INTERNATIONAL ASSOCIATION
OF YOUNG LAWYERS

FOCUS ON FINTECH

Commission(s) in charge of the Session/Workshop:

BANKING, FINANCE AND CAPITAL MARKETS

TOKYO, 2017

National Reports

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TABLE OF CONTENTS

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1 National Report of Belgium

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

1.1 Are digital currencies frequently used in your country?

Albeit the use of digital currencies such as bitcoin and other digital currencies based on the underlying blockchain technology (e.g. litecoin) is expected to keep growing, their share in Belgium's total payment transactions remains remote. However, there are no official statistics with regard to the use of digital currencies. Transactions involving digital currencies are as such not regulated and not reported nor registered with any Belgian authority or other official body. As a result, it is not possible to give an estimate of the number of payment transaction involving digital currencies.

There are only a few websites such as www.takeaway.com and www.vikingmobile.be and a limited number of stores that accept bitcoins in Belgium. The website www.coinmap.org, which locates all the stores that accept bitcoin and provides an overview based on their geographical location, shows the low number of businesses in Belgium accepting Bitcoin. According to this website, the largest concentration of stores accepting bitcoin is in Ghent (27), whereas Belgium's largest cities, Antwerp and Brussels, each have less than 10 stores accepting bitcoin. To further illustrate the insignificance of Bitcoin as a payment instrument in Belgium, it might be interesting to look at the website of 'Ghent Bitcoin Stad', a private initiative which aims to promote the use of bitcoin in the Belgian city of Ghent. In January 2017, only 13 Bitcoin transactions were executed in Ghent for a total amount of only 92,59 EUR.

As such, it is easy to buy bitcoins in Belgium. Bitcoins can be bought easily through the internet, typically through unofficial private platforms which are not regulated by the government.

1.2 Is there any regulation implemented with respect to digital currencies?

In general, digital currencies are not regulated under Belgian law. Currently, only the commercialisation of derivatives on Bitcoins are prohibited in Belgium (see below under 1.3.).

Belgian financial law knows 3 concepts in order to determine the application of financial laws and regulations with respect to products, markets and distribution, namely financial instruments, investment instruments and financial products.

Digital currencies such as bitcoins do not qualify as a "financial instrument" under Belgian law, as such term is defined exhaustively in the Belgian Act of 2 August 2002 on the supervision of the financial sector and financial services. As a result, the MiFID rules with respect to investment services and activities involving financial instruments are not applicable to digital currencies.

Whether or not digital currencies qualify as "investment instruments" is less clear, since this concept is defined non-exhaustively in the Belgian Act of 16 June 2016 on the public offering of investment instruments and the accession of investment instruments to trading on regulated markets. According to certain authors, each instrument which has an investment aspect, qualifies as an investment product. However, it should be stressed that currencies are excluded explicitly from the definition of investment instruments.

Whether digital currencies qualify as a currency in its traditional meaning (i.e. national and foreign currencies), is still unclear. If a digital currency such as bitcoin would qualify as an investment product, this implies that a prospectus may be required when bitcoins are being offered to the public in Belgium (e.g. in the framework of a secondary public offering). However, such public offering seems very unlikely, given the limited use of digital currencies in Belgium.

The most recent concept in Belgian financial law is the concept of a "financial product". A financial product includes all saving, investment and insurance products. As a result, if an instrument qualifies as an investment instrument, it also qualifies as a financial product. This definition is relevant to determine the application of the Royal Decree of 25 April 2014 with respect to certain information obligations upon the commercialisation of financial products with non-professional clients, which introduces certain information obligations which must be complied with when commercializing financial products towards non-professional clients.

Finally, digital currencies are very often confused with electronic money ("E-Money"). The second E-money Directive (2009/110/EC), as implemented in Belgian law by the Belgian Act of 21 December 2009 on the statute of the payment institutions and institutions for electronic money, the accession to the profession of payment service provider and the activity of emission of electronic money and the accession to payment systems, define E-Money as a "monetary value as represented

by a claim on the issuer which is stored electronically, issued on receipt of funds of an amount not less in value than the monetary value issued, and accepted as a means of payment by undertakings other than the issuer".

E-Money and digital currencies are both stored electronically and (sometimes) accepted as a means of payment by other entities than the issuer. However, they also differ in important ways. A digital currency does not represent a claim on the issuer (there is no obligation to redeem the digital currency upon request of the holder). Digital currency is also not issued on receipt of funds of an amount not less in value than the monetary value issued, since its creation is purely digital. E-Money, on the other hand, preservers a strong link with the conventional underlying currency and is expressed in the same unit of account. Therefore, digital currencies do not fall into the definition of E Money and the E-Money regulations are therefore not applicable to digital currencies.

The Belgian government is of the opinion (together with other European national governments) that due to its cross-border nature, the use of digital currency has to be regulated at EU level. A first proposal with regard to the use of digital currency was issued in the form of the European Bank Authority opinion on digital currencies which was published in February 2015. However, it is regrettable that this opinion is not technically precise enough in several aspects and it also adopts a very negative attitude towards the use of this type of currency. Moreover, if digital currency becomes mainstream, the European Bank Authority proposes to abolish its peer-to-peer nature and wants to place these currencies under the supervision of a centralized body.

1.3 Are they recognized or directly prohibited by the local law?

As mentioned above, digital currencies are as such not regulated or explicitly recognised.

In principle, transactions involving digital currencies are not illegal.

However, notwithstanding the fact that virtual money is not illegal, the Belgian financial regulator (the Financial Services and Markets Authority – FSMA) and the Belgian National Bank issued on 14 January 2014 and again in April 2015 a joint warning on their website with respect to virtual money, such as bitcoin (http://www.fsma.be/en/Site/Repository/press/div/2014/2014-01-14_virtueel.aspx).

The FSMA advises the public to be very careful when using virtual currency and points out that digital currency is not a legal payment instrument such as physical coins and notes or, to a certain extent, bank deposits.

The risks highlighted by the FSMA with respect to virtual money are:

- The internet environment where digital money is held and traded entails various risks: for instance, there is the risk that a trading platform or digital wallet may be hacked and the owner loses his digital money.
- The operational reliability of such systems, particularly the risk of fraud, has not yet been formally assessed by the regulators.
- In contrast to the situation for electronic money, fluctuations in the digital money exchange rate can result in substantial financial losses: the rate at which virtual money can be exchanged for official currencies (such as the euro) is highly variable. It is quite common for prices to fluctuate by more than 30% in a single day. There is no governmental supervision of the digital money exchange rate.
- In contrast to the situation for electronic money, there is no legal guarantee that virtual money can be exchanged at any time for the original value.
- Digital money is not legal tender: no-one is obliged to accept payment with digital money.
- In principle, money held in a savings account or invested in savings notes or deposit accounts is protected by the government guarantee up to € 100,000 per financial institution and per person. That protection does not apply to investments in digital money.

Other authorities, in particular the European Banking Authority (hereinafter 'EBA'), have also issued similar warnings against digital currencies (e.g. *Opinion of the European Banking Authority on the EU Commission's proposal to bring Virtual Currencies into the scope of Directive* (EU) 2015/849).

In 2014, the FSMA has also issued a regulation *on the prohibition of the commercialisation of certain financial products towards non-professional clients*. This regulation of the FSMA, which explicitly includes derivatives with respect to virtual money, has been approved by Royal Decree of 24 April 2014 and has legal force.

As a result, since 1 July 2014, it is prohibited in Belgium to commercialise certain financial products in a professional manner towards non-professional clients, including financial products such as derivatives which profitability is directly or indirectly depending on virtual money.

Virtual money is being defined as any form of non-regulated digital money without legal payment value. It is clear that bitcoins fall into the scope of this definition of virtual money.

