

WHITE PAPER



ESA Discussion Paper on the Use of Big Data by Financial Institutions

ESBG
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ESBG Position Paper on ESA Discussion Paper on the Use of Big Data by Financial Institutions

Definition and scope

Q1: Do you agree with the above description of the Big Data phenomenon? If not, please explain why. Please also mention whether you consider that other characteristics are relevant to understanding the use of Big Data.

The ESAs' Discussion Paper takes over the European Commission's definition¹ of "Big Data" being characterized by high volumes of different types of data produced with high velocity from a high number of various types of sources and processed, often in real time, by IT tools (powerful processors, software and algorithms). Furthermore it is specified that Big Data encompasses not only the data itself but also the technologies and procedures followed to process and analyse the data. Finally algorithm-generated transaction recommendations only based on customer answers are not in scope of this consultation. ESBG can support this generic definition of Big Data, and notes the restriction in scope. ESBG however recommends that the value of data variable be added² to the original 3 "V"s (volume, velocity, variety).

Indeed, the emergence of massive data is – with e.g. the mobile, cloud architectures, open source software – one of the macro-forces that today reshape society and business. In an online digital environment data comes in all shapes and forms: personal data, records and history across a wide span of life events, including mails and interactions and patterns thereof, but also photos, videos and soundtracks, biometrics as well as contextual behavioral patterns (e.g. strokes on a keyboard). Such data is increasingly generated by machines (sensors, terminals, GPS signals...). It should be stressed that such data is the by-product of the expectation of and growing demand for immediacy – in terms of responses, transaction completion, and payment - mainly due to the generalization of mobile devices. In parallel to this development, the empowerment (both at political and economic levels) of data subjects acting and interacting in real time is growing significantly, an empowerment which should have as natural corollary an increase in the data subject's a responsibility and accountability.

Q2: Which financial products/activities are (likely to be) the most impacted by the use of Big Data and which type of entities (e.g. large, small, traditional financial institutions, Fintechs, etc.) are making more use of Big Data technologies? In light of ESAs' objective to contribute to the stability and effectiveness of the financial system, to prevent regulatory arbitrage, do you consider that there is a level playing field between financial institutions using Big Data processes and those not using them (e.g. because they do not have access to data or the (IT) resources needed to implement Big Data processes) or between established financial institutions and potential new entrants (e.g. Fintechs) using Big Data processes? Please explain.

ESBG can agree with the description of the types of financial service firms (i.e. the banking, insurance and securities sectors) using big data and their purposes (data being indeed acquired and processed to not only enable parties to make decisions, and/or to prompt a decision, but also to better comply with

¹ COM(2014) 442 Final - Communication « Towards a thriving data-driven economy »

² In accord with Stucke and Grunes (2016)



legal requirement e.g. compliance with CDD, AML/FATF...), as well as the types and sources of data. The matter however should always be considered against the broader landscape, where data is acquired almost every moment by an almost infinite range of parties: of course government and related entities, financial service providers, health services and utility providers, merchants and retailers, travel and entertainment providers, social media platforms, hackers... Within this constellation are also platforms and new intermediaries who may or rather may not profile themselves as financial service providers, yet compete with the latter in at least parts of the value chain (often) without being subject to any (even similar) regulation nor supervision. The sum of data acquired can be categorised into primary and secondary data³. The former is constituted of data acquired for a specific, well defined purpose, usually enabling the issuing consumer to immediately perform a transaction: access a service, purchase a good or service.... The latter encapsulates the usage of data beyond that specific and well defined, initial purpose, either by the initial acquirer of such data, and/or by (an)other part(y)ies. In this secondary market data may be agglomerated, anonymised or not, transmitted (sold) to other parties.

Because of the many variables that make up Big Data, and the rapid growth of the market, it is indeed a challenge to meaningfully quantify the use of Big Data by EU financial institutions. There are no signs so far that the use of Big Data would have triggered an "increase in the fragmentation or concentration of the distribution chain in the financial sector". When considering the Big Data ecosystem⁴, policy makers and regulators should rather be alert to the level of concentration of search engines or social networks (aka: attention platforms) and matching platforms, and the direct and indirect network externalities these create.

