FINANCIAL DATA SPACE AND CLOUD INFRASTRUCTURE

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Combining innovation and stability: a supervisor's perspective on digital finance

We are all experiencing a boost to digitalisation, particularly in the financial sector, due to the Covid-19 crisis. However, innovation goes far beyond this: I believe that we are just at the beginning, not the end, of the digital transformation in the financial system. Artificial intelligence, machine learning, the cloud, distributed ledger technology, quantum computing, big data – all of these buzzwords have the potential to disrupt each and every business model.

New technologies may not only make finance more digital, they could also make it more stable and more resilient. Digital innovation can enhance the stability of both individual institutions and of the entire financial system. For instance, financial institutions could use AI to better detect and ward off cyberattacks. Another example is an early warning system for loan defaults that is based on automatically evaluated economic news and which could improve risk management.

Banking supervision seems to be particularly suited to the use of digital technologies, because the first step in banking supervision always involves analysing data. Our goal is to collect and process supervisory data more quickly and easily via more flexible digital channels.

While digital innovation can certainly promote stability, it also brings with it new risks. That is why we as supervisors have to play a dual role here. On the one hand, we want to enable digital innovation in the financial sector, harnessing its potential for financial stability. On the other hand, we have to keep an eye on potential risks arising from the digital transformation. It is our job to monitor all risks to financial stability.

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Therefore, we want to clarify our supervisory approach to the use of AI and machine learning technologies. Given the "black box problem", for instance, we have to assess the extent to which the individual bank and the supervisor can really understand the results of AI/ML procedures. To this end, we published a discussion paper on our website.[1] Our goal as supervisors is to provide banks with balanced, differentiated and practicable requirements so that they can exploit the potential benefits of AI/ML processes in a legally secure manner.

The same goes for the use of cloud technologies. For banks, outsourcing parts of the value chain can be an important lever to increase their competitiveness and to focus on their core business. At the same time, every bank remains responsible for its outsourced processes and activities and has a duty to monitor and control the risks arising from an outsourcing relationship. At present, the approach of joint reviews of cloud service providers (pooled audits) seems to be the most efficient and effective way for banks to gain insights into cloud service providers' risk management and their internal controls. That is why we will further support the advancement of such pooled audits.

But supervisors are not the only players working to provide a clear framework for digital finance. With its Digital Operational Resilience Act (DORA) initiative, the EU is – inter alia – taking steps to forge an effective European oversight framework for critical ICT third-party providers. We welcome stricter regulation of ICT service providers, including cloud providers, as this aims to create a level playing field for all financial services providers. It is important, however, that DORA rules are consistent with existing rules in banking regulation. Otherwise, this would lead to a further fragmentation of regulatory standards and overburden banks that engage in outsourcing arrangements.

DORA is part of the European Commission's Digital Finance Package, published last year. The Digital Finance Package addresses important regulatory issues relating to the use of innovative technologies in the financial sector, also looking at the new risks arising through the digital transformation. With this ambitious plan, Europe intends to pave the way for a competitive digital financial ecosystem whilst ensuring an up-to-date regulatory framework.

1. https://www.bundesbank.de/de/aufgaben/bankenaufsicht/einzelaspekte/risikomanagement/maschinelle-lernverfahren/maschinelle-lernverfahren-598692

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The path towards building up a sound, resilient and harmonised financial ecosystem - DORA and NIS 2.0 - are we moving in the right direction?

The role of cloud infrastructures for financial institutions is vital. Currently, we have seen important developments in the regulatory area with the European Commission's proposals for a Regulation on digital operational resilience for financial services (DORA) and a revision of the Network and Information Systems Security Directive (NIS 2.0). The digitalisation of the financial sector clearly showed that all actors in the chain are interrelated and we have to look into the financial ecosystem as whole. This is what we have already tried to achieve with the GDPR, PSD2, e-IDAS and number of other initiatives that deem, among other things, to guarantee the resilience of the financial system.

While cybersecurity is essential and there is no discussion, whether we need more or less cybersecurity, we need to ensure that we put in place a framework that is harmonised and in line with already existing rules at both EU and global level.