The FSMA has issued this prohibition in view of the fact that virtual money, such as bitcoins, becomes more and more popular, not only as a payment instrument but also as an speculative investment instrument. However, as mentioned above, the investment in virtual money also entail substantial risks. Such risks are even higher with respect to derivatives on virtual money.

In view hereof, the FSMA decided that the marketing of financial products (derivatives) to non-professional clients, which profitability is directly or indirectly depending on virtual money should be prohibited.

That being said, the impact of the prohibition on derivatives on virtual money should not be exaggerated: it seems that such derivatives do not yet exist in Belgium, nor in other European countries. In the US, apparently certain funds exist which speculate on the value of bitcoins (e.g. the Winklevoss Bitcoin Trust). The commercialisation of notes in such funds is prohibited in Belgium in view of the above rules.

1.4 What are the spheres where digital currency is used?

The use of digital currencies has been detected in the following branches:

- Food and Drinks (cf. takeaway.com, pizza.be)
- Mobile operators (cf. Mobile Vikings)
- Transport (Taxi)
- Fashion and clothing

In 2016, blockchain technology – the technology of a decentralised logbook of transactions without the need of any intermediary, such as a bank or other credit institution, validating nor controlling these transactions (on which Bitcoin and other virtual coins are based) – has been introduced in the Antwerp diamond sector. The system called 'Uphold' is now being tested by around 30 diamond trading companies. This internet platform uses a variation of the blockchain technology on which Bitcoin is based.

At the moment, virtual currency such as bitcoin is often used by investors as an investment instrument. Considering the big fluctuations in the Bitcoin market, it is appealing to high-risk investors to speculate with this alternative payment tool.

1.5 Is it possible to use digital currencies in commercial transactions?

Yes. The use of digital currencies in commercial transaction is not prohibited. See supra 1.2.

Moreover, under Belgian law, payments can be done in cash (money) or in kind.

Although digital currencies do not qualify as money, they can be used as a consideration in a commercial transaction as a payment in kind.

1.6 Has your local central bank or any other governmental institution considered establishing state digital currency?

No, although certain banks (such as BNP Paribas Fortis, KBC and ING) are now implementing projects to assess the pros and the cons of blockchain technology in order to provide better services to its customers (e.g. easier and faster international money transactions) (see below under 2).

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

At the moment, the government still considers blockchain technology to be of little importance and there are no proposals whatsoever to support the use of blockchain technology in the financial system. However, Belgium's largest banks (such as BNP Paribas Fortis, KBC and ING) are implementing projects to asses how and where they can use blockchain technology to improve their financial services.

For instance, the start-up R3 has, together with the 30 financial institutions, worked on a project concerning the set-up of a decentralized ledger for financial transactions. The aim of the project is to verify whether blockchain technology might become a standard for the development of the financial sector. Banks believe that blockchain technology may be used in numerous international transactions, such as the exchange of digital documents, contracting and maybe even share trading. Blockchain

technology has many advantages: it is difficult to crack, can monitor global real-time transactions, works almost automatically and is relatively cheap.

"Blockchain technology has the potential to transform certain processes in the banking sector and improve the way we interact with customers", says Philippe Denis of BNP Paribas. "Even though the technology is still in a very early stage, yet we are convinced that it is worthwhile to study it well. And if it proves feasible, it could provide benefits for both the industry and our customers. "

At present, it is still too early to make predictions about it as the projects are restricted to merely testing this technology. Some say it is rather the need to go along with this trend and educate themselves in this matter as blockchain technology is rapidly expanding, than the banks' intention to already introduce practical applications of this technology.

In this regard, in July 2016, KBC collaborated with IT specialist Cegeka and various companies in order to successfully test 'Digital Trade Chain' (DTC), a blockchain solution that facilitates safe international trade between SMEs. Many Belgian SMEs depend on import and export to expand their businesses. At least 77% of Belgian exports are destined for the European market and are exported primarily to the neighbouring countries. Large companies use documentary credit as a way of reducing the risks involved in doing cross-border business, but this solution is not always suitable for SMEs. KBC and Cegeka are continuing to develop DTC and are negotiating with additional parties to make the platform more widely available and easier to access.

Last year, Bolero, the online broking company of the KBC group, has designed an application that allows customers to trade easier in securities which are financed through crowdfunding. This new application is based on the principles of the blockchain technology. It remains to be seen whether the KBC group will apply this blockchain technology to its other financial services.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

3.1 Please describe the level of mobile wallets' integration in your country

Belgium has always been ahead of the game in the payments industry. Our country had online banking and easy payment solutions before many other countries got there. But when it comes to mobile payment, we risk being surpassed by the likes of PayPal, Apple and Google.

There are already a number of players in the digital payment space in Belgium with very diverse offerings and experiencing different levels of success. The country's domestic debit card scheme Bancontact/Mister Cash launched a mobile app to enable consumers to pay among friends, pay online and pay bills in shops and restaurants.

In 2013, Belgacom and BNP Paribas Fortis introduced 'Sixdots', the Belgian mobile wallet initiative that allows users to complete payments via smartphone to cover purchases on PC, tablet and the phone itself. Shortly after, other banks joined the project. Later, the company behind the project, i.e. Belgian Mobile Wallet, consisted of four major banks (Belfius, BNP Paribas Fortis, ING and KBC) and the telecom operator Proximus each owning a 20 percent stake in the company. Albeit Sixdots was launched with great fanfare, it did not meet the high expectations due to a number of strategic and technical reasons. Therefore, the shareholders decided to move the company's focus to 'mobile identification' and thus not to compete with the mobile payment services offered by Bancontact which had significantly advanced during that time.

3.2 Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets?

The relevant provisions are set out in Directive 2007/64/EC of 13 November 2007 on payment services in the internal market (hereinafter 'PSD I'), which have been transposed into Belgian law in Book VII of the Belgian Code of Economic Law. PSD I has recently been replaced by Directive 2015/2366 of 23 December 2015 on payment services in the internal market (hereinafter 'PSD II'). PSD II applies as from 13 January 2016 and must be transposed into national law by all Member States by 13 January 2018.

Consumer protection under the new PSD II is twofold, including regulations with regard to (i) the liability of the payment service provider (hereinafter 'PSP') for unauthorised payment transactions and (ii) refunds.

(i) PSP's liability for unauthorized payment transactions

Pursuant to Article VII. 30 of the Belgian code of Economic Law, the notification of an unauthorized (such as the withdrawal of cash with a stolen bank card or a falsified credit card by criminals) should always be made no later than thirteen months after the debit value date. Although the user has a period of thirteen months, he still needs to inform the PSP of such irregularities as soon as possible. The wording of the provision including "without delay" and "thirteen months" seems somehow contradictory at first sight, but in fact they are two cumulative conditions. This means that the user must immediately inform the PSP of an unauthorized payment after becoming aware thereof, and this must be done within thirteen months after the transaction. Failure to comply with one of these conditions will lead to unlimited liability of the payer for unauthorized transactions prior to the notification.

At present, PSD I provides that a PSP, after a *prima facie* investigation of fraud by the payer, needs to repay the payer immediately the amount of an unauthorized payment transaction. In other words, save for the case where the client is acting fraudulently, the PSP will always bear the risk of unauthorized payment transactions.

Pursuant to Article VII. 36 of the Belgian Code of Economic Law, the payer currently bears the losses relating to any unauthorized payment transactions, up to a maximum of 150 EUR, resulting from the use of a lost or stolen payment instrument. No losses shall be borne by the payer from the moment he notified the loss of his payment instrument (see *supra*). If the payer acted fraudulently or failed to fulfil his own obligations intentionally or grossly negligently, he will bear all the losses.

