, i.e. the FinTech firms might not conduct the services as such but contribute to their facilitation (without necessarily being subject to the respective EU law).

3.1.2 Financial innovation

34. For the purposes of the FinTech survey, financial innovation was defined as the provision of a financial service using one or more of the following innovations: distribution channel is online only; distribution channel is mobile only (e.g. mobile or digital wallet); value transfer network; technology to enable trading on a high frequency basis; copy trading; VC (e.g. technology enabling buying/holding/selling VC and technology enabling exchanging VC into fiat currency); biometric technology (e.g. authentication); Big Data analytics; electronic personal financial management tools; robo-advice; online platform (e.g. to enable crowdfunding or peer-to-peer transfers); cloud computing; data aggregation services; DLT (e.g. Blockchain); customer digital identification; smart contracts; RegTech; other.

3.1.3 Regulatory status

35. The FinTech firms in the sample identified by the competent authorities were classified according to their regulatory status:⁴³

- a. regulated pursuant to an entity-specific EU regulatory regime: (i) credit institutions under the CRD, (ii) payment institutions under the PSD, (iii) hybrid payment institutions under the PSD, (iv) electronic money institutions under the EMD, (v) hybrid electronic money institutions under the EMD, (vi) investment firms under MiFID, (vii) credit intermediaries under the MCD, (viii) exempted entities under the PSD or the EMD;
- b. regulated pursuant to an entity-specific regulatory regime under national law: (i) subject to a national authorisation regime, (ii) subject to a national registration regime;
- c. identified by the competent authorities as not regulated under either EU or national law as described in points (a) and (b);⁴⁴ and
- d. other (i.e. unidentified), meaning that the competent authorities could not assign a FinTech firm to any other category ((a), (b) or (c)) (e.g. because the firm concerned falls entirely outside the scope of the competent authority's remit and therefore the authority does not hold information on the firm enabling it to identify its regulatory status).

⁴³ Given some scope for judgment in assessing the activities undertaken and the regulatory treatment for FinTech firms outside the perimeter of regulation by competent authorities, respondents might not have categorised the regulatory status of FinTech firms fully consistently.

⁴⁴ This does not exclude the possibility that the firm concerned may be subject to, for example, general companies law in the jurisdiction concerned.

3.2 Preliminary findings and observations based on an analysis of the FinTech survey data

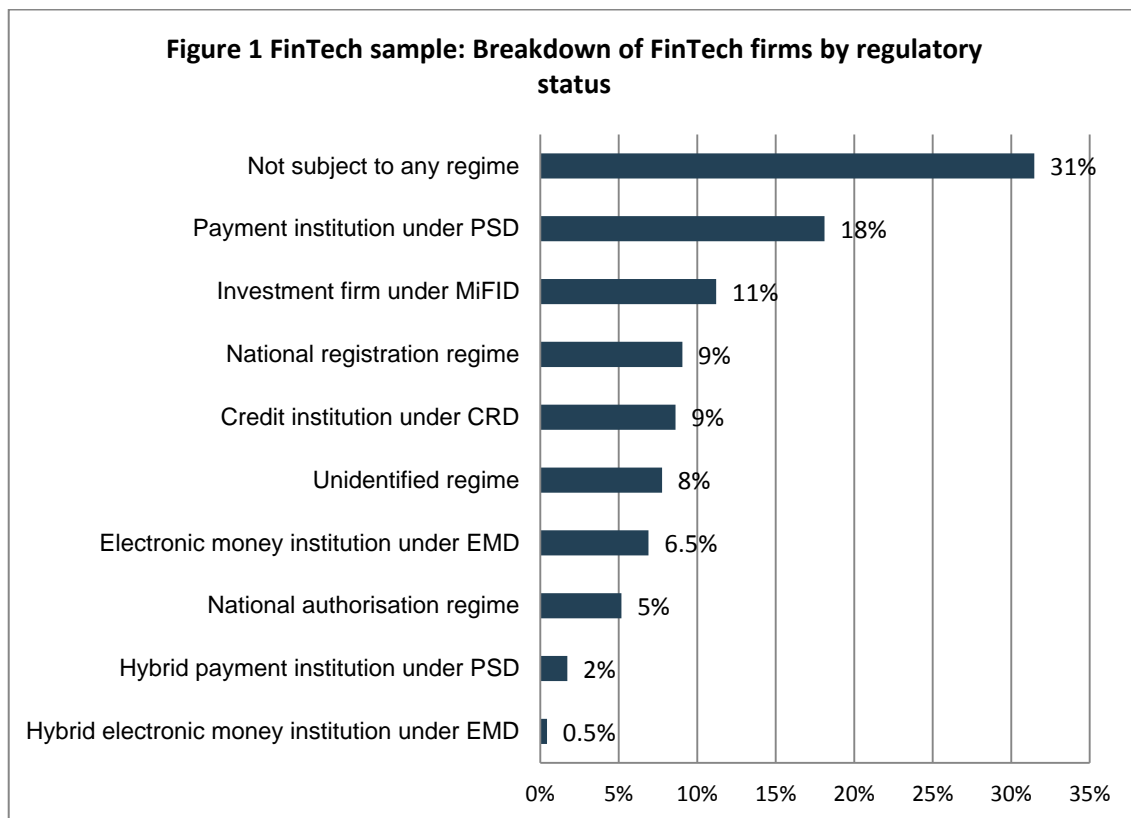
3.2.1 FinTech seems to be becoming an increasingly significant part of the EU financial services sector (observations based on the full estimated population of FinTech)

36. According to the reported data on the total estimates of FinTech firms in the jurisdictions, it is estimated that there are over 1500 firms established in the EU that meet the definition used for the purposes of the EBA's survey (the competent authorities provided detailed information on 282 of these FinTech firms, comprising the FinTech sample to which reference is made in subsections 3.2.2 to 3.2.9). The number is likely to be significantly higher, taking account of the fact that the estimate was informed by the data provided by the competent authorities in relation to firms falling outside their regulatory remit on a best efforts basis.

37. Competent authorities reported that investments in FinTech are anticipated to grow in the coming years, in particular as regulatory changes at the EU level are expected to support or facilitate the development of FinTech, for instance PSD2 brings within its remit two new types of payment services (account information services and payment initiation services), and as some jurisdictions are continuing to introduce policies such as regulatory sandboxing regimes and innovation hubs.

3.2.2 The regulatory status of FinTech firms appears to be highly varied (observations based on the sample of FinTech firms)

38. Firms in the FinTech sample may be regulated pursuant to EU law or national law, or may be unregulated (Figure 1). Of the firms in the FinTech sample, 18% are payment institutions under the PSD, 11% are investment firms under MiFID, 9% are credit institutions under the CRD and 6.5% are electronic money institutions under the EMD. 31% are not subject to a regulatory regime under EU or national law, 9% are subject to a national registration regime and 5% are subject to a national authorisation regime. The regulatory status of 8% of the FinTech firms could not be identified. No firms in the FinTech sample were classified as credit intermediaries under the MCD.



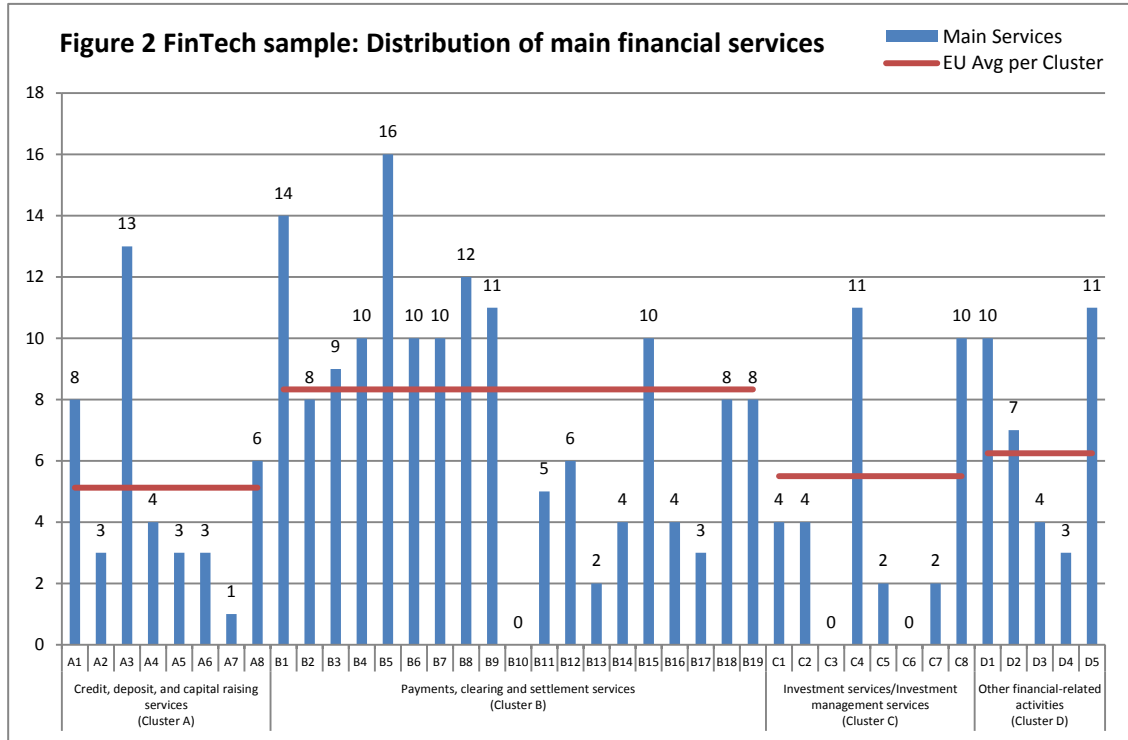
39. The fact that some FinTech firms are subject to national authorisation or registration regimes implies that there may be potential for divergences in the treatment of FinTech firms across the EU, which might suggest a need for further investigation. In addition, the high percentage of FinTech firms not subject to any regulatory regime could suggest a need for further analysis of the activities of such firms. This would allow the EBA to assess further the rationale for the different regulatory treatment and to identify if there are any regulatory arbitrage or uncovered consumer protection risks (see subsections 3.2.3 and 3.2.4), taking account of the EBA's objectives, as set out in paragraph 19, of enhancing consumer protection and promoting a consistent level of regulation.