The Discussion Paper's proposal that "lack of access to certain important datasets could act as a barrier" would miss the fact that – at least from May 2018 onwards – the General Data Protection Regulation (GDPR) will fundamentally alter existing dynamics, as on one side the explicit consent of the data subject will be required, and on the other this data subject is being granted an unconditional right to the portability of the data he/she provided.

With the support of Big Data financial institutions are already improving and will continue to improve many processes for most financial products and activities in areas such diverse as decision making, fraud monitoring, transaction management and reporting, compliance checking, or marketing. These feed directly into the continuous process of the digitization of financial services, mostly in customer-facing and back-office processes.

Big Data is not the appanage of type of entity, with many players applying (even if partially initially) Big Data processes. The main constraint in this respect is not so much the access to data (where – see above – the GDPR should solve any lingering issue) but rather the dearth of skilled resources across the board in predictive analytics (and related areas such as mobile technology, e-commerce, or cybersecurity). In this respect financial institutions are – due to the image plastered on the sector - not the better placed in the competition for skills. Please see also our reply to Q5 in this respect.

As already highlighted on many instances, the level playing field across the European Union would be significantly enhanced if there was a harmonious implementation across Member States of EU Directives and Regulations, and no distortion from national supervisors and other competent authorities –

³ Which may also be referred to as respectively "data provided by the data subject" and "inferred or derived data", as defined in the December 2016 Art. 29 Working Party Guidelines on the right to data portability

⁴ See Figure 3, OECD Background Note on Big Data: bringing competition policy to the digital era – November 2016



in this respect much is expected from the transposition of the GDPR, accompanied by clarification such as provided by the Art. 29 Working Party. In order to establish and maintain a level-playing field in the EU between financial institutions and non-financial institutions in terms of Big Data, two dimensions need be considered:

1. There should not exist any specific regulation applying to financial institutions with respect to Big Data, as it could be unfairly harmful for the financial services industry to meet stricter requirements than other industries for the use of Big Data.
2. The existing and further expected rules affecting Big Data (GDPR, AML, etc.) should establish exceptions for the use of the technology.

The level playing field is also a matter of access to technologies, where prudential rules constraining of software and intellectual property must be adjusted and, as highlighted in several instances in the response to this consultation, access to skills.

Overall, it should be highlighted that many challenges and/or requirements presented in the Discussion Paper are not specific to the financial sector. Therefore there should be equality of treatment between financial institutions and technology companies in the context of the legal and transparent use of social network information gathered through Big Data technologies: transparency to consumers about the use and processing of their data should be also mentioned for social media content that technological companies (e.g. Google, Facebook, etc.) obtain from consumers via social networks and subsequently share with their financial subsidiaries or resell. The impact on free and fair competition of financial institutions having to bear far greater compliance costs compared to other industry or service sectors – at a time where the demarcation lines between sectors are increasingly blurred – may not be underestimated.

Q3: Do you offer/are you considering using Big Data tools as part of your business model? If so, please briefly describe: i) what type of entity you are, e.g., long established, start-up, a product provider, an intermediary; ii) the service you provide; iii) the nature of your clients; iv) your business model; v) whether the Big Data tools/strategy were developed by an external company or internally and whether you have related agreements with other entities (including non-financial entities)²³; vi) what are the types of data used (personal, anonymised, user data, statistical data etc.) sources of data; and vii) the size of your Big Data related activity and/or forecast activity (e.g. to what extent are business decisions already taken on the basis of Big Data analysis; what other business actions could be based on Big Data in the future)?

Illustrations were provided by Members of the savings and retail banking community:

- Big Data is used today for consumer credit offering marketing – to e.g. identify who would need a particular credit based on all the users of such a product.
- Credit scoring is supported by Big Data but actually relies on significant amounts of personal data analysed with the help of Big Data.
- AML and fraud monitoring are other areas with growing need of analytics tools and Big Data support. The PSD2 even compels payment service providers to make the best possible effort to monitor payments and block unauthorized payments.
- A long-established financial intermediary providing banking and insurance services, focused on retail customers developed Big Data tools internally up until now, although collaboration with technological companies in the development of new tools through joint ventures is expected. Currently personal data collected through internal sources as well as certified external sources is being used. Some difficulties are experienced in gathering some sorts of data, for instance, the client's explicit consent is required in order to get his/her data from public registers. Data from social media platforms is not included due to possible inconsistencies they can create with internal sources. The institution began to use Big Data for regulatory



purposes (AML, KYC, fraud prevention, solvency analysis, etc.), but recently extended it to other more commercial areas, such as creditworthiness assessments or marketing models.