However, this will change under the new PSD II and the amount for which the payment service user can be held liable will be decreased from 150 EUR to 50 EUR (except of course in cases of fraud or gross negligence by the payer as in the current legislation)

Important to note is that 'gross negligence' is not defined in the PSD I (or II) nor in its Belgian implementation. The court must decide on the basis of the factual circumstances. However, limited guidance is offered by article VII 36, §3 Belgian Code of Economic Law which gives a non-exhaustive list of conduct which may be considered grossly negligent (e.g. not giving immediate notice of loss or theft of the payment instrument, and the recording of personal security features in an easily recognizable form, in particular on the payment instrument or on an object or document that the payer keeps with the instrument).

Some 'mobile wallet' providers include a list of behaviours that are labelled as gross negligence in the general terms and conditions of their users agreements. Such terms are not legally enforceable, although the court may well take them into account in the sense that it was clear for the user which conduct was expected from him.

Furthermore, the new rules of the PSD II provide that PSPs will even have to bear the financial consequences in case of gross negligence of the client where the PSP failed to use a so-called "strong customer authentication" when executing the contested payment transaction. "Strong customer authentication" means "*an authentication based on the use of two or more elements categorised as knowledge (something only the user knows, e.g. a PIN or password), possession (something only the user possesses, e.g. the card or an authentication code generating device) and inherence (something the user is, e.g. the user of a fingerprint or voice recognition) that are independent, in that the breach of one does not comprise the reliability of the others, and is designed in such a way as to protect the confidentiality of the authentication data*".

The EBA will provide further guidance on this notion in a later stage. Albeit PSD II only requires 2 of the above mentioned elements, it is still uncertain whether the current bank card with pin code will suffice as "strong customer authentication". The EBA explained that this "strong customer authentication" needs to be present with every payment transaction. EBA will also be able to provide exemptions based on the risk/amount/recurrence/payment channel involved in the payment service.

Moreover, when an unauthorized payment transaction is carried out via a third party provider (hereinafter 'TPP'), the payer shall also obtain financial rectification from the account servicing PSP. The account servicing PSP can subsequently seek financial compensation from the TPP, which is ought to be solvent considering its statute as a regulated PSP.

When crediting an account on the basis of an unauthorized payment transaction, the credit value date for the payer's payment account shall be no later than the date the amount had been debited. This principle is *de facto* applicable to all types of incorrectly executed payment transactions. This provision is introduced as to protect the client against any financial loss.

(ii) Refunds

Another important amendment of the PSD II in relation to the liability regime in case of unauthorized payment transactions relates to the so-called "refunds" of payment transactions initiated by the beneficiary. In order to enhance consumer

protection and promote legal certainty further, PSD2 provides a legislative basis to the unconditional refund right that already exists for SEPA direct debit (i.e. direct debits in euro). In such cases, payers can request a refund even in the case of a disputed payment transaction.

Under the former framework of PSD I, the payer could ask financial compensation - even if the transaction was authorized – in case (i) the exact amount of the payment transaction was not specified, and (ii) if the amount of the payment transaction was higher than the user could expect, in light of his previous spending pattern, the conditions in the framework contract and all other relevant circumstances the case may be.

PSD II provides that these two conditions are no longer of relevance for direct debits. Hence, in case of a direct debit, a payer has an unconditional right to a refund by his PSP.

3.3 Does biometrics have a role to play in your jurisdiction as a method of secure payments?

Mastercard will set out, together with the Norwegian biometrics company Zwipe, a new payment system in Europe, called Identity Check Mobile. This new technology enables customers to pay by means of biometric data such as fingerprints and facial recognition. The ICM was already tested successfully in the Netherlands, the United States and Canada. Now, Mastercard intends to implement this payment system in 12 other European countries as well in the course of 2017, including Belgium, United Kingdom, Austria, Czech Republic, Denmark, Finland, Germany, Hungary, Norway, Spain and Sweden. The technology will be rolled out in phases in 2017 in the world. Mastercard shoppers will not have to remember passwords anymore and they can shop faster. Additionally, payment authorization through biometric data also significantly improves the payment security and offers protection against theft and fraud.

Also ING Belgium is starting to use biometrics on a large scale. It involves a recent project for the whole ING Group. At the moment, the fingerprint recognition only works on an iPhone with a Touch ID sensor (iPhone 5S, iPhone 6 and iPhone 6 Plus). The ability to log in via a PIN code remains available.

More and more financial players see biometric recognition a user friendly alternative to passwords and PINs. Market research shows that consumers are most open to fingerprint recognition, more than recognition by the eye or voice. In light of the above discussed requirement of 'strong customer authentication' under the PSD II,

this is not surprising. As explained above, this newly introduced authentication obligation, which will become Belgian law by 13 January 2018 at the latest, requires PSPs to implement a payment authentication system based on the use of two or more elements categorised as knowledge (something only the user knows, e.g. a PIN or password), possession (something only the user possesses, e.g. the card or an authentication code generating device) and inherence (something the user is, e.g. the user of a fingerprint or voice recognition) that are independent, in that the breach of one does not comprise the reliability of the others, and is designed in such a way as to protect the confidentiality of the authentication data. For the sake of consumer comfort and payment security, both envisaged by the PSD II, authentication elements based on inherence are most preferable.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

Big Belgian multinational enterprise groups such as Carrefour, Kinepolis, Ahold Delhaize and other large brands such as Torfs, Standaard Boekhandel, Colruyt are very enthusiastic about this development and strive to go along with this trend of NFC payments to improve their customers' comfort. In this regard, Wordline will soon equip all payment terminals with NFC technology. The aim is to facilitate streamline NFC payments as is already the case in other European countries such as the UK.

For instance, Carrefour deliberately opted in 2010 for NFC and sees no future in QR ('Quick Response') codes. Colruyt Group still believes in the benefit of QR codes (Seqr, Bancontact) but also equipped almost all of its branches with NFC terminals. Delhaize offering NFC payment options in 62 supermarkets and through 180 self-operated stores.

Smaller business are still postponing the implementation of NFC in their stores till the time they need a new payment terminal. Interesting to mention in this respect and relatively new is the Payconiq application launched by KBC and ING. Bakeries, sandwich bars, flower shops are quite enthusiastic about this application as it allows these business to accept payments without having to have a payment terminal, which can be quite expensive and may amount to large transaction costs. Around 18.000 small businesses already subscribed this new application. The trader must be a customer of one of the participating banks. This precondition does, however, not apply to the customer. How does it work? You download the application, you link it

to your (European) bank account. Subsequently, you select the name of the trader in the application, you add the amount and confirm your payment.

Belfius and Bancontact are planning to go even further and intend to facilitate NFC payments not only with card but also with your smartphone. Disregarding the SEQR-app of the Swedish company Seamless which is already available to download in Belgium and works with QR-scanning, NFC payments with a smartphone would be a scoop.

In our opinion, NFC payments increase customers' comfort which is of course also in the interest of business striving for a high-quality customer service. A common argument against it, is the potential danger of theft and great insecurity associated with it, considering that no password or code has to be given whatsoever. Nonetheless, at the moment, NFC payments can only be used for rather small amounts (usually up to EUR 25 per transaction) and up to a limited amount/day. When exceeding these amounts, the payment terminal will ask for a code anyway. As a consequence, the risk of fraud or theft is significantly reduced and may be considered negligible compared to the advantages this new technology offers.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

The PSD II is the latest in a series of laws recently adopted by the EU in order to provide for modern, efficient, and cheap payment services and to enhance consumer protection across the EU.