3.2.3 FinTech firms appear to provide a wide range of financial services (observations based on the sample of FinTech firms)

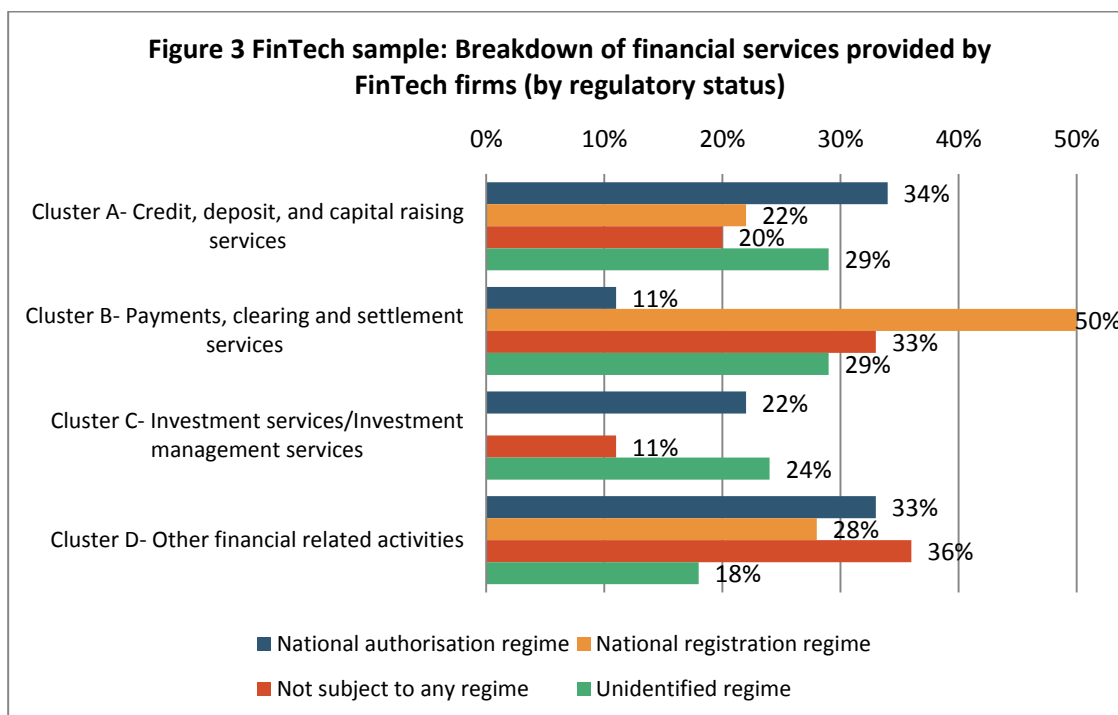
40. Figure 2⁴⁵ shows the distribution of the main financial services within each service cluster (see Table 1) provided by firms in the FinTech sample. The results indicate that firms in the FinTech sample appear to provide a wide range of financial services, and are particularly dominant in the provision of payments, clearing and settlement services (Cluster B) and other financial-related activities (Cluster D). Lending, including, inter alia, consumer credit, credit agreements

⁴⁵ Figure 2 does not show the number of individual reported cases of financial services nor percentages but their dispersion, illustrating the relative significance of the financial services provided by FinTech firms in the sample. A measure of statistical dispersion is a non-negative real number that is zero if all the data are the same and increases as the data become more diverse. The numbers represent the dispersion of the financial services listed in Table 1 across the 24 states that responded to the FinTech survey.

relating to immovable property, factoring, with or without recourse, financing of commercial transactions (including forfeiting), and portfolio management and advice also rank highly.



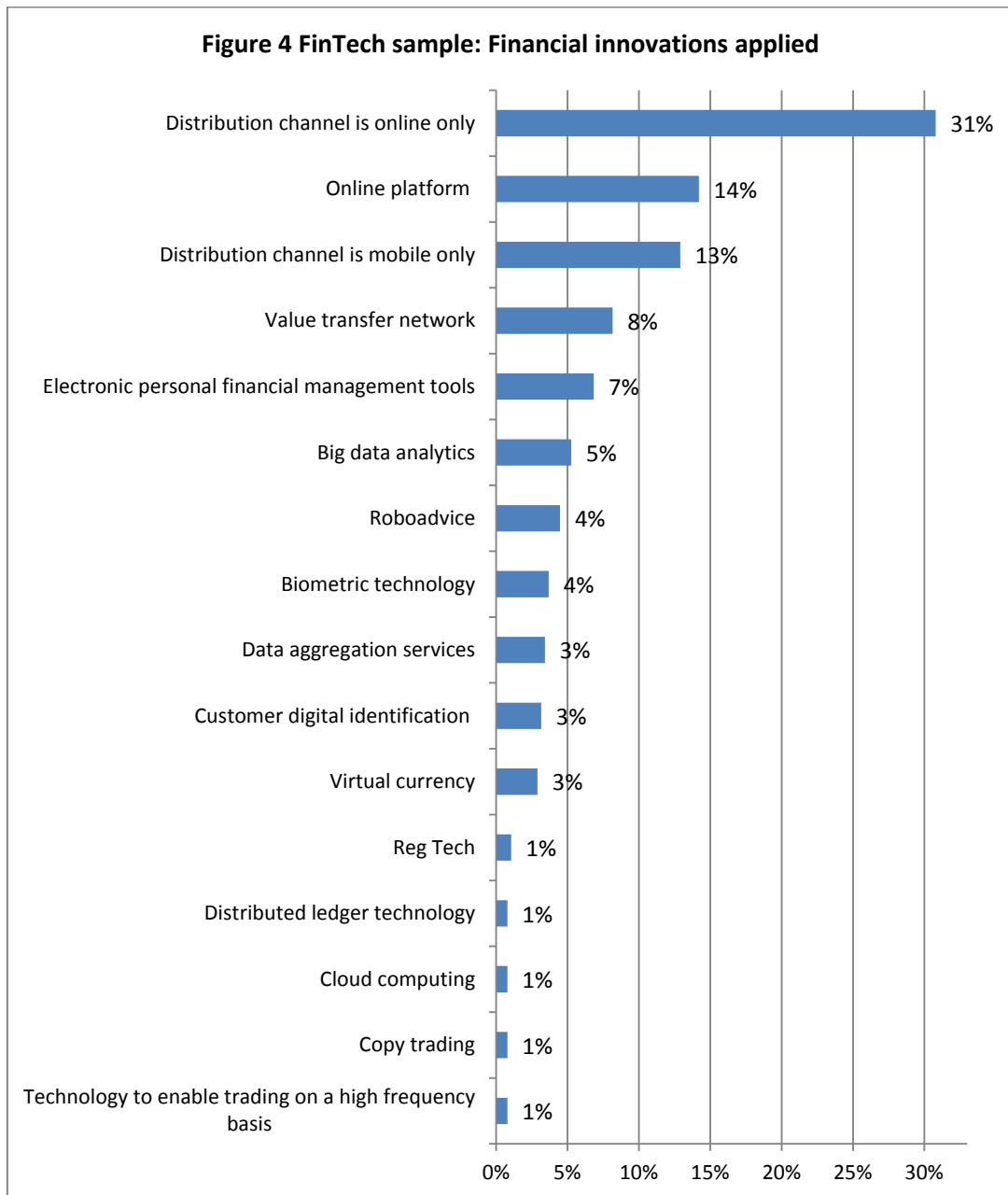
41. Turning to the breakdown of services by regulatory status (Figure 3), the data suggests that firms in the FinTech sample indicated as subject to national authorisation or registration regimes provide financial services that include those which are traditionally provided by financial institutions regulated under EU law. FinTech firms subject to national authorisation regimes mostly provide services in the context of credit, deposit and capital raising (Cluster A) and other financial-related activities (Cluster D). FinTech firms subject to national registration regimes, as well as FinTech firms not subject to any regime, mostly provide services in the context of payments, clearing and settlement (Cluster B). Again, this could suggest a need for further analysis of the activities of such firms and their business models. This would allow the EBA to assess further the regulatory treatment and the rationale for any differences, acknowledging that there may be a sound justification for any differences.



42. The data presented in Figure 3 also suggests that FinTech firms reported as not subject to a regulatory regime under EU or national law provide financial services of a kind described in all four clusters. More specifically, 33% of such firms were reported as providing payments, clearing and settlement services (Cluster B), 20% provide credit, deposit and capital raising services (Cluster A), 11% offer investment services/investment management services (Cluster C) and 36% carry out other financial-related activities (Cluster D). Those FinTech firms in relation to which the regulatory regime was unidentified were also reported as providing financial services across all four clusters. This implies that there may be a need to investigate further the rationale for different or no regulatory treatment and to identify if there are any uncovered risks, noting also the types of target end-users of such firms (see subsection 3.2.6). It would also enable the EBA to identify if there is scope for regulatory arbitrage, which might undermine the achievement of the EBA's objectives set out in paragraph 19.

3.2.4 FinTech firms appear to apply a wide range of financial innovations (observations based on the sample of FinTech firms)

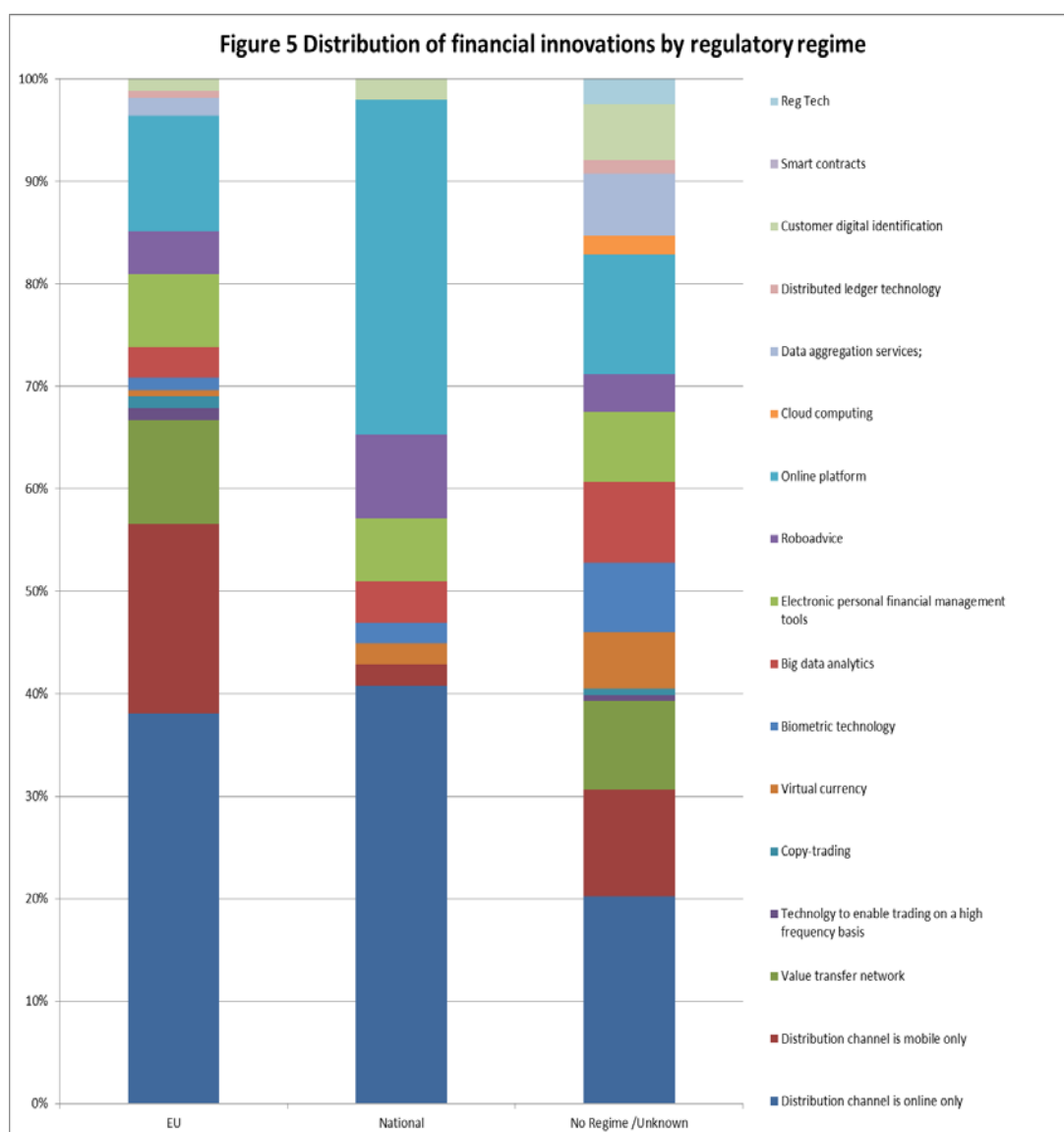
43. Figure 4 ranks the financial innovations applied by firms in the FinTech sample to deliver the financial services identified in Figure 2. The most frequently reported financial innovations were distribution channel is online only (31% of FinTech firms were reported as applying this innovation), online platform, e.g. crowdfunding, peer-to-peer transfers (14% of FinTech firms), distribution channel is mobile only (13% of FinTech firms) and value transfer network (8% of FinTech firms). RegTech, cloud computing and smart contracts are among the least applied financial innovations among firms in the FinTech sample. More generally, the data suggests that more than one financial innovation is applied by each of the firms in the FinTech sample.