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Q4: If you are a consumer or a consumer organisation, do you witness any of the uses of Big Data? In what fields?

N.A.

Q5: Do you consider there are (non-regulatory) barriers preventing you (or which could prevent you in the future) from collecting and processing data? Are there barriers preventing you from offering/developing Big Data tools in the banking, insurance and securities sectors? If so, which barriers?

As already highlighted earlier in this response, the key non-regulatory barrier at present is access to skills. An additional barrier is that giant Internet players own much of the Big Data in society and thus hold an advantage over financial institutions with relative modest data repositories compared to the large Internet players.

Regulatory framework applicable to Big Data

Q6: Do you agree with the above short, non-exhaustive, presentation of some of the main applicable requirements? If not, please explain why. Please also mention whether you consider that other legal requirements are essential and should be mentioned.

The Discussion Paper presents a fair overview of the main applicable requirements. An explicit reference to competition rules could be added.

Overall, as stressed in other submissions, what matters now is a harmonious implementation of existing legislation and supervisory requirements. No need for any additional legislation has been identified.

Q7: Do you consider any of these regulatory requirements as unjustified barriers preventing you from using Big Data technologies? If so, please explain why. Please also explain whether you consider that further regulation (including soft law/guidance, etc. and insofar as it falls within the scope/remit of the ESAs) should be introduced to facilitate the use of Big Data technologies.

As already highlighted earlier in this response, a harmonious implementation of the GDPR (complemented by a set of clarification Guidelines) would do much to further motivate the use of Big Data technologies. Market participants are considering self-regulatory tools (such as the Code of Conduct provided for in GDPR Art. 40) to accompany the implementation of legislation. The Art. 29 Working Party Guidelines have also much relevance here in conjunction with national data protection rules.

There is at stage no requirement for further regulation in the scope/remit of the ESAs to be introduced. However, legislators must remain vigilant and not create new barriers such as those that will be triggered by the transposition of the revised Payment Services Directive, which provides a new category of service providers, i.e. account information service providers, access⁵ to account and transaction information held by credit institutions, yet does not allow the latter an equivalent access to information held by the former.

⁵ Directive (EU) 2015/2366, Art. 67



Potential benefits and risks for consumers and financial institutions

Q8: Do you consider the potential benefits for consumers and respectively financial institutions to be accurately described? Have you observed any of them in practice? If so, please provide examples. If not, please explain whether you are aware of any barriers that may prevent the above potential benefits from materialising?

Potential benefits for consumers and financial institutions are fairly described in the Discussion Paper. Illustrations were provided by Members of the savings and retail banking community:

- Big Data is actually for “Big Companies” – the issue may well drive consolidation in many areas. Also large Big Data service companies will develop and many other businesses will become dependent on such data service companies, changing the value chain and impacting the allocation of margins throughout the value chain.

Q9: Do you agree with the description of the risks identified for consumers and respectively financial institutions? Have you observed any of these risks (including other risks that you are aware of) causing detriment to consumers and respectively financial institutions? If so, in what way? If not, please explain why. Please also mention whether certain risks for consumers and financial institutions have not manifested yet but have the potential of developing in the future and hence need to be closely monitored by Supervisory Authorities.

Risks for consumers are fairly described in the Discussion Paper. Analysis errors based on the use of Big Data may affect end users due to what they are offered based on Big Data analysis. Yet it should be stressed that these are potential risks, which will only materialize where notably consumer protection legislation, competition rules, and generally market supervision are not applied properly.

For example, legislation compelling pricing transparency, driving comparability and promoting switching between service providers will allow customers who would feel negatively affected by a specific, more granular segmentation (leading to e.g. higher insurance premiums) to find alternatives.

Whilst a risk of exclusion of some from certain financial services can never be fully excluded, such risk should be viewed as part of the challenges generated by the digitization of society, and not addressed solely on a vertical basis.

Q10: Is the regulatory framework adequately addressing the risks mentioned above? Bearing in mind the constant evolution of technologies/IT developments and that some of the above mentioned regulatory requirements are not specific to the financial services sector (e.g. GDPR), do you think further regulation is needed to preserve the rights of consumers of financial services in a Big Data context? Please explain why.