Key changes under the PSD II:

- Widening of scope/narrowing of exemptions:
  - 1-leg transactions are included in its scope (i.e. EU element of outside Europe transactions or payment transactions where only one of the PSPs is located in the community) and all EU transactions, irrespective of currency;
  - application to a wider range of payment providers and services. New entrants will be faced with enhanced authorization requirements.
- Allowing third party access (granted by the consumer) to existing consumer payment accounts to enable new payment service providers to offer the following services:

  - allowing Payment Initiation Service Providers (PISPs) to obtain funding decisions for payments direct from consumer payment accounts;
  - allowing Account Information Service Providers (AISPs) to provide users with a consolidated view of all their products and accounts held across multiple providers;
  - authentication, security, and liability underpinning access will be subject to the EBA standards and definitions.
- Increased consumer protection / security / reporting:
  - enhanced consumer rights and effective complaints procedures - disputes /improper execution/ reductions in consumer liability and increased protection;
  - stronger customer authentication - Regulatory and Technical Standards (RTS) to be defined by EBA, likely to be a trade-off between inter-operability/flexibility, to allow for innovation and competition, security and end user-convenience authentication and communication;
  - increased security management and reporting requirements for PSPs;
  - stronger customer authentication – Regulatory and Technical Standards (RTS).

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

6.1 Are fintech startups putting banks under pressure in your country?

The opening of the payment services landscape and the rise of young tech businesses will inevitably lead to more competition.

PSD II obliges banks to give third parties access to bank account information and payment information, if the client agrees. These TPPs do not need to be banks and can accordingly also be another company that offers financial services. The European Commission wants to open the channels of banking and financial services to stimulate innovation in the payments landscape.

Besides, the entry into the market of these fintech startups paves the way for 'single-bank-transcending' applications for consumers, such as applications that make a record of all the accounts a customer has with different banks. This may entail that we will use the social network Facebook to pay our bills or an app from the Swedish furniture giant IKEA to keep our financial bookkeeping. Or: an online comparator could show us any rate change in real-time and present customers with the most

interesting savings account at that very moment. The research company Juniper expects that these newcomers will destabilize the banking sector. Many third parties - retailers, telecommunications companies and other vendors - will want to strengthen their customer relationships by offering financial products.

According to Jeroen Dossche, partner at consultancy firm Capco, the relationship between the bank and its account holders will change dramatically, and not all Belgian banks are aware of it. "*If a third party provider creates an attractive application between the customer and its bank, the bank risks losing the direct contact with the customer. The biggest fear of banks is that they will be reduced to an interchangeable supplier.*" Therefore, they will have to go along with the innovation these tech start-ups offer.

According to Max Jadot, CEO of BNP Paribas Fortis, payment services is clearly an area where the large non-bank competitors, such as fintech companies, have an advantage. "*The big question is whether they want to expand that product on its own or as an accessory product. That question is still open. Once you switch to other domains of the banking and payment services, you may enter into the regulated world of banks. And that is a different ballgame. Even in the context of payment services, one may wonder how long a non-bank competitor can be active without having to meet with the rules and requirements that do apply to banks*". Hence, given the severe legal requirements banks have to deal with, fintech startups might have an advantage. The question is, however, how long they can benefit from this advantage of being less restricted by law.

6.2 Do you believe that fintech startups could force the traditional banks out of the local market in near future?

That is hard to predict at the moment. Now, fintech startups are only improving certain small aspects of the services banks provide (e.g. an application that offers a real-time overview of the currency exchange rate applicable to orders you placed). It is important to remember that banks have one big advantage: they have a long-term experience with offering financial services and way more banking knowhow. Fintech players generally have mere technical knowledge which is necessary to develop these software programs that allow applications to work, but lack banking knowhow.

Nonetheless, banks should in fact cooperate with these (still) small fintech players and embrace and integrate, and that with a view to more efficient working methods, simplified processes and improved customer service. As a matter of fact, banks often lack the technological efficiency, which allows fintech startups to hurt their bank-client relationship, as explained above.

In this regard, Belgium's minister of finance Van Overtveldt has taken initiatives to support the development of fintech startups and to encourage their co-operation with banks. During the talk with Innovate Finance, Van Overtveldt announced the launch of a new Brussels-based hub, called B-Hive, which is aimed at supporting fintech firms. B-Hive is a fintech platform that works with banks, insurers and market infrastructure players to facilitate local startups that may be experiencing challenges. It has also gained support from the Belgium government, attracting new support from the financial industry.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

7.1 What are the main reasons for local national payment system development in your country? Are national payment systems competitive comparing to commercial systems present on your local market?

Belgium, which is a member of the euro zone, does not have its own national payment system. However, Belgian payment systems are characterised by a very high level of automation. This particular situation is the result of efforts made by the credit institutions since the early 1970s to rationalise the processing of payment operations. Very early on, interbank cooperation led to several standardisation agreements, on which the entire process of automation is based. The National Bank of Belgium (NBB) has been very closely involved in these efforts. In addition to its more traditional role as settlement agent, it assumes the operational management of the interbank settlement systems.

One of the statutory tasks the National Bank is charged with is to promote efficient and sound clearing and payment systems. The Bank tries to meet this objective through its operational association as system manager and chair of a number of payment systems.

TARGET2, short for Trans-European Automated Real-time Gross Settlement Express Transfer system, is the RTGS-system provided through the Eurosystem. It is used for settling central bank operations, for large interbank transfers in euro and also for other euro-denominated transfers. The specific features of TARGET2

include processing in real time, settlement in central bank money and immediate finality.

The "Single Euro Payments Area" (SEPA) creates a single European market for payment instruments. The aim of SEPA is to enable payments to be made and received within Europe as efficiently and easily as if the transactions were being carried out within a single country. Therefore standards are being drawn up for the whole SEPA area for the three main payment instruments (credit transfers, direct debits and card payments). Moreover, the same legislation will apply to all the countries involved.

7.2 Does your local legislation regime provides for special treatment for national payment systems of other countries?

Belgian and foreign payment service providers will soon have to comply with the (national transposition of the) PSD II.

The scope of PSD II is much wider than PSD I, since it also includes:

- "one-leg transactions": PSD II also applies as soon as one of either two payment service providers is established in the EU;
- non-EU currency transactions;
- payments through telecom operators;
- third-party payment service providers (TPPs): i.e. new players on the payment service market.

TPPs are (i) payment initiation service providers, (ii) account information service providers; and (iii) issuers of payment instruments.

The ratio of the extension of the scope to TPP's is to open the EU payment market to companies offering consumer- or business-oriented payment services based on access to information from payment accounts.

With respect to licensing requirements for these new players, a transitional regime is included in Article 115.5 PSD II, whereby Member States must allow all legal persons providing payment initiation services and account information services before the date of entry into force of PSD II in their territories, to operate in accordance with the currently applicable regulatory framework, which is PSD I. Such existing providers will only be required to apply for authorisation under the PSD II regime

as from the final transposition date of PSD II (13 January 2018). Legal persons who have not provided such services before the date of entry into force will have to apply for authorisation as from the moment PSD II is transposed in national legislation.

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Commission(s) in charge of the Session/Workshop:

BANKING, FINANCE AND CAPITAL MARKETS

TOKYO, 2017

2 National Report of Brazil

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

   Even though the volume of digital currency trades in Brazil has significantly increased, they are not broadly accepted yet.

   Recently it was reported that the volume of bitcoin transactions had already overtaken those with gold, and, according to information published by Banco do Brasil, the amount of business involving gold transacted on the BM&F (Brazilian Securities, Commodities and Futures Exchange) in 2015 alone reached 3,095, totaling about R$ 300 million.

   In 2014, 79 establishments reported accepting bitcoins, most of them located in the South and Southeastern regions of Brazil, with emphasis on the number of bars and design offices. In 2016, this number increased to an impressive 7,545 establishments.

   Digital currencies are more used for transactions involving online payments/transfers. There are for example cases of people who started transferring their bitcoin balance (in dollars, euros) to other sites, such as international funds management companies that issue digital cards (for purchase in certain sites), or even to globally accepted credit cards and used in Brazil to transfer from such account to their credit cards the equivalent cash amount (dollars, euro), so that they can have access to such currency. Other transactions have also started being considered, such as international donations, smart contracts, among others.