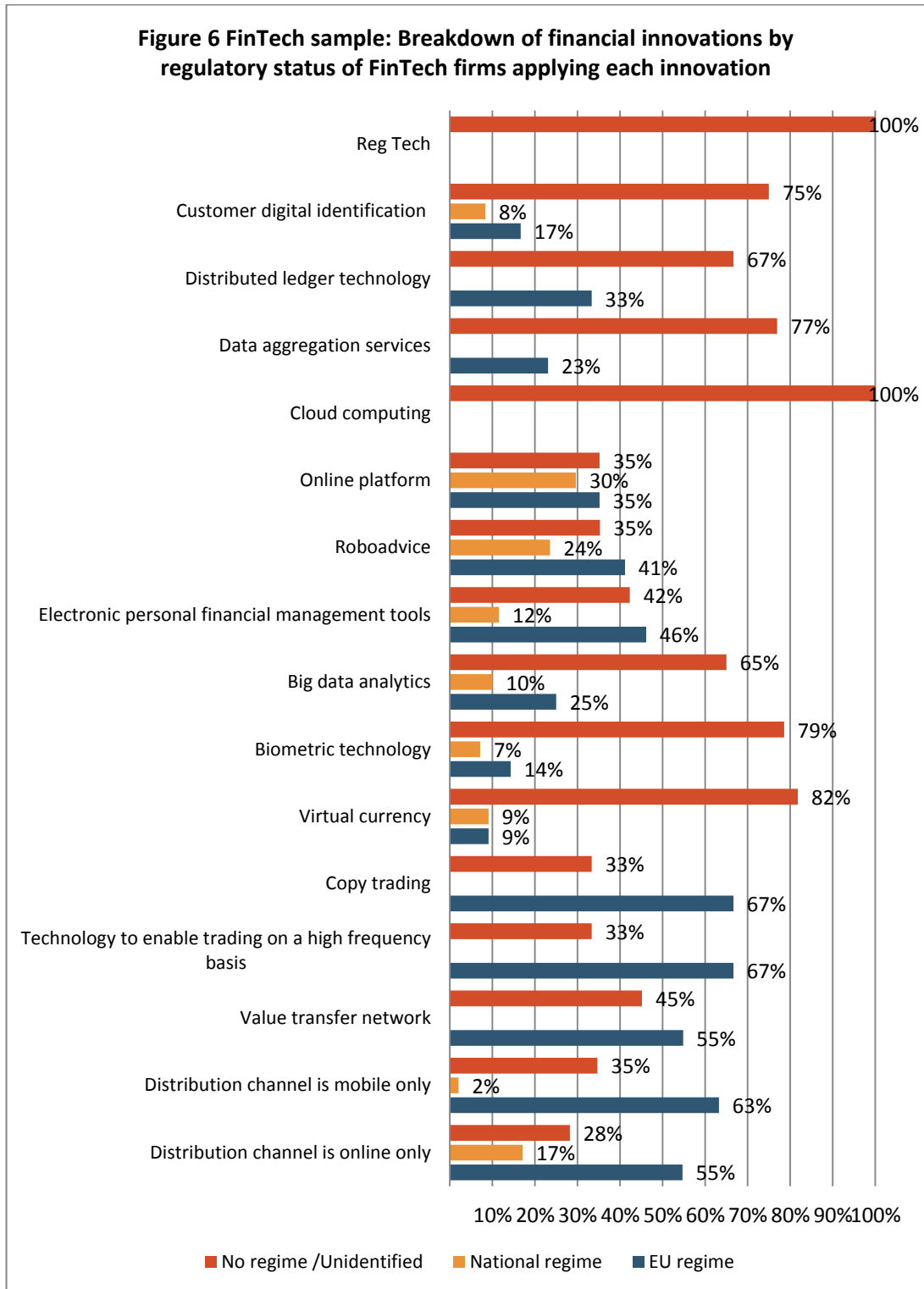
3.2.5 Most innovations appear to be applied by both regulated (EU and national) and non-regulated FinTech firms (observations based on the sample of FinTech firms)

44. Figures 5 and 6 suggest that, in the FinTech sample, in most cases the same types of financial innovations are applied by both regulated FinTech firms (regulated pursuant to EU law or national law) and those reported as not subject to a regulatory regime or in relation to which a regulatory regime was not identified. However, in order to verify whether there are level playing field issues, there may be a need to further investigate and better understand any differences in FinTech firms' business models and their regulatory treatment. The EBA acknowledges that there may be reasons that justify differences in treatment.

45. Figure 5 shows for each type of regulatory category (EU, national (authorisation or registration) and no regime/unknown) the innovations applied and their significance for firms in the FinTech sample within each category. FinTech firms subject to an EU regime or reported as not subject to a regulatory regime or in relation to which the regulatory regime was not identified mostly apply the following financial innovations: distribution channel is online and distribution channel is mobile only; FinTech firms subject to a national authorisation or national registration regime mostly apply the following financial innovations: distribution channel is online only and online platform.



46. Figure 6, on the other hand, takes into account all reported cases of financial innovations applied by firms in the FinTech sample. It shows a detailed breakdown of FinTech firms applying each innovation by regulatory status (EU, national (authorisation or registration) and no regime/unidentified). This shows on a more granular level if FinTech firms in the sample applying a particular financial innovation are typically regulated and, if so, pursuant to which regime.



47. Reflecting further on Figure 6, for some financial innovations such as copy trading, technology to enable trading on a high frequency basis, value transfer network and online or mobile only distribution channel, the majority of firms in the FinTech sample applying those innovations appear to be subject to an EU regulatory regime (e.g. 67% of FinTech firms reported as applying technology to enable trading on a high frequency basis are

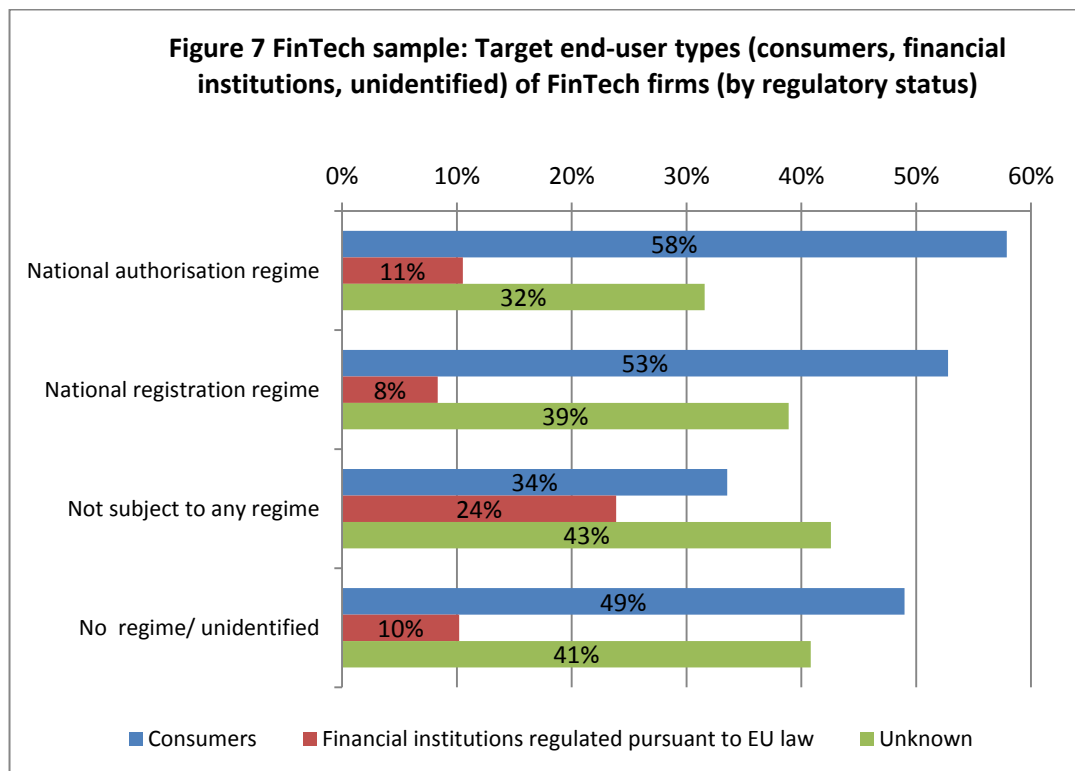
subject to an EU regulatory regime). For other innovations such as RegTech, cloud computing, VC, biometric technology and data aggregation services the majority of FinTech firms applying those innovations appear not to be subject to a regulatory regime (or the regulatory regime is not identified) (e.g. 67% of the FinTech firms reported as applying DLT are not subject to a regulatory regime/are firms in relation to which a regulatory regime could not be identified).

48. Furthermore, the data implies that firms in the FinTech sample regulated under EU law or national law or identified as not being subject to any regulatory regime in many cases apply the same financial innovations (e.g. online platforms, robo-advice). Again, this might suggest a need to investigate if there are any level playing field issues or risks to consumers arising from different regulatory treatment of FinTech firms applying the same financial innovations, in line with the EBA's objective of promoting a sound, effective and consistent level of regulation. It might also suggest that a review of the existing EU regulatory frameworks may be warranted to ensure that they take sufficient account of the range of fast-evolving financial innovations applied by entities within their scope.

3.2.6 FinTech firms appear to target a range of end-users, mostly consumers and financial institutions regulated pursuant to EU law (observations based on the sample of FinTech firms)

49. Figure 7 summarises the target end-users of firms in the FinTech sample that were reported as subject to a national authorisation regime, subject to a national registration regime, not subject to any regulatory regime, or having an unidentified regulatory status. The data implies that all four categories of FinTech firm target a wide range of end-users, with consumers being identified as the main target end-user, including for FinTech firms not subject to any regulatory regime. Regulated financial institutions are also targeted as end-users by a significant percentage of FinTech firms (in particular, 24% of FinTech firms identified as not subject to an EU or national regulatory regime target regulated financial institutions as their end-users).

50. In view of the EBA's consumer protection objective, the data suggests that there may be some benefit in investigating the scope and nature of consumer protection requirements to ensure that consumers are sufficiently protected when using financial services offered by firms outside the traditional financial services sector. In addition, recognising that it is not uncommon for financial institutions to use third party service providers, including for the provision of financial innovations, as business models change there may be some benefit in investigating arrangements governing the outsourcing by financial institutions of key services to ensure that robust governance arrangements are in place to mitigate outsourcing risks.