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As an example, we observe that even though the DORA proposal builds on the NIS Directive and the lex specialis rule apply, number of intersections between DORA and NIS 2.0 occur. According to the NIS 2.0 proposal cloud service providers should be from now on classified as "essential entities" and should thus be subject to both the requirements of DORA and NIS 2.0. We see no clear hierarchy between DORA and NIS 2.0 for that matter. This brings a clear issue of taxonomy in the incident reporting and overlaps in the requirements for the cloud service providers. The question here is whether this redundancy is intentional, and the regulator sees the need for increased oversight on cloud providers or does it consist of unnecessary duplication? Would there be a coordination between the Lead Overseer introduced in DORA and the competent national authorities defined by NIS 2.0?

The Covid pandemic had imposed a different social behavior framework. The social distancing and the transition to a completely "virtual" life have changed consumers behavior and business strategies. Given the new circumstance, we acknowledge the merit of the introduction of sector specific regulations or a proper "update" of the existing regulatory framework. The importance of preserving the resilience of the financial sector is undoubtful but how can we argue that it is more critical (for instance than health or energy) to require more or complementary regulation?

Finally, the questions that come to mind in the current pandemic situation, and given the prioritisation of digitalisation in the recovery of our economy, is whether an additional regulatory burden is what the industry really needs? Would that bring an added value or support to start ups or small and medium enterprises? We look forward to provide the right solutions to those and many other concerns in the forthcoming months. True, it has been evident that the technological developments are more reactive and often move much faster than the regulators.

Therefore, our goal must be to find the right balance in building up a sound and resilient financial ecosystem in a sound and timely manner.

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Regulation of Digital Finance in the EU: challenges and opportunities

Digital innovation is key in today's world. The financial services sector is no exception, with various commentators highlighting an ongoing digital 'revolution' in this field. Whilst this inevitably creates a number of opportunities for stakeholders, it also brings a number of challenges to the fore – these *inter alia* include cyber security, privacy, and data protection issues.

The European Commission (EC) has been proactive, putting forward a number of key initiatives including:

[i] the Digital Finance Strategy (DFS) – one of the pillars identified in the Digital Finance Package published by the EC on the 24 September 2020. Building on the FinTech Action plan, the DFS acknowledges the impact of digital innovation on the economy and embraces digital finance solutions, such as cloud computing and data sharing. It seeks to ensure sound practices, and to enhance consumer protection and market competition;

Digital innovation is key in today's world.

[ii] the Digital Markets Act (DMA) and Digital Services Act (DSA) - described by the EC as "an ambitious reform of the digital space, a comprehensive set of new rules for all digital services, including social media, online marketplaces and other online platforms operating in the EU",[1] these proposals appear to acknowledge the widespread benefits brought about by digital solutions and set the tone for further digitisation across the EU; and

[iii] the Digital Operational Resilience Act (DORA) – a proposal seeking to harmonise ICT risk management requirements across the financial services industry. It is *inter alia* aimed at strengthening the confidentiality, integrity and availability of data and complements this by establishing an oversight framework on Critical ICT Third Party Service Providers, including Cloud Service Providers.

The strategy and the proposed legislative instruments seek to address fragmentation in the existing framework and will eventually provide stakeholders with regulatory certainty. These proposals embrace digital innovation and should provide more opportunities for FinTechs to establish themselves in the European market. This should increase consumer choice vis-à-vis the range of financial services offered, strengthening competition, and also enhancing resilience and cybersecurity. Of course, regulation will also bring about compliance costs; however, the pros of regulation outweigh the cons.

The success of the EC's strategy and proposals are reliant on a number of factors, namely: [i] legal certainty being achieved; [ii] NCAs embracing digital finance in their work and initiatives; [iii] the uptake of market participants; [iv] education and awareness; and [v] the enforcement of any legislative instruments promulgated. It is in this manner that Europe can become a standard setter in the digital world.

1. European Commission, Press Release, Europe fit for the Digital Age: Commission proposes new rules for digital platforms, 15 December 2020, <https://ec.europa.eu/commission/presscorner/detail/en/ip_20_2347>
REGULATION OF DIGITAL FINANCE IN THE EU

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Cloud in financial services: how effective regulation can support innovation

Cloud presents important opportunities for the financial sector to accelerate innovation and improve security and operational resilience at scale.

Innovative banks are using this technology to understand risk, segment customers, track market movements, develop new instruments and ultimately gain a competitive advantage in an increasingly volatile market. They need to process large volumes of data fast and break organisational silos. The time saved processing this information allows firms to offer products at a much lower cost to their customers.