As already highlighted in several instances in this response, there is now an ample regulatory framework addressing in particular risks faced by consumers. This framework has either been designed specifically to address data and information related risks, or can be applied to also protect consumers from such risks, and/or their consequences.

The main challenge – again as already highlighted – is a more harmonious implementation of such framework across the European Union.

The focus of regulators should now be on the implementation of notably the GDPR.

It is highly advisable to forego any thoughts about further regulation, as additional regulatory constraints in terms of protection will probably bear detrimental effects on consumer inclusion, and the cost of services.



Q11: Do you agree that Big Data will have implications on the availability and affordability of financial products and services for some consumers? How could regulatory/supervisory authorities assist those consumers having difficulties to access financial services products?

The value of data nowadays mainly comes from the benefits it provides to both market participants of all types and society as a whole. An increase in the use of data by entities has had the effect of higher availability of their products and services for clients, and customer pricing has improved significantly too. As a result of that, customers whose affordability was previously considered low (due to e.g. lack of data, data mismanagement or assignment of wrong default values) can now afford the prices offered to them, as suppliers are able to determine more tailor-made prices, along with more personalized products and services. More granular segmentation allows more accurate pricing and avoids overly penalising a number of customers due to risk pooling in relation to some products. This is especially relevant for retail banking services and the insurance sector. In conclusion, it should thus be clear that the ultimate beneficiaries of Big Data processes is the society as a whole, as both customers and financial entities benefit from it.

Ceteris paribus Big Data does not change the market principle that not all financial products and services are suitable for all consumers, and that access to and pricing of these products and services are also a function of an understanding of a consumer's requirements and capabilities. This principle actually is enforced by legislators for a number of products/services, e.g. lender asset quality (placing an emphasis on credit worthiness of borrowers) or determination of risk appetite when investing (MiFID) or the fraud score in risk-based-analysis used in PSD2. Big Data – when properly applied and often incremented by human intervention – assists in enhancing that understanding, with the aim of delivering “the right product/service” at the right price”.

This may in instances lead to the conclusion that a given product/service is not suitable for a given consumer, or only at a risk premium, a conclusion which would often have been reached – yet less efficiently – under a “traditional” model.

In a number of Member States there are already “default services” in place (by law, or by market agreement) to catch consumers who have been excluded through normal processes. Such services exist notably with respect to core banking (payment account and core payment instruments - noting that the Payments Account Directive already contemplates the mandatory existence of basic payments accounts for customers that cannot access to other products, thus with rules already in place that will help in terms of financial inclusion, regulators should wait and first assess the outcome of the implementation of these new rules) and insurance. Equally a number of market participants – notably within the savings and retail banking community – offer financial services specially geared towards consumers who find – for a range of reasons – access to mainstream products and services difficult.

Q12: Do you believe that Big Data processes may enable financial institutions to predict more accurately (and act accordingly) the behavior of consumers (e.g. predicting which consumers are more likely to shop around, or to lodge a complaint or to accept claims settlement offers) and could therefore compromise the overarching obligations of financial institutions to treat their customers in a fair manner? Please explain your response.

Generally speaking the very purpose of Big Data is to gain a better understanding of the behavior of consumers – although as highlighted in the response immediately above in many instances this is a matter of greater efficiency, not of radical change of business model. Actually Big Data as such does not imply a change of business model, but rather more efficient processes through the mobilization of innovative technological tools.



To prevent any misunderstanding, ESBG should also like to dispel any view that a better prediction of consumer behaviour could be a negative outcome. Instead, as experience shows, better predictions are positive for financial stability and more efficient markets through more appropriate allocation of resources.

Q13: Do you agree that Big Data increases the exposure of financial institutions to cyber risks? If yes, what type of measures has your institution adopted or is going to adopt to prevent such risks? What could supervisory/regulatory authorities do in this area?

The digitization of society exposes all stakeholders to cyber risks. Deficiencies in the protection of one area or one participant may spread very rapidly to other areas and participants. As custodians of both customer funds and information, banks always had security at the forefront of their preoccupation, a dedication which they of course port to the digital environment. The risks are mainly in shortage of analytical skills potentially leading a company to make decisions based on material of inferior quality due to competence shortages.