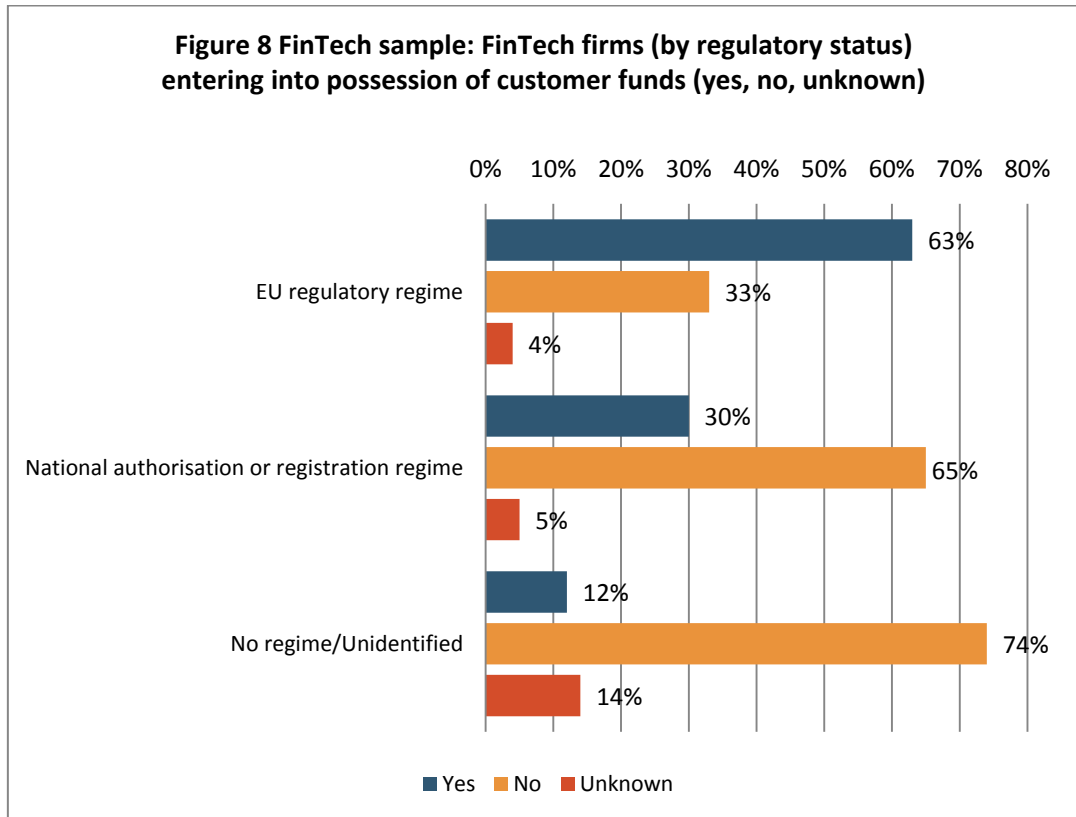


3.2.7 A significant proportion of FinTech firms appear to enter into possession of customer funds (observations based on the sample of FinTech firms)

51. Figure 8 shows the proportion of firms in the FinTech sample that enter into possession of customer funds classified by regulatory status. Of the FinTech firms in the sample subject to an EU regulatory regime, 63% enter into possession of customer funds, whereas 33% of these do not. Information was not provided for 4% of the referred FinTech firms.

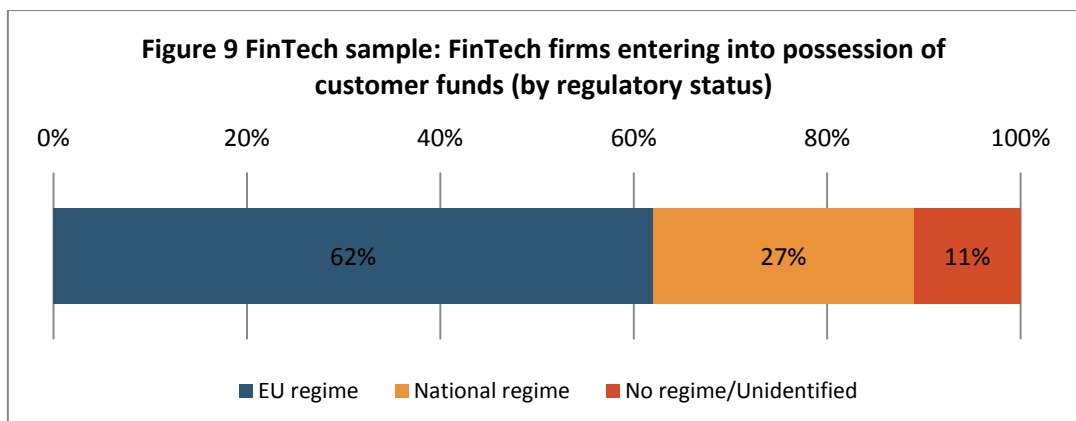
52. Of the FinTech firms in the sample subject to national authorisation or registration regimes, 30% enter into possession of customer funds, whereas 65% of these do not. Information was not provided for 5% of the referred FinTech firms.

53. Of the FinTech firms in the sample subject to no regime or where the regime was unidentified, 12% enter into possession of customer funds; 74% do not enter into possession of customer funds. Information was not provided for 14% of the referred FinTech firms.



3.2.8 Both regulated and non-regulated FinTech firms appear to enter into the possession of funds (observations based on the sample of FinTech firms)

54. Figure 9 shows that 62% of firms in the FinTech sample in possession of customer funds are subject to an EU regulatory regime, and 27% are subject to a national regulatory regime. 11% are subject to no regulatory regime/no identified regulatory regime, which implies that there may be benefits in investigating the nature of these firms' relationships with their customers, and the types of customers involved, in order to assess if there are any uncovered risks to consumers.



3.2.9 The authorisation regimes specified in national law appear to cover various types of FinTech firm and vary in their characteristics (observations based on the sample of FinTech firms)

55. This subsection sets out a summary of the specific authorisation regimes in place under national law that were reported by the competent authorities as applying to FinTech firms in the sample. The analysis in this subsection does not extend to national regimes that: (i) implement in national law the CRD/CRR, the EMD, the PSD, PSD2, MiFID and the Prospectus Directive,⁴⁶ or (ii) constitute general companies regulation (such as commercial codes), as the focus is on bespoke national authorisation regimes applicable to firms falling within the scope of the FinTech survey.

56. Of the competent authorities, 64% reported national authorisation regimes. For the purposes of comparing the prudential and conduct of business features of those regimes, the regimes were divided into three categories: those applicable to lending-based crowdfunding platforms, those applicable to other financial intermediaries, and miscellaneous (including for small management companies). The regimes falling within the first two categories are considered further in this subsection, as they allow a direct comparison; those falling within the miscellaneous category cannot be directly compared at this stage.

57. Eight Member States reported the existence of authorisation regimes for online platforms to enable lending-based crowdfunding/peer-to-peer transfers (i.e. essentially alternative funding platforms generally providing services within the scope of Clusters A and C), but only six Member States provided detail on the features of those regimes.

58. Two Member States reported the existence of authorisation regimes for financial intermediaries (provision of comparison services (financial service D2), credit intermediation under Article 4(5) of Directive 2014/17/EU (financial service A6)) and lending and other financial services involving credit, deposits and capital raising (financial services A3 and A8).

a. Prudential requirements and conduct of business requirements

59. In terms of the prudential features of the national authorisation regimes applicable to lending-based crowdfunding platforms, in one jurisdiction the CRD/CRR regime is applied and, therefore, the full complement of prudential requirements under CRD/CRR is imposed (e.g. in terms of own funds, large exposures, liquidity and leverage requirements). In the other cases, bespoke requirements apply (in particular for own funds requirements). In several cases, no prudential requirements were reported, implying that only conduct of business requirements apply. Similar observations can be made in relation to the two reported national authorisation regimes for financial intermediaries with one jurisdiction applying the CRD/CRR regime with relevant modifications and the other imposing bespoke requirements.

⁴⁶ https://ec.europa.eu/info/business-economy-euro/banking-and-finance/financial-markets/securities-markets/securities-prospectus_en#prospectus-directive.

60. In terms of the conduct of business, systems and controls requirements and arrangements for the safeguarding of client funds were reported for lending-based crowdfunding platforms and for financial intermediaries. Other forms of requirements, for example disclosure and supervisory reporting requirements, were less frequently reported.

61. As outlined above, some jurisdictions have specific national authorisation regimes for lending-based crowdfunding platforms and financial intermediaries and others do not. In addition, the reported features of the national regimes vary. The differences across the jurisdictions imply that it may be appropriate for the EBA to investigate further the nature of the national regulatory regimes (e.g. as regards the regulation of cases in which entities enter into the possession of funds). Such an investigation could seek to determine if any level playing field or consumer protection issues arise from the variations across Member States, recognising that there might be legitimate reasons for some FinTech firms not being subject to specific (financial) regulation and supervision (e.g. because of the nature and scale of their activities).

b. National authorisation regimes: Requirements to have recovery and resolution plans

62. Competent authorities in twenty-two jurisdictions noted that no FinTech firms subject to a national regulatory regime are required to have a recovery plan. In one jurisdiction, such a requirement is in place in the peer-to-peer and crowdfunding regimes. In another, crowdfunding platforms may be required by the competent authority to submit a recovery plan if a firm does not comply with own funds requirements. Of the twenty-four respondents, twenty-three have no resolution plan requirements in place. Only one mentioned a resolution plan in the form of a 'run-off' plan for continued administration of loans if a crowdfunding firm exits the market.

63. Nineteen of the twenty-four respondents stated that FinTech firms subject to a national regime are not members of any deposit guarantee scheme, investor protection scheme or other compensation scheme protecting customers. In the cases where some form of deposit/investor protection exists:

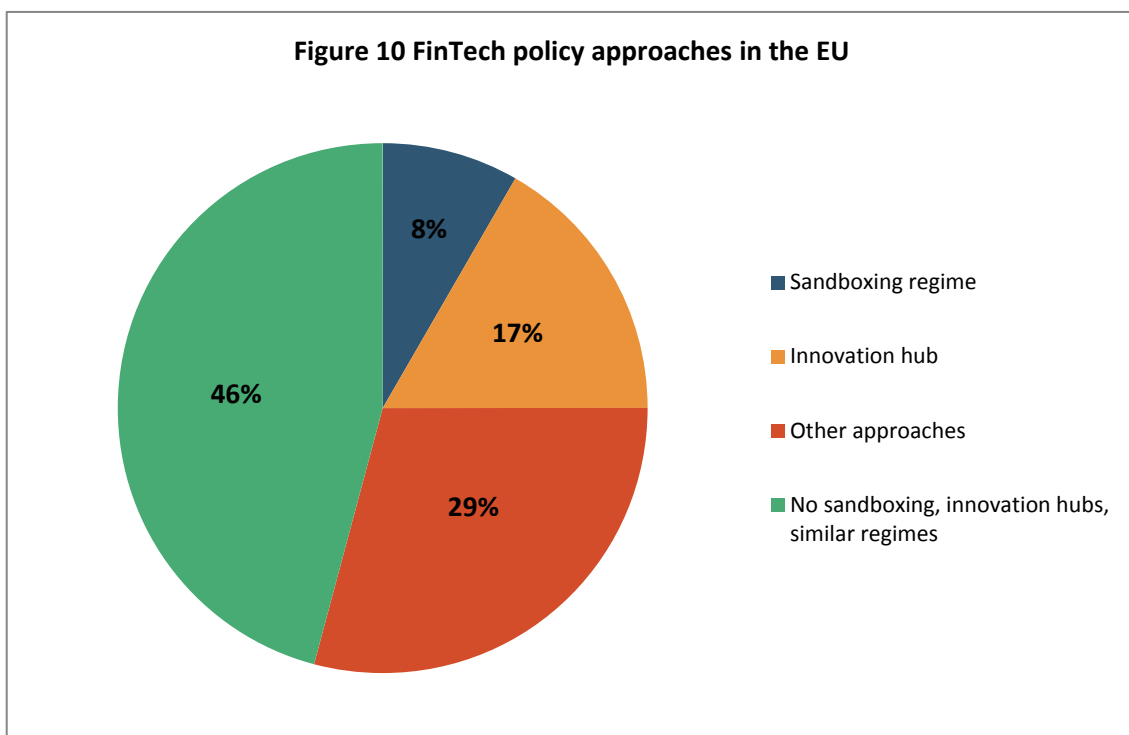
- a. one respondent stated that three FinTech firms are members of a deposit guarantee scheme (because they are credit institutions);
- b. three respondents have FinTech firms which are members of some form of investor protection scheme;
- c. one respondent mentioned one FinTech firm as having 'a bank guarantee'; and
- d. three respondents referred to the requirement for some FinTech firms to separate client funds.