   There is no specific regulation in relation to digital currency.

   In brief, a Law (12,865/13) governing electronical currency was enacted, but the Brazilian Central Bank issued Official Statement # 25.306/14 to clarify that digital currency is not the same as the electronical currency mentioned in Law 12,865 and informed that the use of digital currency was not relevant enough at that time to have specific regulatory rules to govern such matter and so far there is no other Official Statement in this respect.

   In one proceeding of 2012, the Brazilian Securities and Exchange Commission (CVM) fined an individual (and prohibited further such usage) for an irregular

investment bitcoin offering without analyzing the bitcoin itself and then, in 2014, informed that the digital currency is not a security.

In 2014, the Brazilian Federal Revenue classified the bitcoin as a financial asset for tax purposes so that income tax could be charged.

A Bill is under discussion to regulate digital currencies and a Special Commission created in July 12, 2016, in charge of related studies. These have not yet been completed.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

Blockchain offers security mechanisms, privacy and confidentiality, which seems to be better than the current financial operations for the account holders. Nowadays, the banks must manage and control their own data base, with their computers, system, software, professionals with the authorization from the Brazilian Central Bank.

Blockchain technology could be a cheaper way to provide more efficiency and reliability to the bank structure. Also it could be used for several financial services, like the issuance of letters of credit, bond management, performance of day-trading, remittances, consortiums etc.

It is well known that the major banks of the world have been studying ways to use blockchain or similar technology (as was informed in the news in relation to Santander, UniCredit, UBS, JP Morgan). One of the most difficult challenges is the protection of their data bases from the banks' competitors.

Certainly, besides the international banks, the Brazilian ones will also consider this and follow this subject very closely.

3. Please describe the level of mobile wallets integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

The regular use of such wallets is not common and must be developed.

There is no specific regulation to reduce the fraud and privacy risks connected with mobile wallets, so it is necessary to use the general provisions, like the criminal ones (e.g., Criminal Code of 1940 and the Law 12,737/2012).

One example of the provisions of Law 12,737/2012 in this respect is that it will be considered as a cyber crime any invasion of any computer or piece of digital equipment, connected or not to the internet with the objective to obtain, adulterate or destroy data or information without authorization or install in the computer vulnerabilities to obtain illegal advantages, as well as offer, distribute, sell or circulate device or computer programs in order to allow the practice of the above conduct (three months to one year imprisonment and fine). There are other provisions and penalties.

It is very important to keep completely up to date on this subject, especially because the technology is always changing.

It is important to mention that financial institutions, in their turn, are searching for cyber security tools and innovative solutions. Many of them have implemented digital biometric system in the self-service banking machines (ATM's).

4. Currently financial markets are trying to address customer interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

   NFC is a very interesting technology, but needs to be further developed in Brazil. Nowadays it has been considered mainly as a payment alternative.

   It has been offered by PagSeguro and also some banks (like Bank do Brazil), which have apps that use the smartphones with NFC as a payment device through credit card machines.

   Two of the biggest challenges are lack of knowledge and access, since it is not so common in Brazil. For example, the most popular smartphones used in Brazil do not have NFC technology.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through

mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

Banking services through mobile platforms have increased. In 2015, internet banking and mobile banking corresponded to 54% of bank operations and services. Mobile banking operations specifically increased from zero to 21% over 4 years, with 11.2 billion mobile banking operations performed in 2015 alone.

In relation to the legislation, please see item 3 above.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

Fintech startups have started to attract the attention of the banks, however it would be premature to state that fintech startups could force the traditional banks out of the local market in the near future.

There are 4 big banks in Brazil and they handle around 80% of the credit operations and considering the circumstances, for the market, it seems that fintech startups would have a better chance to reach the operations that the banks do not cover or where they have poor performance, provided that there is no legal provision granting exclusivity for banks.

Just for example, there are certain expensive bank services that could be performed by fintech startups in an affordable way for poorer people, small size companies and others, provided it is in accordance with the law. On the other hand, if it does happen, the banks will probably consider alternatives to cover this market as well.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Due to a number of reasons, the Brazilian Federal Constitution (section XIII, Article 48) establishes that the National Congress, with the approval of the President, is in charge of deciding on "financial matters, exchange and monetary, financial

institutions and their operations", which includes the Brazilian Payments System (SPB) created by Law 10,214/2001.

The SPB consists of the entities, systems and procedures related to the clearing and settlement of funds transfers, foreign currency operations, financial assets, and securities transactions. The SPB members are systems in charge of cheque clearing services; clearing and settlement of electronic debit and credit orders, funds transfers, and other financial assets; clearing and settlement of securities transactions; clearing and settlement of commodities and futures transactions; and others, collectively called Financial Market Infrastructures. From October 2013, with the enactment of Law 12,865, payment structures and payment institutions also became part of the SPB.

The National Monetary Council has established guidelines to be observed by the Brazilian Central Bank in the regulation, supervision and oversight of payment structures and payment institutions, in line with the goals set by Law 12,865/2013.

This is a highly-regulated area. Any other cases that are not covered by the legislation shall be analysed on a case by case basis, like the digital currency. Please see item 1.

INTERNATIONAL ASSOCIATION
OF YOUNG LAWYERS

FOCUS ON FINTECH

Commission(s) in charge of the Session/Workshop:

BANKING, FINANCE AND CAPITAL MARKETS

TOKYO, 2017

3 National Report of British Virgin Islands

(N.B. This material is for general information only and is not intended to provide legal advice)

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

   So far as we are aware, the British Virgin Islands (***BVI***) does not currently use digital currency on a national / general basis (though private individuals and entities may be doing so privately e.g. bitcoin investment).

   So far as we are aware, there is no BVI law currently in place which specifically prohibits the use of digital currency. However, as their use grows in popularity, we expect regulations and laws to be brought up to date to deal with (inter-alia) financial / investment regulations and anti-money laundering and terrorist financing laws.

   One area the BVI government has been looking into is the offer of bitcoin index funds and exchange traded funds (ETF) products as well as accepting bitcoin-denominated deposits and collateral.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

   Further to the above, the use of blockchain and bitcoin in the BVI is so limited (if used at all) that we cannot give a view on this amongst local financial market players.

   We are not aware of any BVI government plans to introduce blockchain technology into the financial system.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

   So far as we are aware, there has been no mobile wallets' integration in the British Virgin Islands yet and no publicised plan to adopt regulations to reduce the fraud and privacy risks that are associated with the same.

However, technology in this area in the BVI appears to be developing (e.g. point of sale (***POS***) technology at bars and restaurants) so it may become more relevant in the near future.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

   So far as we are aware, local merchants are not presently switching to NFC enabled technologies in the BVI.

   The BVI does not have sufficient demand from consumers at present to warrant investment in such technology. The BVI is a low population region which primarily relies on cash (US$), bank / credit card and cheque payments without the additional need of NFC enabled technologies. However, see above regarding the recent adoption on POS technology and how this may develop.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

   Local Caribbean banks have adopted internet banking including the following banks which have recently introduced mobile phone banking apps:

   - CIBC First Caribbean International Bank (a subsidiary of the Canadian Imperial Bank of Commerce)
   - VP Bank (subsidiary of VP Bank, Liectenstein)
   - FirstBank of the Virgin Islands (subsidiary of FirstBank of Puerto Rico)
   - Scotiabank (a subsidiary of Scotiabank Canada)
   - Banco Popular (a subsidiary of Banco Popular de Puerto Rico)

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

Not presently, as the BVI is not sufficiently advanced technologically, and the market not sufficiently advanced or developed to require such services. However, this may change as the BVI catches up with the technology on offer (see above re POS technology).