In order to assist banks in effectively fighting cyber risks, supervisory/regulatory authorities are expected to urgently take action in the following domains:

- Prevention: financial institutions must be allowed to use techniques such as spending behavior patterns and other customer behavioral analytics in order to add to their fraud prevention tools.
- Incident reporting: it must be allowed that incidents are reported once, in a standardized format and in an automated way, to a single authority.
- Information sharing: the exchange of threat information between peers should not be constrained by data privacy or competition legislation. The setting up and operation of collaborative environments for this purpose should not be considered an infringement of competition legislation.
- Confidentiality: financial institutions must also rest assured that the information they voluntarily share with government about cyber threats will remain confidential.
- Level playing field: newcomers should be subject to the same reporting obligations as incumbent players. In particular, legislators should not allow insecure backdoors such as promoted by some in the context of the transposition of the revised Payment Services Directive (so called “screen scraping” practices, by which third parties collect content from websites and generally computer screens. This means that the third party providers would log into banking services under the identity of the account owning consumer (“payment service user”, or: PSU) and thus obtain the same powers than the PSU has, e.g.: move funds from any payment and savings account, sell investment instruments held by the PSU, make changes to the PSU’s retirement investment plan, cancel a household insurance, take up a new unsecured loan... all of which in the name of the account owning PSU, owing to this “screen scraping” log-in).
- Repression: European legislation should ensure that cybercrime be considered a most serious offense, with floor sanctions applied across the Union in all Member States. Enforcement authorities including police forces should be compelled to investigate cyber-attacks with much greater priority than is currently the case.
- Statistics: the effectiveness of combating cybercrime should be monitored via transparent, standardized data reported by all Member States on an annual basis.
- Industry: an EU initiative to foster the development of capable EU security companies would be welcome.

Q14: Would you see merit in prohibiting the use of Big Data for certain types of financial products and or services, or certain types of customers, or in any other circumstances?



Considering remarks made earlier in this response, in particular with respect to the ample consumer protection framework already in place, there is at this stage no rationale for preventing providers of financial products/services to use Big Data for certain types of products or customers, or under some circumstances. Any such prohibition would challenge the principle that legislation must remain technology-neutral, and irremediably distort the playing field and waste any remaining chances that the European Union could be a meaningful participant in the digital world. In many instances, new legislation even advocates financial institutions to use data analytics to determine risks, block unauthorized access, ...

Q15: Do you agree that Big Data may reduce the capacity of consumers to compare between financial products/services? Please explain your response.

As highlighted earlier in this response, “Big Data” only is one of the tools at the disposition of financial service providers, and furthermore it also is increasingly at consumers’ fingertips, e.g. giving them access to powerful comparison websites (as e.g. mandated by the Payments Account Directive). . Admittedly, some consumers may be interested in a specific, “tailor-made” product or service, for which it may be difficult to find a straightforward equivalent, but such products and services are usually reserved for educated and savvy consumers, who will have other means at their disposal to assess the value of what is offered to them.

Q16: How do you believe that Big Data could impact the provision of advice to consumers of financial products? Please explain your response.

The analysis (updated in real time) of consumers’ data sets allows first to provide them with hard information, e.g. in terms of budgetary management, and second with personalized advice, resulting for these consumers in less waste of time, a better understanding of available choices, and access to more personalized products and services, all of which without depriving them of their ability to ignore either the availability of such advice, and/or the outcome of the advice received. Consumers will also use Big Data analytical tools and help to determine which financial products they may need and from whom to source them. At this point in time financial institutions will only improve their advice to clients with Big Data, acknowledging that other technologies, such as Artificial Intelligence (enabling real-time interaction between a customer and a robot, based on the data collected through Big Data processes and on innovative algorithmic solutions and improved intelligence techniques), are even more relevant to financial advice than Big Data.

Q17: How do you believe Big Data tools will impact the implementation of product governance requirements? Please explain your response.

As the daily use of Big Data is spreading, existing product governance principles (which should be technology-neutral) will have to be transposed to the areas and actors involved in the collection, processing and application of data.

Q18: How do you believe Big Data tools will impact know-your-customer processes? Please explain your response.

As already highlighted earlier in this response, the application of Big Data does not fundamentally change existing processes but can render their execution more efficient. With respect to KYC, Big Data already assists in corroborating rapidly different sources of information (and matching these with information provided directly by the customer, in order e.g. to contribute to the assessment that the former is genuine).