64. The results imply that, generally across jurisdictions, FinTech firms regulated at national level are not subject under national law to recovery and resolution plan requirements and few are members of any form of scheme protecting their customers in case of their failure. This situation may merit further analysis.

3.3 Policy approach to FinTech under national regimes

65. Preliminary analysis of the FinTech survey data suggests that sandboxing regimes, innovation hubs or similar regimes are in place in almost half of the jurisdictions. These aim of supporting the development of FinTech while maintaining a healthy and stable financial system.

66. More specifically, Figure 10 provides an overview of the estimated total number of sandboxing regimes, innovation hubs and other, similar, approaches in the EU. Two jurisdictions reported that a sandboxing regime is in place, four jurisdictions reported that innovation hubs are in place and seven jurisdictions have introduced similar approaches. Eleven jurisdictions reported that they did not have sandboxing regimes, innovation hubs or similar regimes in place.



67. In one Member State where a sandbox exists, the competent authority noted that sandboxing regimes help FinTech firms to test innovative products, services and business models, while ensuring consumer/user protection safeguards. There are strict eligibility criteria (relating to the scope of the innovation, the nature of the innovation and consumer benefit) that firms need to fulfil before operating in a sandboxing regime. Eligibility criteria differ across the jurisdictions.

68. Innovation hubs provide direct support to FinTech firms trying to launch new products into the market and help FinTech firms to understand the applicable regulatory requirements. The characteristics of innovation hubs differ across the four jurisdictions where they exist. Innovation hubs represent a point of contact between FinTech firms and supervisory authorities. Innovation hubs usually offer the following services to new FinTech firms: industry and networking events, website guidance and informal assistance.
69. Where jurisdictions have not introduced sandboxing regimes or innovation hubs, in some cases other similar approaches have been introduced. A common example observed in some jurisdictions is the presence of a specific team focusing on assessing digital innovations or more broadly on FinTech and developing initiatives in this area. The main purpose of the team is to engage with market participants and provide support to firms seeking advice on regulatory requirements.
70. In general, sandboxing regimes, innovation hubs and other similar approaches described in the reported data are intended to help FinTech firms build compliance systems into their business models and foster competition in the economy, where the latter is within the mandate of the competent authority.

4. Preliminary views and next steps

71. Given the EBA's mandate and scope of action as set out in Chapter 2, and the findings of the EBA's FinTech survey presented in Chapter 3, the EBA has identified the following areas for further analysis in 2017/18:
- a. authorisation and registration regimes and sandboxing/innovation hub approaches;
 - b. prudential risks and opportunities for credit institutions, payment institutions, and electronic money institutions;
 - c. the impact of FinTech on the business models of credit institutions, payment institutions and electronic money institutions;
 - d. consumer protection and retail conduct of business issues;
 - e. the impact of FinTech on the resolution of financial firms;
 - f. the impact of FinTech on AML/CFT.

4.1 Authorisation and registration regimes and sandboxing/innovation hub approaches

72. Based on the preliminary observations set out in subsections 3.2.2 to 3.2.9 and section 3.3, the EBA notes that:
- a. The different treatment of FinTech firms offering similar financial services could benefit from further investigation as differences could potentially lead to level playing field issues and forum shopping for the most amenable regulatory treatment.
 - b. In terms of regulatory status, a significant percentage of FinTech firms in the sample were subject to no regulatory regime or have an unidentified regime. While the EBA acknowledges that there could be legitimate reasons for some FinTech firms not being subject to (financial) regulation and supervision, there may be merit in investigating the approaches to the monitoring of the FinTech sector in order to ensure that risks are appropriately identified and addressed.
 - c. The significant number of reported sandboxing regimes, innovation hubs or similar regimes appear to have varying features which suggests that there may be a need to further analyse these regimes. A question that arises is whether the means used to achieve the aim of sandboxing regimes to facilitate innovation and

competition, including the waiving of particular requirements and the eligibility of particular entities to be included in the sandbox, are in line with existing EU directives and regulations.

73. The EBA has recently published final draft RTS and ITS on the authorisation of credit institutions pursuant to Article 8(2) and (3) of the CRD,⁴⁷ and Guidelines on the authorisation of payment institutions under Article 5(5) of PSD2.⁴⁸ While these RTS, ITS and Guidelines serve to ensure the consistent application of the legislative framework regarding authorisation processes for credit and payment institutions and electronic money institutions and the registration process for account information service providers, the EBA is nonetheless of the view that further work could be conducted in relation to the issues identified above.

Proposed way forward

74. The EBA considers that work should be carried out to:
- a. Assess the national regulatory regimes that are in place and produce an EBA report and, if appropriate, an opinion. The report/opinion would compare the regulatory treatment of selected activities and the provision of different forms of financial products and services under national law and EU law with a view to reviewing the perimeter of regulation, including the nature of the regulated activities prescribed in EU law, and level playing field and consumer protection issues, taking also into account also levels of activity and risk, and how regulation in this field might affect the development of FinTech in the EU.
 - b. Further assess the features of sandboxing regimes, innovation hubs and similar regimes.
 - c. Assess the merits of converting the EBA Guidelines on authorisations under PSD2 (referred to above) into RTS, in order to ensure compliance, and only once experience has been acquired in the application of the Guidelines, in line with Article 5(6) of PSD2, which provides the following: 'Taking into account, where appropriate, experience acquired in the application of the guidelines referred to in paragraph 73, EBA may develop draft regulatory technical standards specifying the information to be provided to the competent authorities in the application for the authorisation of payment institutions, including the requirements laid down in points (a), (b), (c), (e) and (g) to (j) of paragraph 1' (relevant to FinTech firms to the extent that they provide payment and/or electronic money services).

⁴⁷ See <http://www.eba.europa.eu/-/eba-publishes-final-standards-specifying-information-requirements-for-the-authorisation-of-credit-institutions>.

⁴⁸ See <https://www.eba.europa.eu/-/eba-publishes-final-guidelines-on-authorisation-and-registration-under-psd2>.

- d. Undertake further work to assess the merits of harmonising the assessment of applications for authorisations in order to achieve greater consistency in supervisory practices.
75. Further, the EBA has under way work to assess the prudential treatment of firms carrying out credit intermediation activities outside solo prudential frameworks specified in EU law. This will complement the FinTech survey in relation to the assessment of the treatment of firms carrying out credit intermediation activities and subject to a national regulatory regime. The EBA is expected to report the results of this work before the end of 2017.

Questions:

- 1. Are the issues identified by the EBA and the way forward proposed in section 4.1 relevant and complete? If not, please explain why.**

4.2 Prudential risks and opportunities for credit institutions, payment institutions and electronic money institutions

4.2.1 Prudential risks and opportunities for credit institutions

76. As already evidenced in the EBA's *Risk assessment of the European Banking System* (December 2016),⁴⁹ institutions face an ever-increasing number of ICT-related risks, which are in the focus of supervisors. They include, but are not restricted to, rigid and outdated IT systems, IT resilience and governance, outsourcing and disruption due to FinTech competitors. This reinforces the recent trend of incumbent institutions being confronted with innovative FinTech firms that are reinventing and transforming financial services by leveraging new technologies. Although it is currently too early to evaluate the full disruptive potential of FinTech for the European banking sector, it is possible that these innovative services and new market entrants will, over time, impact existing business models and, inevitably, credit institutions' risk profiles.
77. Of course, the opportunities presented by FinTech may entail benefits for:
- a. customers – through improved quality, more customer-focused products, improved user experience, easier access to financial services, and cheaper services and products;
 - b. credit institutions (and other financial institutions) – through efficiencies, including cost reduction and faster provision of services, possible increases in customer numbers through easier access to financial services, lower regulatory compliance costs and increased reporting reliability;

⁴⁹ <http://www.eba.europa.eu/documents/10180/1315397/EBA+Risk+Assessment+Report+December+2016.pdf>.

- c. supervisors – through the use of new technological tools in their oversight activities;
- d. the industry – through improvements in the efficiency of, for example, information exchange, the provision of new services and business models, enhanced market transparency and, possibly, reduced systemic risk.

Overall, FinTech may increase competitiveness in the Single Market, through lowering barriers to entry for newcomers, while preserving fair competition and incentives to innovate.

78. However, the current interaction with FinTech may change the risk profile of credit institutions as existing risks that are currently deemed to be immaterial may be amplified through the use of FinTech, prompting credit institutions to review their risk management frameworks and strategies. A significant increase in overall operational risk has been witnessed in the last few years, including higher conduct risk, increased cybersecurity issues (see below) and digital fraud issues, and increased outsourcing risk, while at the same time new or previously immaterial risks such as the risk of mismanagement of personal data / lack of data privacy seem to be amplified by the lack of expertise of human resources and the inadequacy of technology infrastructures. Therefore, the potential rewards and opportunities that credit institutions aim to achieve by engaging with FinTech do not come without potential risks, which will need to be thoroughly and comprehensively assessed.
79. Moreover, credit institutions may face competitive pressure stemming from other operators entering their traditional markets. Business risk appears to remain one of the most important risks to manage as FinTech development may lead to further pressure on margins and related market shares for existing credit institutions which have bigger, less flexible and more expensive infrastructures. For example, alternative lending platforms such as peer-to-peer lending can put pressure on the interest income from loans of existing credit institutions, and new entrants offering commoditised products and services, such as money transfers and brokerage, at lower costs, can reduce the fees and commission income of established players. In addition, profitability could be affected by weaker customer ties due to improved efficiency and customer choice, leading to decreased opportunities for cross-selling products and services. Furthermore, the risk of investors moving away from incumbent credit institutions increases the solvency risk level. Changes in customer loyalties could also influence the stability of institutions' funding.
80. FinTech developments can cause a material impact on cybersecurity-related risks⁵⁰ for credit institutions. Given the growing digitisation of the financial ecosystem and the increasing reliance of credit institutions on interconnected IT systems, cybersecurity-related risks are particularly relevant in the context of FinTech. As the FinTech

⁵⁰ Cybersecurity refers to the various measures for helping to ensure the confidentiality, integrity and availability of information systems, by preventing or managing malicious attempts at compromising system security, which can ultimately disrupt, disable, destroy, and harm an institution's system resources.

developments entail the sharing of data across a wider set of parties with greater speed and increased automation in executing transactions, challenges around protecting data and the integrity of systems are likely to arise. Cybersecurity breaches can cause operational, legal and reputational issues and financial losses for institutions, and they can also undermine longer term confidence in new solutions, leading to lower adoption rates. Furthermore, the increasing interconnectedness between financial institutions and other service providers may create a risk of contagion within the financial sector as a whole.