Additionally, the requirements of inhabitants and the tourist industry in the BVI may see more modern technology adopted as the BVI becomes more exposed to the outside world. Technology which would not have been cost-effective to bring into the BVI is more likely to be so in the future as price points reduce. The increasing level of sophistication and demands of consumers in the BVI may also warrant the introduction of such technology.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Presently, we are not aware of any developing national payment systems in the BVI.

8. General

Whilst the BVI currently lags much of the rest of the world in on-the-ground fintech and technological developments, it remains a world leader in the provision of BVI incorporated holding / group companies for the fintech industry. The flexibility of BVI companies' legislation and the BVI business company is such that it can meet the complex and evolving needs of fintech companies as they grow from start-up to listed company.

Examples:

March 2015, Harneys acted as BVI legal counsel to TechFinanicials Inc., an innovative trading technology platform which forms a link between professional online trading and the wide mass market, on its IPO on AIM. TechFinancials Inc. is the first and only binary options technology provider to be listed on the London Stock Exchange AIM market.

November 2015, Harneys acted as BVI legal counsel to LeniGas Cuba Limited (***LeniGas***) in connection with its listing on the ISDX Growth Market. This was believed to be the first ever app-based IPO with a number of subscription shares being offered over the Teathers platform. In July 2016, Harneys subsequently acted as BVI legal counsel on LeniGas' reverse takeover of Knowlton Capital Inc. (a TSX listed company) by way of a BVI scheme of arrangement.

December 2015, Harneys acted as BVI legal counsel to Coinsilium Group Limited on its listing on the ISDX Growth Market - the world's first blockchain investment company to be admitted to trading on a regulated exchange.

We would be glad to contribute to panel discussions at conference. On the basis of the above, our input would likely be best suited to the role of BVI companies in the fintech sector, particularly as listed or holding vehicles rather than e.g. national legislation on blockchain / NFC etc which has yet to catch up with other jurisdictions. Do let us know.

7 March 2017

INTERNATIONAL ASSOCIATION
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BANKING, FINANCE AND CAPITAL MARKETS

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4 National Report of Finland

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

   For the time being, Bitcoin is the only digital currency with sufficient payment transaction volume and significant amount of users to make a difference. Thus far, the Bank of Finland (**BOF**) has assessed that Bitcoin is not an official currency, but on the other hand it has considered Bitcoin as a legal means of payment. However, Bitcoin or other digital currencies are not regulated by any law nor are they supervised by any authorities in Finland. According to an expert of the BOF, roughly 20 000 – 40 000 Finns use Bitcoin, but it is very difficult to make any precise estimations as there is really no way to determine the geographical location of each user. We have nearly ten (10) Bitcoin ATM's in Finland, where you can change euros to Bitcoins. In terms of commercial transactions, there are companies that accept Bitcoin as a payment method, it can be used in various internet services, and it is even possible to pay employees' salaries in Bitcoins by using a specific service provider. Naturally, there are also people who think that honest merchants will not need Bitcoin.

   Although Bitcoin is not regulated under Finnish law, the tax authorities have been attentive and issued guidance (already in August 2013) on income taxation of digital currencies, whereby changing digital currency into official currency will trigger the income taxation. Also, the Finnish Central Tax Board has concluded that Bitcoin is a means of payment (KVL: 034/2014). In October 2015 the Court of Justice of the European Union (**CJEU**) concluded that: "the supply of services [*such as those at issue in the main proceedings*], which consist of the exchange of traditional currencies for units of the 'bitcoin' virtual currency and vice versa, performed in return for payment of a sum equal to the difference between, on the one hand, the price paid by the operator to purchase the currency and, on the other hand, the price at which he sells that currency to his clients, are transactions *exempt from VAT*, …". Pursuant to the VAT Directive (2006/112/EC) supply of goods and services is subject to VAT, but transactions concerning currency, bank notes and coins used as legal tender are exempted. The CJEU holds that transactions concerning digital currency are also exempted based on the above rule about currencies, which can be considered as a step towards acknowledging Bitcoin and other digital currencies as real currencies. However, the ECB has declared that EU institutions should not promote the use of digital currencies and should make clear they lack the legal status of currency or money mainly by highlighting their vulnerability to security threats.

Security issues are on top of each government body's and commercial entity's list when it comes to determining whether or not to react positively or negatively to digital currencies. In Finland, there is a pending Government Bill on preventing money laundering and terrorism, in which it is noted than certain risks relating to digital currencies have raised a need to consider applying the law to service providers doing business in digital currencies (issuers, exchange offices and other market platforms). However, since the European Commission adopted a proposal to further reinforce EU rules on anti-money laundering in July 2016, the Finnish government decided to put on hold any drafting in relation to national digital currency related legislation while awaiting the EU rules. The current focus seems to be on assessing the risks and trying to find answers to a myriad of questions around digital currencies, not to lose sight of all data protection issues and other privacy issues raising concern, when talking about bitcoin and other virtual currencies. Along with national central banks in Europe, also the BOF is actively following the trends and development in digitalization including digital currencies. Some giant global banks are developing their new digital currencies to be used in money transfers between banks, which is noted here in Finland as well and the gut feeling of the experts at the BOF is that also the domestic banks are involved in this kind of development processes in order to find and achieve the advantages of faster transactions, money transfers as well as clearing processes. According to the BOF, bitcoin might create problems for consumers in terms of fluctuations in value and when the authorities are seen as the guardians of financial stability, this element in using bitcoin as a payment method makes it difficult for the BOF, for one, to make any official statements at this point from reputation point of view. Bitcoin's daily volatility can climb up to 30%, although 5 – 15% is the average.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

According to various sources, blockchain is claimed to be a revolutionary improvement that could change the whole world like internet once did. It is expected to generate significant cost savings and to enable faster transactions than ever when used in financial services businesses. For example, the Finnish Ministry of Finance estimates that innovations in technology will rapidly change the financial market and they foresee that new technology, including blockchain, makes it possible to use new financial instruments and payment systems as well as create new possibilities for crowdfunding, which has recently boomed in Finland as an alternative source of

funding. On the other hand, there are risks involved especially with respect to the undisturbed functioning of the financial markets as well as stability and supervision. The Finnish Ministry of Finance has established a task force consisting of experts to follow and promote the development of technology in financial services.

This mirrors the general atmosphere in Finland: as mentioned in the previous chapter, also the BOF wants to be active in following the trends and innovations in the field of technology, but yet remaining rather considerate before making a stand for any totally new experiments. However, one of the experts at the BOF considers blockchain as one of the biggest and most significant sectors in digitalization in relation to the banking business and thinks that the technology it relies on can help us create a new kind of trading and custody system, which is faster and more efficient. All major Finnish banks have already launched different programs and digital hubs to leverage the opportunities of new technology, they have teamed up with start-up companies to navigate their going forward and each of them has joined the international partnership Distributed Ledger Group (DLG) that develops common standards and applications for using distributed ledger technology as the next generation financial services transaction network in collaboration with R3, a distributed database technology company.

As said, Finland and the BOF is actively keeping track of various technology projects including also blockchain based new digital currency that would significantly alter the current way of clearing and settling financial transactions and trades that is developed by a team of four global banks: UBS, Deutsche Bank, Santander and BNY Mellon. Blockchain technology is a widely researched and discussed topic attracting many people to participate and organize various events and conferences also here in Finland, but there are not too many practical applications or solutions to point out. In November 2016, the BOF arranged a seminar on blockchain, where ten blockchain projects were presented (focused on applications in both government and finance).The take-away of the one-day seminar was the discussions aiming at promoting development of guiding principles for future work. Governor of the BOF, Mr. Erkki Liikanen, quoted that "*Our task is to ensure the reliability and efficiency of the payment system and the overall financial system and to participate in their development. Research into, and support of, new innovations shaping the financial sector constitute part of this work*".