Possible evolution of the market

Q19: What are key success factors for a Big Data strategy (i.e. the adaptation of the business model/plan towards Big Data driven technologies and methods)?

The key success factors for a Big Data strategy in financial services (beyond a shared understanding and interpretation of applicable legislation and supervisory rules) are a) the capacity to generate manageable information in real time, b) a process of continuous improvement in terms of the quality of the information gathered and the collection of quality data (based notably on clear and open communication with one's customers), c) the communication of the benefits of Big Data to end users., d) the mobilization of skilled resources, e) a thorough understanding of data analytics (including their shortcomings and limitations), and f) a continuous methodology to assess the interaction of Big Data outcomes with the product/service line. In addition to this, Big Data company access can also be a success factor. Big Data analysis requires specific skills and not all financial institutions will have in-house services.

Q20: What are the greatest future challenges in the development and implementation of Big Data strategies?

The shortage of suitable analytical and other skills as well as uncertainty as to national interpretations of applicable legislations, and their harmonious implementation across the European Union, are the key challenges to making the most of the Big Data potential. The EU education system will have to match the output of the schools and universities in the USA, India, China and other major digital economies in the world to supply enough skilled people to work in the Big Data area. Failing this, the successful Big Data applications will run in competing trade blocks.

Q21: This Discussion Paper refers to a number of measures and tools meant to ensure compliance with conduct and organisational regulatory requirements as well as data and consumer protection rules in the context of big data analytics. Are other measures and tools needed? If so, what are they and what they should cover?

No additional measures or tools – other than those mentioned in the Discussion Paper or recommended in this response - would be required at this stage.

Q22: How do you see the development of artificial intelligence or blockchain technology in connection with Big Data processes?

Neural models are being developed which use artificial intelligence and automated machine learning techniques to recognize patterns. Such models are useful for e.g. recognizing trends in fraud by providing transaction risk scores to be used in conjunction with user-defined rules and parameter mapping. Customer service management is expected to be one of the areas of banking most impacted by the development of artificial intelligence. Techniques such as reinforcement learning are also being explored with the aim of making predictions in the absence of historical data or explicit examples.

Recently published research⁶ suggests that consumers are now prepared to accept robo-advice to aid traditionally complex banking decisions, including how to allocate investments (74%), the type of bank account to open (68%) and for retirement planning (60%).

⁶ Accenture, January 2017 – Global poll of 32.000 individuals



Regarding blockchain (or, more accurately, distributed ledger) technology, its promise is i.a. to enable transaction and asset data to be held at the same by permissioned parties to a scheme, without the intervention of a traditional “trusted” third party. The extent to which this development may foster (or not) the Big Data phenomenon depends to a large extent on the conversion of many pilots currently under way into live deployments, the level of security and confidence that these will carry, and the standards and rules applying to the data held by each of the parties in the distributed chain. In terms of regulatory or legal challenges, ESBG would suggest that the ESAs closely monitor two issues:

- DLT raises many data protection issues, as it still cannot assure that confidentiality and data privacy are fully ensured. This is especially important in permission-less systems, but even permissioned ones cannot ensure it yet.
- The determination of the law applicable can raise concerns when adopting global DLT systems due to a high degree of decentralisation and because of the geographical dispersion of different jurisdictions.

Q23: Are there any other comments you would like to convey on the topic of use of Big Data by financial institutions? In particular, are there other relevant issues that are not covered by this Discussion Paper?

Not at this stage.



About ESBG (European Savings and Retail Banking Group)

ESBG brings together savings and retail banks of the European Union and European Economic Area that believe in a common identity for European policies. ESBG members support the development of a single market for Europe that adheres to the principle of subsidiarity, whereby the European Union only acts when individual Member States cannot sufficiently do so. They believe that pluralism and diversity in the European banking sector safeguard the market against shocks that arise from time to time, whether caused by internal or external forces. Members seek to defend the European social and economic model that combines economic growth with high living standards and good working conditions. To these ends, ESBG members come together to agree on and promote common positions on relevant matters of a regulatory or supervisory nature.

ESBG members represent one of the largest European retail banking networks, comprising of approximately one-third of the retail banking market in Europe, with total assets of €6,702 billion, non-bank deposits of €3,485 billion and non-bank loans of €3,719 billion (31 December 2014).



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