81. At the same time FinTech innovations may potentially pose a threat to financial stability due to, for example, disintermediation of regulated institutions or activities or the deep IT interdependencies between market players and market infrastructure, which could cause an IT risk event to escalate into a systemic crisis. Although the ultimate effect on established market participants and the provision of financial services is not yet fully known, the rapid pace and broad reach of FinTech developments indicate that further work on this area is required.
82. The growing importance of cloud services as a driver of innovation and one of the key enabling technologies driving FinTech, as well as the increasing interest in the use of cloud outsourcing solutions within the banking industry has led the EBA to develop recommendations on the use of cloud services by credit institutions and investment firms.⁵¹ The draft recommendations aim at providing common guidance for the use of cloud services by institutions. The recommendations are designed to supervisory expectations for this particular type of outsourcing allowing credit institutions and investment firms to leverage the benefits of using cloud services, while ensuring the necessary risk control management and regulatory compliance.
83. The increasing complexity of ICT risk within the banking industry and in individual institutions, which is also present in any FinTech development, as well as its potential adverse prudential impact on institutions and on the sector as a whole have also prompted the EBA to develop EU-wide common Guidelines⁵² to assist competent authorities in their assessment of increasingly complex ICT risk as part of the overall SREP for institutions. The Guidelines also cover the assessment of cybersecurity risks and controls as part of ICT security, availability and continuity risks.
84. In order to address the risks referred to above, the EBA is currently working on cybersecurity risks, having as an ultimate goal the harmonisation of supervisory practices for assessing the management of cybersecurity risk by institutions across Member States. The work will also focus on how to strengthen cross-border cooperation between competent authorities across Member States in the area of cybersecurity. In this work, the EBA is cooperating closely with the EU competent authorities and the European Union

⁵¹ See <http://www.eba.europa.eu/-/eba-consults-on-its-guidance-for-the-use-of-cloud-computing>.

⁵² See <https://www.eba.europa.eu/regulation-and-policy/supervisory-review-and-evaluation-srep-and-pillar-2/guidelines-on-ict-risk-assessment-under-the-srep>.

Agency for Network and Information Security, which is the centre of network and information security expertise for the EU. Any system-wide issues related to cybersecurity identified during the work will be put forward to the relevant EU institutions.

Proposed way forward

85. The EBA considers that further work should be conducted on identifying the prudential risks and opportunities for credit institutions stemming from the use of new technologies with the aim of providing guidance to supervisors on how to understand and evaluate these new prudential risks, developing coordinated supervisory approaches, and identifying potential system-wide issues that need to be addressed.
86. The range of EBA work planned is envisaged to consist of:
- a. An in-depth analysis of the risks and opportunities for credit institutions resulting from technological innovations;
 - b. workshops and training for supervisors;
 - c. the possible updates to relevant EBA Guidelines for supervisors.

Questions:

2. Are the issues identified by the EBA and the way forward proposed in subsection 4.2.1 relevant and complete? If not, please explain why.

3. What opportunities and threats arising from FinTech do you foresee for credit institutions?

4.2.2 Risks and opportunities for payment institutions and electronic money institutions

87. The increasing complexity of ICT risks arising from the highly innovative nature of the retail payments market, as well as the market's potential adverse impact on the stability of payment institutions and of the sector as a whole, has prompted the European Commission and co-legislators to strengthen related requirements in PSD2. In support of these objectives, PSD2 has conferred on the EBA a mandate to develop, in close cooperation with the ECB, three security-related products:
- a. Guidelines on incident reporting under PSD2;⁵³
 - b. Guidelines on security measures for operational and security risks under PSD2;⁵⁴

⁵³See

<https://www.eba.europa.eu/documents/10180/1688810/Consultation+Paper+on+the+Guidelines+on+Major+Incidents+Reporting+under+PSD2+%28EBA-CP-2016-23%29.pdf>.

- c. Technical standards on strong customer authentication and common and secure communication.⁵⁵

Proposed way forward

88. In addition to the ongoing work, the EBA considers that further work should be conducted on identifying the prudential risks and opportunities for payment institutions and electronic money institutions stemming from the use of new technologies. It is envisaged that such work will be aimed at providing supervisors with tools on how to understand and evaluate these new prudential risks to payment institutions and electronic money institutions, in order to develop coordinated supervisory approaches, and identify potential system-wide issues that need to be addressed.
89. Given the use of Blockchain and DLT suggested by the results of the FinTech survey, the EBA may also want to assess the risks and potential benefits suggested by additional use cases for DLT in the payments market. Similarly to the work ESMA has conducted in respect of these innovations in the securities market, the EBA may consider similar work in the field of payments. This work would go beyond the analysis that the EBA has already carried out in relation to VCs, as the first use case for DLT, through its warning and opinion on VCs in 2013 and 2014 respectively.
90. Also in the areas of payments, the EBA will continue to develop and implement the security-related products required under PSD2, will monitor whether or not they have the desired effects and will take additional action if needed.
91. The range of EBA work planned consists of:
 - a. an in-depth analysis of the risks and opportunities for payment institutions and electronic money institutions resulting from technological innovations;
 - b. workshops and training for supervisors;
 - c. possible updates to relevant EBA Guidelines for supervisors.

⁵⁴ See

<https://www.eba.europa.eu/documents/10180/1836621/Consultation+Paper+on+the+security+measures+for+operational+and+security+risks+of+payment+services+under+PSD2+%28EBA-CP-2017-04%29.pdf>.

⁵⁵ See

<https://www.eba.europa.eu/documents/10180/1761863/Final+draft+RTS+on+SCA+and+CSC+under+PSD2+%28EBA-RTS-2017-02%29.pdf>.

Questions:

4. Are the issues identified by the EBA and the way forward proposed in subsection 4.2.2 relevant and complete? If not, please explain why.

5. What opportunities and threats arising from FinTech do you foresee for payment institutions and electronic money institutions?

4.3 The impact of FinTech on the business models of credit institutions, payment institutions and electronic money institutions

4.3.1 Impact of FinTech on incumbent credit institutions' business models

92. While technological innovation in finance is not new, investment in technology and the pace of innovation have increased significantly in recent years. Technological developments are fundamentally changing the way people access financial services. Technological innovation is driving, among other things, social networks, artificial intelligence, machine learning, mobile applications, DLT, cloud computing and Big Data analytics. FinTech involves the entire financial sector, including front, middle and back-office activities, as well as services for both retail and wholesale markets.
93. Credit institutions may need to adapt their business models, for example, by: (a) adjusting their offered products and their interaction with customers and employing FinTech technologies and products, thus increasing their revenues, (b) adopting new technologies through digitalisation of internal processes, thus reducing costs, or (c) a combination of both.
94. The evolution of FinTech seems to be forcing credit institutions to re-think their approach on customer interaction as financial innovation is currently a leading force shaping the banking industry and the way consumers and firms access financial services. Credit institutions may be forced to adapt their business models in response to the increasing competition from FinTech in the context of an already challenging operating environment characterised by generally low profitability. Overall, credit institutions may have to move from a “product/channel centric approach” towards a “customer centric approach” adapting their supply to the particular clients' needs.
95. From the revenues side, it can be observed that credit institutions are setting up innovation and accelerator hubs and entering into direct competition with FinTech firms with new end-user product offerings (e.g. mobile payments, and online trading platforms), with the aim of either protecting their existing revenues from the FinTech competition or achieving new revenues to increase their fees and commissions income, which is important in the current low interest rate environment. Other credit institutions collaborate with FinTech firms and enter into partnerships with start-ups and technology firms to offer new products, for

example mobile or peer-to-peer payments, to their existing customers or to participate in crowdfunding activities or apply sensor data for insurance premium reductions (see Chapter 3 in relation to the target end-users of FinTech firms the findings imply that regulated financial institutions are also consumers of products and services provided by FinTech firms).

96. The expansion of FinTech in a low profitability environment may also create opportunities for credit institutions. The role of FinTech in reducing operational and compliance costs for credit institutions is an important benefit, as it makes the financial sector more efficient and competitive, which would also benefit consumers. The EBA sees many credit institutions in the EU embarking on digitalisation projects aimed at streamlining and automating their back office operations in various areas ranging from trading in financial products, accounting, and loan processing and administration to automated analysis and decision-making, and compliance (e.g. RegTech). Quite often, these projects rely on technological developments in the field of data analysis (Big Data) or advances in the use of artificial intelligence and machine (assisted) learning.
97. FinTech may be able to offer solutions to increase cost efficiencies, address users' complex needs and generate value for the economy, but in order for these solutions to be delivered, appropriate policies on important issues, such as access to technology, data standardisation and security, personal data protection and data management, need to be put in place.
98. In combination with socio-economic and demographic trends, increased offering of digital-only products, digitalisation and automation of end-to-end processes may translate into physical branches being replaced by digital services, further changing credit institutions' business models.
99. In addition to creating new opportunities, FinTech may also pose significant challenges, as many credit institutions still operate with outdated legacy IT systems that require additional investments for their modernisation. This is considered to constitute a significant disadvantage for these institutions compared with 'pure' FinTech firms, which have modern systems and technology and no legacy issues. On the other hand, incumbent credit institutions also have access to a vast number of clients, which is often not the case for pure FinTech firms.
100. The EBA has developed a methodology for business model analysis as part of its common procedures and methodologies for SREP which has been incorporated into the EBA's Guidelines on common procedures and methodologies for SREP and the dedicated chapter of the Supervisory Handbook.

Proposed way forward

101. The EBA will continue working on better understanding the impact of FinTech on credit institutions' business models and their strategic response. In particular, the EBA is planning to further analyse (1) how the relationship between incumbent credit institutions and new

players in the financial sector will evolve (including changes in ownership of customer relationships), (2) what the threats to the viability of the business models and the sustainability of the strategies of incumbent credit institutions are in view of FinTech evolution, and (3) what adapted and new business models are emerging in the financial sector following FinTech evolution (including the impact on distribution chains).

102. The first phase of the work on the impact of FinTech on incumbent credit institutions' business models, which is planned to be completed by the end of 2017, is intended to provide an overview of the current landscape across the Single Market and of the key trends observed in relation to the reshaping of the current business models stemming from technological innovation and digitalisation.
103. With a view to understanding the impact on credit institutions' business models, it is proposed that the EBA take the following actions:
 - a. hold interviews with a representative sample of credit institutions;
 - b. develop a thematic report on changes to the business models of incumbent credit institutions.

Questions:

6. Are the issues identified by the EBA and the way forward proposed in subsection 4.3.1 relevant and complete? If not, please explain why.

7. What are your views on the impact that the use of technology-enabled financial innovation and/or the growth in the number of FinTech providers and the volume of their business may have on the business model of incumbent credit institutions?

4.3.2 Impact of FinTech on incumbent payment institutions and electronic money institutions business models

104. To date, the EBA has been working on better understanding the impact of FinTech on the business models of credit institutions and their strategic response and, therefore, has not yet considered the impact of FinTech on incumbent payment institutions' and electronic money institutions' business models.