As a conclusion, we are in the middle of an interesting era of developments and innovations; Finland as a technology and innovation country definitely wants to be on board with any new developments. Although Finland has been a forerunner in internet banking, for instance, perhaps due to the size and resources of a small country and the fact that Finland is an EU member state and belongs to the SEPA

system, it seems that the government is assuming the role of an open-minded observer instead of a forerunner in experimenting and implementing blockchain platforms in the financial system as a government or country. However, major Finnish banks and the private sector have been and will be forerunners together with the Nordic banks to experiment with new technology and any opportunities it might bring us; and exploring the blockchain is definitely on their to do list as we speak. Blockchain will most likely play a key role going forward, but the timing and interplay with legislation remains open. Consulting company Accenture sets forth in a recent study (*Blockchain Technology: Preparing for change Challenge 04*) that we are living the early adoption of blockchain technology and it is not until 2018-2024 when the blockchain pioneers have cleared the way. By then, the legislators will also have woken up, which will create some certainty about what the financial sector leaning on blockchain technology really needs to grow on a larger scale. Perhaps it is not until 2025 when the mainstream has adopted the use of blockchain technology in financial industry. The new General Data Protection Regulation (2016/679) has entered into force (with national implementation process ongoing) and blockchain technology can even be considered to be assisting in this area by better addressing privacy concerns with its faultless and unhackable features.

A BOF expert writes in his blog about the possibility for the BOF to establish a system where it would issue electronic money by using blockchain technology. Almost every central bank is onboard investigating the possibility to create a system for electronic currency based on blockchain technology. The current law regulating the BOF's activity does not prohibit, for instance, it from granting credit or taking deposits. According to law, the client base may be either corporate or consumers. One can argue that the most wide-ranging effects are achieved, if individual citizens are enabled to hold central bank accounts and related tools, ie. mobile applications and debit cards together with a reputable recognition vehicle. It can be assumed that at least a certain part of bank deposits would transfer to central bank accounts as the public trust towards a central bank is in theory stronger than towards deposit banks. Actually the BOF has already tried to establish electronic central bank money in the early 90's, when an electronic wallet with prepaid element was supposed to replace cash in small payments. However, at that time it was subject to a charge compared to payment cards, which might be the reason for the critical mass rejecting it.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

In Finland, the integration of mobile wallets into the national payments system has begun. Payment services that allow individuals to transfer money via mobile devices are being developed both by the traditional banks and smaller fintech companies. Already 77% of the Finns have used a mobile device for payment or mobile banking. Currently, the Finns are mostly using the Danish (Danske Bank's) application Mobile Pay but the Finnish banks also keep up with the development. The Finnish Aktia Bank plc acquired an existing mobile wallet application from Elisa, which is one of the biggest telecommunication companies in Finland, and turned it into "Aktia Wallet" in July 2016. Aktia Wallet is a mobile wallet application in the sense that you can load money to it from you bank account and also add payment cards into your Aktia Wallet, but it also allows you to transfer money by using the recipient's phone number, like Danske Bank's Mobile Pay, and it makes it possible to pay in store by showing the specific sticker attached to your mobile phone to the cashier device. It is possible, that the Finnish telecommunication companies continue to develop mobile payment systems to link payment services to the customer's mobile bill.

In the beginning of March four of Finland´s largest banks will release a platform named Siirto (in English "Transfer") for mobile payment, which makes it possible for consumer to transfer money using only the receivers' phone number as payment information. The money will be transferred in real time between the different banks, whereas the transfers we use today take a minimum of one banking day. The new Siirto service is provided by Automatia, which is the same service provider that provides cash withdrawals in Finland. Automatia has developed a platform on which Siirto is based, and gives the banks a technical base on which to build their own customized applications.

On the EU level, the revised Payment Service Directive (2015/2366, PSD2) will open up the market for payment services. The EU legislation will be transposed into national legislations by January 13th 2018. The aim of the revised directive is to increase competition and innovation within the European payments area. Account-servicing banks will be obliged to provide third party service providers access to customer accounts on the explicit consent of the account holder. The payment initiation service provider and the account information service provider will also have the right to utilize strong customer authentication procedures, provided to the account holder by the account-servicing bank. Thus, the directive makes it possible to connect your mobile wallet directly to your bank accounts and hence the need for payment cards will decrease.

Several banks in Finland are now developing their own applications by utilizing the platform, with the new applications due to launch in spring 2017. The new services

can consist of entirely new applications, or they can be added to the banks' existing mobile payment systems. In comparison to the mobile payment service Mobile Pay launched by Danske Bank, Siirto will transfer money straight from one bank account to another, whereas Mobile Pay transfers payments via the payer's card. Similar services provided in Sweden, for instance, are free of charge, and this will probably also be the case in Finland. If consumers welcome the new service, it is possible that they will partly transit from internet banking services into using mobile applications. The plan is to make paying through the Siirto service possible both in online stores and in physical stores.

In Finland, the standards of reducing fraud and mitigating privacy risks have traditionally been high. In addition to the Finnish Act on Payment Services covering, among other things, both electronic payments and mobile payments, we already have an Act on Strong Electronic Identification and Electronic Signatures (7.8.2009/617) governing identity verification, identification and data encryption in electronic information networks. There is no specific national mobile wallet related legislation governing fraud and privacy issues in Finland. The PSD2 together with the General Data Protection Regulation will assess these issues, but it remains to be seen, whether or not they will actually add to our country's already high standards or, on the contrary, create more concern as to information security issues.

The Finnish banks are concerned about the information security risks relating to electronic payments now that the PSD2 forces banks to open up their payment systems to various third party service providers who may or may not respect our strict information security rules or share the common understanding of applying high standards of preventing fraud and mitigating privacy risks. All major banks are investing significant funds to build up better systems, and information security issues play a major role in these processes. It is understandable that they are not keen on inviting any dishonest or careless competitors to the market.

However, as under current national legislation, also the PSD2 requires the payment service provider to apply strong customer authentication when the customer initiates an electronic payment transaction and accesses its payment account online. Strong customer authentication is an authentication process that validates the identity of the user of a payment service or of the payment transaction and is based upon the use of two or more elements categorized as:

knowledge (something only the user knows, e.g. a password or a PIN);
possession (something only the user possesses, e.g. the card or an authentication code generating device); and

inherence (something the user is, e.g. the use of a fingerprint or voice recognition), to validate the user or the transaction.

Derogations from these requirements will be provided in regulations issued by the European Banking Authority (EBA).

Biometrics does not yet have a visible role in securing payments in Finland. However, financial experts and fintechs in Finland do see the potential of this kind of technology for the future. Future predictions of developments in biometrics include fingerprint identification as well as face and voice recognition. Other more advanced features include payment devices that recognize electrocardiogram, temperature, smell, movement etc. A mobile device will be intelligent enough to recognize the owner of the mobile device and to transfer this information to the receiver of the payment. Biometric recognition is also seen as a positive and user-friendly alternative, as it could be easier for older demographics to adopt, in comparison to applications with systems where a user interface needs to be learned. The Finnish start-up Uniqul has developed a payment system based on face recognition. Instead of using a payment terminal Uniqul uses a camera which recognizes the customer's face and a tablet on which the customer only clicks "OK" to confirm the purchase. According to Uniqul the purchase will take approximately 3 seconds which is a huge advantage compared to traditional payment methods. The recognition will take approximately 2 seconds and the payment 1 second. Uniqul's facial recognition system was already launched in 2013, but has yet not had its breakthrough.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

Since 2014, when payments through the use of Near Field Communications (NFC) were a rare form of payment in Finland, the situation has reversed by today. According to the BOF, in 2014 Finnish people used NFC payments only 3.3 million times and the value of money transactions was only 30 million euros. Those numbers increased significantly in 2015 when Finns made 28.6 million NFC payments and increased the value of monetary transactions to 230 million euros. Even though the BOF does not yet have statics for 2016, it is safe to say that year 2016 and the beginning of year 2017 show no change to the trend: NFC-technology payments are becoming more and more popular and one could even say that NFC payments have boomed during the past year or two.