Cloud has also become an enabler for AI and machine learning (ML) technology. Banks can, for example, utilise cloud-based ML models to combat fraud and money laundering in a more effective way by combining transactional and behavioural data and avoiding costly false positives. Similarly, cloud technology is leveraged for banks' risk-management processes to determine liquidity and exposure quicker, to carry out mark-to-market adjustments and for better accounting in general.

Finally, firms are tapping the cloud to develop entirely new services. Innovative firms can create experiences that closely resemble the best digital ones in other industries. Cloud is transforming the technology ecosystem well beyond the core infrastructure, and European consumers stand to gain the most from this innovation. COVID-19 accelerated many of the digital trends, and resilience of cloud infrastructure came into full view: we continued to support all our customers across the globe without shortfalls.

Understanding the benefits of this technology and with an objective of strengthening risk mitigation and digital operational resilience of the financial ecosystem, European policymakers have been leading global regulatory agenda. The proposal for the Digital Operational Resilience Act (DORA) is an important step in achieving these strategic goals by introducing a direct regulatory oversight over critical third-party providers by financial services regulators.

Looking at key trends of cloud adoption in finance in Europe and sharing a view on DORA.

We welcome these efforts of the EU policymakers: resilience and security are at the core of our technology and operations. We believe DORA could create a genuine opportunity to enhance understanding, transparency and trust between ICT service providers, financial entities and regulators and ultimately stimulate innovation in the European finance sector.

To ensure its effectiveness, the oversight needs to:

- Harmonise and deduplicate requirements, including between DORA and existing frameworks like the European Supervisory Authorities' Outsourcing Guidelines and the NIS Directive - in particular in the view of the new NISD2 proposal;
- Be proportionate and fit-for-purpose, especially through the requirements that recognize the technological realities of evolving ICT services in the public cloud context - that are provided in a multitenant, one-to-many environment;
- Maintain technology neutrality and boost innovation, which is encouraged by open market and the free flow of data;
- Protect the availability and integrity of digital services and cloud customers privacy, whether they are subject to DORA or not.

We will continue to engage with the policymakers as this important legislation progresses and are committed to being a constructive voice in the discussion.

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Cloud-competence determines the global competition – let's face the challenges ahead

Only a couple of years ago cloud technology has been a promising technology with only a few applications in the financial world. Since then cloud technology has developed to the main enabler of digitalization. It has become one of the most important levers to decrease IT cost (30% to 40%).

The picture is even broader when moving up the technology stack from infrastructure to applications. Cloud native applications are required to provide frequent innovations to clients and ultimately to stay competitive not only with regard to traditional players but also FinTechs or BigTechs.

The two challenges with regard to the application of cloud technology are as well Data security and privacy rules as Management of ICT (Information and Communication Technology) and cyber security risks.

Especially through GDPR the EU has established a common standard with regard to data security and privacy. Most cloud providers provide services from locations within the EU. However, most contracts would still allow a data transfer to locations outside the EU, so that equivalent rules there are needed.

But, the major part of the EU data strategy is mostly about sharing data between different entities. The goal is an aggregated pool of data that can be used for AI and other purposes. However, clients are only willing to give away their data as part of a service that they value and that they otherwise cannot get access to. Therefore, it is questionable whether the data strategy will be able to provide significant value. So the European market place for cloud services and the EU cloud rulebook both intended for 2022 are helpful.

Management of ICT have gained more and more attention by regulators in the last years, especially in terms of breach of confidentiality, failure of integrity of systems and data and inability to change information technology. It also includes security risks resulting from cyber-attacks or inadequate physical security.

The current approach with regard to managing ICT relies too heavily on principles established for outsourcing arrangements. What is adequate for a long term and stable part of a value chain, does not fit to cloud services that can be used short term and their usage can also be discontinued very easily. In addition, large cloud service providers will bring a high and consistent level of standards with regard to ICT risks. Given their heritage, they are more used to providing reliable, secure and extremely scalable IT solutions.

As an important step, the EU's digital resilience framework ("DORA") will assign third party service providers deemed critical to an EU-supervisor (EBA, ESMA or EIOPA). However, European policy makers should consider going one-step further and reduce the burden imposed on the financial services firm when managing ICT risks through cloud services.

In sum, the large US firms (Amazon, Google and Microsoft) already dominate the cloud market. We need to make sure that European financial services firms can at least use cloud services in an adequate framework to ensure their competitiveness in the global landscape.