Proposed way forward

105. The EBA considers that the work discussed in the preceding paragraphs should be expanded to include in its scope payment institutions and electronic money institutions.
106. With a view to understanding the impact on incumbent payment institutions' and electronic money institutions' business models, it is proposed that the following actions be taken:

- a. hold interviews with a representative sample of payment institutions and electronic money institutions;
- b. develop a thematic report on changes to the business models of incumbent payment institutions and electronic money institutions.

Questions:

8. Are the issues identified by the EBA and the way forward proposed in subsection 4.3.2 relevant and complete? If not, please explain why.

9. What are your views on the impact that the use of technology-enabled financial innovation and/or the growth in the number of FinTech providers and the volume of their business may have on the business models of incumbent payment or electronic money institutions?

4.4 Consumer protection and retail conduct of business issues

107. In fulfilment of the EBA's mandate to monitor financial innovation, the EBA has done significant work to identify potential benefits and risks arising for consumers as a result of particular FinTech innovations. This includes VCs (in 2014 and 2017), crowdfunding (2015), automated (robo-)advice (2016) and innovative uses of consumer data (2017). In addition, in the area of financial literacy the EBA has developed a repository of national initiatives. As a result, the EBA's views in respect of the impact of FinTech are better developed in relation to the consumer-focused part of its remit than in relation to other parts, and therefore the proposed next steps in this chapter for additional follow-up work in this section are more detailed than those in sections 4.1 to 4.3.
108. Technological innovation may bring many benefits for consumers, including access to credit, improved comparability of products, access to a wider product range, availability of up-to-date information, tailored product offerings, reduced costs and consumer convenience through, for example, the possibility of investing through crowdfunding platforms and receiving robo-advice.
109. However, the EBA has identified consumer risks arising from technological innovation that need to be assessed to understand what, if any, action the EBA should take to mitigate them. The EBA has identified the following 'longlist' of areas that might require EBA follow-up work both in relation to regulatory and supervisory convergence.

4.4.1 Unclear consumer rights due to unclear regulatory status

110. Because of the particular business models chosen by some FinTech firms, their authorisation status is often unclear and difficult for customers to ascertain; for example, some FinTech firms limit their activities to the intermediation of services provided by

others. This makes it difficult for consumers to determine who they are dealing with, what the firm's regulatory status is (or indeed whether it is regulated at all) and what specific rights they have as consumers.

Proposed way forward

111. Given that this issue relates to the regulatory perimeter and the application of regulatory regimes to FinTech firms, please see the way forward proposed in paragraph 74. By providing further clarity on the regulatory perimeter of the referred firms, consumer protection will be enhanced.

Question:

10. Are the issues identified by the EBA and the way forward proposed in subsection 4.4.1 relevant and complete? If not, please explain why.

4.4.2 Unclear consumer rights in the case of cross-border provision

112. Not all consumer protection law applicable in the Member States is harmonised, and differences exist not only in regulation but also in the supervision of compliance with the legislation. Some FinTech firms might therefore choose a Member State as their home State because the regulatory regime is perceived to be less burdensome. This could result in regulatory arbitrage and different levels of consumer protection across Member States. This in turn might affect the integrity of the Single Market. Although those concerns may be equally true for business that is not FinTech related, the concern is greater in relation to FinTech firms, as technology facilitates remote consumer relationships.
113. The EBA has identified, partly based on the results of the FinTech survey, several concerns in this regard:
- a. Digitalisation and the provision of financial services over the internet may significantly increase the number of firms operating cross-border under the freedom to provide services or the right of establishment.
 - b. There is a lack of clarity on whether or not companies providing financial services over the internet are acting under the freedom to provide services.
 - c. FinTech firms perform financial services on the basis of innovative business models mainly on a cross-border basis, that is, via the internet. This creates uncertainty about which Member State's regulatory regime applies, including for example, in the area of complaints handling. It is clear that, among other things, international cooperation among regulators and supervisors is needed to maintain both supervisory effectiveness and adequate regulatory oversight. Further, there is a need to ensure that the competent authorities of host Member

States have access to an adequate level of information regarding cross-border activities.

114. In the field of cross-border issues, the EBA has published the draft RTS on passporting under PSD2 and the Guidelines on passport notifications for credit intermediaries under the MCD. The EBA has also published the draft RTS and ITS on information exchange between home and host competent authorities regarding branches and services providers under the CRD.
115. The Joint Committee of the three ESAs is currently launching a discussion on cross-border supervision of retail financial services with a particular focus on cross-sectoral issues.

Proposed way forward

116. The EBA is of the view that further work could be done to address cross-border issues for consumers and more specifically to assess:
- a. If the current EBA Guidelines and RTS are sufficient or if these need to be amended for FinTech firms. Where under the scope of action derived from Level 1 text no direct action can be taken by the EBA, the EBA will address an opinion to EU legislators suggesting amendments as necessary.
 - b. If equivalent regulation needs to be extended to non-regulated FinTech firms in order to address cross-border issues.
 - c. The merits of setting up a harmonised and effective framework for cooperation and exchange of information between home and host competent authorities for all banking products and services within the EBA's scope of action.
 - d. The merits of establishing a more coherent, clear and effective distribution of competences between home and host national authorities and the potential for doing so between the three ESAs for a consistent cross-sectoral approach. This work might involve the submission of an opinion to EU legislators.
 - e. The merits of the EBA being the forum for both facilitating information sharing among EU banking regulators/supervisors and contributing to a coordinated regulatory response in those areas where national measures are being taken.

Questions:

11. Are the issues identified by the EBA and the way forward proposed in subsection 4.4.2 relevant and complete? If not, please explain why.

12. As a FinTech firm, have you experienced any regulatory obstacles from a consumer protection perspective that might prevent you from providing or enabling the provision of financial services cross-border?

13. Do you consider that further action is required on the part of the EBA to ensure that EU financial services legislation within the EBA's scope of action is implemented consistently across the EU?

4.4.3 Unsuitable or non-existent complaints handling procedures

117. In this area, particular issues arise concerning the following:

- a. Lack of a common contact point: from information gathered by the EBA through engagement with supervisors on a best efforts basis in relation to unregulated FinTech firms, it appears that in most cases such firms do not have a common contact point for complaints. This affects not only the FinTech firms, in terms of a lack of clarity about how they should manage complaints, but also consumers by generating confusion in several respects, including who they need to contact. This issue has been raised in particular with reference to some innovative products and services (e.g. VCs) with respect to which the inevitable lack of standards and definitions makes it difficult for users to gauge the features of the specific product (e.g. in the case of VC schemes).
- b. Complaints data: the EBA is aware that complaints handling procedures are quite rarely set up by non-regulated FinTech firms. Where these firms do operate a complaints procedure, complaints are not always reported and classified appropriately. Consequently, at this stage complaints handling procedures through digital channels do not appear to provide for either complete or consistent management.
- c. Unclear allocation of tasks and responsibilities in multilateral relationships: FinTech services are often provided through the interaction of several firms, each of them carrying out autonomously one part of the whole. This is the case, for instance, in the offering of automated financial advice, where the increasing automation of different parts of the advice process creates greater opportunities for those separate parts of the process to be performed by different automated tools (e.g. one tool is used to collect information from consumers, and another is used to propose recommendations based on the data collected). If different firms perform different parts of the process, it is essential that the allocation of liability among all parties involved is clear, both among the parties and to consumers. Otherwise, if disputes arise it may not be easy for consumers to understand which firm is providing the service and therefore is liable (e.g. in case of tool malfunction, inappropriate service or data security breach). This could confuse consumers and make it difficult for them to understand to which firm they can

direct queries or complaints; ultimately, this might result in delays or obstacles in resolving issues, including in providing redress (where relevant), possibly leading to consumer detriment.

- d. Management of large numbers of complaints: considering the key role played by complex algorithms or decision trees in performing automated services (e.g. in the case of automated advice tools), FinTech firms should be prepared to properly manage the risk that an error or inadequacy might occur during the development stage. Given the wide reach of automated tools, such an error could affect a large number of consumers at the same time, thus giving rise to a high volume of complaints to be promptly managed.
- e. Distorted use of Big Data: Big Data has the potential to significantly contribute to FinTech firms' ability to optimise both claims settlement and complaints handling by allowing them to offer customised solutions, closely matched to the consumer's actual needs. However, there is a risk that FinTech firms could exploit Big Data in a manner that is not in the consumer's best interest, relying on the statistical likelihood (i.e., predictability) that the consumer will accept an offer or response, rather than on the fair value of the claim itself.

Proposed way forward

- 118. The EBA is of the view that further work could be done on complaints handling and will explore which, if any, of the following actions should be taken:
 - a. In the absence of a fully harmonised legislative initiative taken at European level, the EBA will explore the possibility of issuing Guidelines and/or recommendations addressed to competent authorities and/or financial institutions to establish consistent, efficient and effective supervisory practices and/or firms' internal arrangements on complaints handling. It should be emphasised that any such initiative would need to take into account whether FinTech firms fall inside or outside of the regulatory perimeter. The EBA will also explore the potential need to update the existing cross-sectoral Joint Committee Guidelines for complaints handling for the securities and banking sectors or, if appropriate, issue an opinion to the EU legislators.
 - b. Cooperation: increased cooperation among competent authorities should be promoted in light of the cross-border and cross-sectoral nature of FinTech services. This would also allow for a degree of consistency in the applicable legal framework and ensure that consumers have, for example, access to effective mechanisms to resolve their complaints.
 - c. Internal complaints handling procedures: consumers should have available adequate complaints handling and redress mechanisms that are accessible, affordable, independent, fair, accountable, timely and efficient. Such mechanisms

should not impose unreasonable cost, delays or burdens on consumers and should be established regardless of the business models and distribution channels adopted by digital financial service providers. Having such processes in place will help to take advantage of the potential for digital financial services to increase financial inclusion by fostering trust in the system, making individuals more willing to use the services offered. Information on complaints handling processes should be available to consumers through both traditional and online channels. The use of technology has the potential to facilitate and improve processes for accessing and following internal complaints handling procedures (e.g. dedicated platforms could be provided using which consumers could follow the progress of their claim and proceed with the necessary steps).

- d. Management of complaints data: it is essential that complaints data is reported and classified as such. The completeness and consistency of the management of complaints to financial service providers must be ensured, especially in order to allow, inter alia, easy tracking and reporting. If the quality of the significant amount of available data on complaints was improved and made more consistent, this could represent a crucial opportunity for supervisory authorities to improve their analysis of complaints data and ultimately obtain a comprehensive overview of the main issues raised, enabling them to detect in a timely manner the most frequent complaints from consumers.

Question:

14. Are the issues identified by the EBA and the way forward proposed in subsection 4.4.3 relevant and complete? If not, please explain why.

4.4.4 Inadequate/insufficient disclosure to consumers in a digital environment

119. In this area, the EBA considers that particular issues arise concerning the following:

- a. Some competent authorities point out that some existing legal requirements, at EU and/or national level, may be outdated following developments in digitalisation. There is a need to allow paper to be replaced by durable mediums.
- b. There is a need to ensure that FinTech firms comply with transparency and disclosure of information obligations in order to prevent information asymmetries. In particular, some innovations that allow market participants anonymity; combined with the insufficient financial literacy and lack of technological accessibility may facilitate information inequality.
- c. There is a lack of transparency and (adequate) information regarding products and services and the use of consumers' data (e.g. unclear applicable terms and conditions; difficulty in identifying the financial product or service provided; difficulty in fully understanding products or services and the risks they entail;

difficulty in identifying the 'true contractual partner'; lack of transparency in pricing models), which can be exacerbated by a lack of face-to-face contact.

- d. The lack of (adequate) information or reduced opportunities to fill in information gaps or seek clarification when consumers interact with automated tools may result in consumers making unsuitable decisions.
- e. Regulators have to evaluate how information should be given to consumers through digital channels and supervisors have to ensure compliance with the legal and regulatory framework irrespective of the service provider and/or the channel used.
- f. In the majority of Member States, there are no separate FinTech regimes in place. In some countries, there are specific national regimes applicable to some FinTech firms (e.g. crowdfunding firms). This could result in regulatory differences between Member States regarding the disclosure requirements applicable to FinTech firms, and thus in different levels of protection for consumers.

Proposed way forward

120. The EBA is of the view that further work could be done on disclosure, and more specifically proposes to:

- a. Conduct an in-depth review of EU legislation requirements that may restrict digitalisation (physical presence, paper copies, handwritten signature, etc.).
- b. Assess how information should be presented in the digital ecosystem. All banking services providers have to guarantee that correct, clear and complete information is provided to consumers. The EBA will explore the effectiveness of information disclosure in relation to banking services provided through digital channels, and in particular mobile devices.
- c. Explore if there are regulatory gaps regarding, in particular, disclosure requirements in relation to (innovative) banking products and services provided by FinTech firms (and also incumbents).
- d. Evaluate the need to establish requirements on the provision of standard information on risks to mitigate information asymmetries in relation to products and services provided through digital channels and to ensure the appropriate presentation of information (e.g. imposing a time lag before a transaction can be executed may allow the time needed for the consumer to digest the product information provided; transmitting key information by video could be more appropriate for mobile devices).

- e. Evaluate, in relation to VCs, the possibility of implementing standards regarding information requirements, in particular on the risks involved.
- f. Further analyse the consequences of non-face-to-face interaction between consumers and providers and evaluate the need to establish an obligation to provide alternative ways for consumers to gain clarification and/or procedures to evaluate consumers' comprehension of products' features, risks, etc. (e.g. quizzes).
- g. Explore if new products and services need to be subject to disclosure requirements to ensure that consumers can more easily shop around, compare products and make an investment decision that is in their best interest.

Questions:

15. Are the issues identified by the EBA and the way forward proposed in subsection 4.4.4 relevant and complete? If not, please explain why.

16. Are there any specific disclosure or transparency of information requirements in your national legislation that you consider to be an obstacle to digitalisation and/or that you believe may prevent FinTech firms from entering the market?

4.4.5 Low levels of financial literacy

121. The EBA has identified the following issues related to financial literacy:

- a. Consumers with financial literacy competences take informed, confident and safer decisions and contribute to financial stability. However, in the EU, the level of financial literacy and consumer awareness remains very low.
- b. Most competent authorities have specific financial literacy initiatives at national level. However these are not specifically related to understanding FinTech but more general.
- c. Digital channels bring new risks to consumers regarding security, lack of information, unfair practices, etc. Therefore, supervisors have to raise consumers' awareness of these risks and disseminate information on the risk mitigation measures they should take in the digital ecosystem.

122. In the field of financial literacy, the EBA has developed a repository of national initiatives that will contribute to the development of best practices and strengthen the coordination of jurisdictions across the EU.

123. At national level, some Member States have specific financial literacy schemes relating to using digital services. In particular, one competent authority promotes awareness campaigns on the prevention of online and mobile fraud, through banks' customer websites and other initiatives; the campaigns are particularly aimed at children and adolescents, and are intended to (i) enhance consumer trust in digital financial services; (ii) empower consumers on security issues and (iii) boost consumer awareness of digital financial services' features and redress procedures.

Proposed way forward

124. The EBA is of the view that further work could be done on financial literacy and will:
- a. continue to coordinate and foster national initiatives on financial literacy;
 - b. promote the transparency and clarity of pre-contractual information through specific work on disclosure.

Questions:

17. Are the issues identified by the EBA and the way forward proposed in subsection 4.4.5 relevant and complete? If not, please explain why.

18. Would you see the merit in having specific financial literacy programmes targeting consumers to enhance trust in digital services?

4.4.6 Financial exclusion associated with artificial intelligence and data-driven algorithms

125. The EBA has reviewed the topic of automation in financial advice, often referred to as robo-advice, within the Joint Committee of the ESAs and published, in December 2016, a report that outlines the main risks and opportunities arising from this innovation. The report looked at the various ways in which human interaction in the relationship between consumers and financial firms is being replaced by automated tools and algorithms through which consumers receive, or perceive that they receive, advice or advice-like recommendations. One of the main consumer protection risks identified by the Joint Committee regarding automated tools was related to the possible malfunctioning of the tool due to errors, hacking or manipulation of the algorithm (e.g. consumers might suffer detriment because the automated financial advice tool they use is hacked and the underlying algorithm is manipulated).
126. In addition, the Joint Committee of the ESAs is analysing the potential impact of Big Data on financial services. By using Big Data, financial institutions can collect extensive information about customers and their risk profiles and therefore proceed with a risk micro-segmentation/refined credit scoring or a refined assessment of the suitability of an investment. In the context of this work, the EBA has noted a number of specific concerns,

in particular risks related to barriers to access to financial services because of granular segmentations, price discrimination or non-transparent credit scoring and decision-making, but also risks related to the ethics of algorithms, namely that their intentional or unintentional use of non-ethical criteria or reasoning (e.g. gender discrimination, algorithmically reconstructed via other variables, for instance for credit scoring) may be problematic.

Proposed way forward

127. Given the cross-sectoral nature of these risks, the EBA will further assess them in the context of the joint work of the ESAs on the topic of Big Data with a view to determining the potential need for Guidelines/recommendations on the use of Big Data analytics, such as social media predictive analytics or prescriptive analytics, for the purposes of advertising and/or marketing financial products and services (e.g. through behavioural advertising).

Question:

19. Are the issues identified by the EBA and the way forward proposed in subsection 4.4.6 relevant and complete? If not, please explain why.

4.5 The impact of FinTech on the resolution of financial firms

128. Through the FinTech survey, the EBA has identified the following issues in the context of recovery and resolution:
- a. Resolution-related requirements on FinTech firms are not common; however divergent practices are emerging across jurisdictions in respect of the requirements for FinTech firms to have a resolution/recovery plan and on potential winding up/pay-out and/or the continuity arrangements that must be in place.
 - b. FinTech firms could have a direct (e.g. as shareholders or creditors) or indirect (e.g. as competitors affecting profitability) impact on the resolvability of credit institutions. The risks and the opportunities that these firms and their innovations present in this regard will, therefore, require enhanced scrutiny in the near future.
 - c. The innovation of instant payments, which are being progressed in particular by credit institutions and through the TARGET2 payment system, may lead to scenarios where payments are settled within mere seconds, which has significant potential implications for the way in which resolution is executed. One of these is that payments, and therefore an outflow of deposits, may happen more quickly and continue during the 'resolution weekend'. The natural pause in payments

that is currently available might disappear with this development. This has implications for valuation and the extent to which resolution tools are used (e.g. transfer of deposits through the sale of business becomes more complicated if the amount of deposits to be transferred is not clear), and it may add another dimension to considerations about the timing of the determination when an institution is failing or likely to fail, as well as the way in which the moratorium tool is used.

- d. Increased digitalisation may also speed up the movement of deposits in a time of crisis, changing behavioural patterns in relation to deposit runs.
 - e. Some FinTech innovations are based on decentralised technologies, such as Blockchain, and/or cut out the middle-man (e.g. business-to-business platforms). If Blockchain use expands in the near future, this may raise the questions of how resolution authorities can apply their resolution powers (e.g. stays on derivatives, resolution of central counterparties) to these new technologies and how regulated firms that use these technologies can ensure business continuity given that they are not in control of the system.
129. FinTech may also offer opportunities and facilitate meeting resolution objectives, for example by improving reporting and monitoring processes, thus facilitating operational continuity.

Proposed way forward

130. In order to address the issues and opportunities discussed above, as part of the wider analysis of FinTech firms, the EBA will look into interactions between FinTech and credit institutions, as well as their consequences for resolution, and resolution planning in particular, and assess what, if any, action should be taken.

Question:

20. Are the issues identified by the EBA and the way forward proposed in section 4.5 relevant and complete? If not, please explain why.

4.6 The impact of FinTech on AML/CFT

4.6.1. Challenges/issues

131. The EU's AML/CFT framework is set out in, inter alia, Directive (EU) 2015/849 (the AMLD). The AMLD does not distinguish between FinTech and non-FinTech firms and applies to all firms that are 'obliged entities' for the purpose of Article 2 of that Directive. However, not all FinTech firms have been designated as 'obliged entities' in all Member States, even where they provide similar services to firms that have been designated as such. There is a

risk that this may affect competition, lead to regulatory arbitrage and create terrorist financing and money laundering vulnerabilities in that sector.

132. A number of respondents to the EBA's FinTech survey highlighted differences in the ways in which the AMLD's predecessor, Directive 2005/60/EC, was transposed by Member States, especially in respect of financial institutions' ability to carry out customer identification and verification remotely and through digital means. Neither the AMLD nor its predecessor sets out in detail how obliged entities should identify and verify the identity of their customers; rather they lay down minimum requirements that obliged entities must comply with, giving Member States flexibility in imposing more stringent standards through their national legislation. In some cases, this has made it difficult for financial institutions to employ innovative and/or FinTech solutions in their customer due diligence (CDD) processes, which could potentially hamper the development of FinTech firms whose business models rely on the use of innovative CDD solutions, and firms providing such solutions.
133. Some competent authorities responding to the FinTech survey have emphasised the need for clarification of the concepts of freedom to provide services and right of establishment in the FinTech and AML/CFT context. The distinction between the concepts can become blurred where services that are provided across borders over the internet or using other digital means directly target customers in other Member States. This raises questions regarding the application of AML/CFT legislation and the responsibilities of the home and host competent authorities for ensuring compliance with the applicable AML/CFT framework.

4.6.2 Proposed way forward

134. Together with ESMA and EIOPA, the EBA is preparing an opinion on the use of FinTech solutions for AML/CFT compliance purposes and the factors competent authorities and financial institutions should consider when deciding whether or not a particular FinTech solution adequately meets one or more CDD requirements. This opinion will contribute to developing a more harmonised approach across the EU to the use of FinTech solutions for AML/CFT purposes.
135. In due course, the EBA will consider if it may be appropriate to explore further how different national approaches to classifying FinTech firms for AML/CFT purposes influence the money laundering and terrorist financing risks affecting the internal market, and to establish how the freedom to provide services and right of establishment apply in the FinTech context.
136. Finally, the EBA will continue working on promoting a better understanding of the money laundering and terrorist financing risks associated with the use of innovative products, services and compliance solutions by financial institutions, and the money laundering and terrorist financing risks associated with new FinTech firms entering the financial market.

The EBA will update its Guidelines on risk factors as appropriate to reflect these new trends.

137. The EBA's work on FinTech will support and complement both the Commission's and the FATF's future work and will take account of any future regulatory or legislative developments in this area.

Questions:

21. Do you agree with the issues identified by the EBA and the way forward proposed in section 4.6? Are there any other issues you think the EBA should consider?

22. What do you think are the biggest money laundering and terrorist financing risks associated with FinTech firms? Please explain why.

23. Are there any obstacles present in your national AML/CFT legislation which would prevent (a) FinTech firms from entering the market, and (b) FinTech solutions to be used by obliged entities in their customer due diligence process? Please explain.