Although Finns are actively using NFC payments via payment cards, it is still rare to use the technology through mobiles. However, this method of payment is increasing with all major banks providing their applications for either credit card based systems or systems relying "purely" on mobile technology with access to relevant accounts. Siirto is an open payment platform which follows the new regulations set by PSD2, paving the way for new innovations and payment solutions within the financial ecosystem. However, this situation is definitely changing and many new mobile platforms with NFC payment capabilities are being developed. It seems that one year from now NFC mobile payments will be a very common form of payment here in Finland (more of these developments will be discussed under question 5).

Finnish merchants are actively using NFC-enabled technologies. The use of NFC does not require any specific obligations from the merchant's side. For example, since the beginning of year 2016 the technology has been automatically available and installed in the payment terminals by banks and other companies. The technology enables NFC payments by payment cards or mobile devices. It is up to the merchants whether or not they want to provide the possibility of NFC payments to their customers. It is safe to say that almost every merchant in Finland offers this possibility. Some bigger stores focusing their business on costly products, for example furniture stores, do not necessarily see it useful to provide NFC services. This is mainly due to the fact that in Finland NFC payments have a limit of 25 euros. Everything that costs more than 25 euros needs to be accepted by using a pin code. Therefore, NFC payments are most useful in consumer retail chains, kiosks and fast food restaurants.

In my opinion the use of NFC- technology is a win-win situation for both customers and merchants. As mentioned above, the use and implementation of the technology is easy for merchants and it certainly makes customers life easier. It is the easiness, quickness and effectiveness that are NFC payments' biggest benefits. One practical problem that might prevent certain people from using NCF payment is the fact that it does not allow the customer to choose between debit and credit charge. Possibly due to credit card companies' default settings and requirements, payments with certain payment cards are routed through credit charge – and Finns do not like to owe money unless you choose to do so. However, it is always good to bear in mind that everyone understands the relevant security issues and possible risks related to this kind of new and exciting technology. I think we still have some work to do on this field.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

When it comes to digital banking services, Finland has long been a forerunner within this field. A look into the historical development of digital banking services shows us that Nordic banks have acted as pioneers. A major development that happened in Finland was when OP Financial Group (OP) – today Finland's largest financial services group – launched its internet banking services in 1996. At that time, OP was the second bank in the world to do so and the first one in Europe. Banks in Finland have utilised the possibilities of digitalization a number of years and are still working actively and investing heavily to develop and implement new digital payment services.

In the near future one of the major regulatory developments with a large impact on the financial sector in Finland is the PSD2. The new directive will open up the market for payment services in Europe, making it possible for other companies besides banks to enter the market to provide payment services. Account-servicing banks will be obliged to provide third party service providers access to customer accounts on the explicit consent of the account holder. The payment initiation service provider and the account information service provider will also have the right to utilize strong customer authentication procedures, provided to the account holder by the account-servicing bank. The revised directive is aimed towards securing a more efficient payments market for consumers with more alternative services to choose from. A strong development towards increased competition between service providers may already be detected in the European market and several small players providing certain types of services have emerged. The revised directive therefore brings new challenges for traditional banks as they will face more competition from new market participants.

When it comes to the future of digital banking services in Finland, the BOF has founded a "payments council" in which the aim is to discuss challenges relating to future payment services. The council has for instance conducted an experts' report on future prospects on the topic. Major trends that are predicted to materialize in the near future include the development of a cashless society and many other opportunities that fintech companies provide in the financial sector. These opportunities build on developments such as real-time money transfers and the integration of payments into an invisible part of the purchasing event.

As an ending note, it may become important for national jurisdictions to support the growth conditions of fintech companies by implementing favourable local legislation. Markets with unfavourable legislation could possibly drive fintech companies into other more favourable markets. Another important aspect to bear in mind when forming future legislation is security concerns. As mobile payment services grow more common, there is also a rising concern on information security and data protection. By creating and implementing new regulation directed at service providers it is possible to increase supervisory activities and measures to protect consumer data from outsiders. The revised PSD2 is aimed at providing more security for consumers, but as the technological developments in the financial sector are taking place fast there will also be a need for rapid revisions in legislation.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

Technological developments within the financial sector bring both new opportunities and challenges to the players providing financial services. Fintech companies are regarded as both an opportunity and a threat for traditional 'incumbent' banks. Finland's largest corporate and retail banks are domestic (OP Financial Group, Aktia Bank, Säästöpankki and S-Pankki), Swedish (Nordea, SEB, Swedbank and Handelsbanken) and Danish (Danske Bank) banks with Finnish subsidiaries or branches. Fintech is the fastest growing sector of growth companies/start-ups in the Nordic region. Currently Sweden is leading this trend with its unicorn company Klarna, an online payment service, but investments have also risen in all Nordic countries. The Finnish online banking startup Holvi, founded in 2011, was acquired by the global banking group BBVA in March 2016 and is now continuing its business under the same brand. The race is definitely on in the Nordic countries.

Ernst & Young has published a bank relevance index (*2016 Global Consumer Banking Relevance, EY Bank Relevance Index*) where Finland is ranking in the top tier when it comes to being loyal to your own bank and its financial services. According to Ernst & Young's study, Finns do not easily change their banks or try to find alternative service providers. According to the results of the poll conducted by the Finnish Financial Supervisory Authority, the views of Finnish financial institutions on the possibilities and challenges of fintech differ somewhat from the views of their international counterparts. As much as 65% of the respondents believe that the digitalization of the financial industry will improve their operational preconditions

and 25% believe that conditions will remain the same. Up to 70% of the respondents from the banking sector viewed that the current financial players are the ones with the best possibilities to utilize the digitalization of the financial industry. Only 10% of the respondents from the banking sector saw that fintech companies were the players that would benefit most from the digitalization of the financial industry. The results are optimistic compared to international surveys, as international results indicate respondents fearing that fintech will eliminate over one fourth of banks' business globally. According to some estimates, the eight biggest banks in the Nordics are at risk of losing up to 1.8 billion euros of their business. All the big banks are renewing their systems to enhance the processes and customer experience. Due to increased competition, banks are now developing more digital services to their service portfolios and are expanding and diversifying their business operations to cover a consumer's life every step of the way.

The Nordic banks are currently making changes in their business to adapt to the digital transformation of the banking sector. The transformation is likely to lead to a significant loss of jobs at the banks that are preparing these changes as the objectives with the changes are to achieve higher efficiency and automation of operations. According to the Digital Disruption 2.0 report conducted by Citi, the biggest expenses of banks relate to office and personnel expenses and a large part of these expenses could be reduced by increasing automation. According to some predictions, fintech could lead to a decrease by one fourth in revenues and eliminate one third of jobs at banks only during one decade.

A major driver for banks to make this change is that they need to create a strategic response to the imminent PSD2 regulation. As one of the implications of the PSD2 is that banks will have to open their infrastructure for payment initiations and requests, new opportunities will arise for all players involved. Fintech companies' will challenge the incumbent banks' dominance of the customer interface and this might force banks into rethinking their business models and strategies. If banks lose the customer interface, it is a huge loss for their business. This is a challenge that the incumbents need to deal with sooner or later, for instance by adding new services to their portfolios. According to experts in Finland, not all the banks have prepared themselves well enough for the changes that the industry is facing. An indication of this are according to some the result of a poll conducted in 2016 by the Finnish Financial Supervisory Authority. The biggest bank of the Nordics, Nordea, has embraced the possibilities that come with digitalization. Nordea is currently making large investments in digital transformation, and is renewing its IT systems to the core (its competitors doing likewise). According to the CEO of Nordea, Casper von Koskull, the change in business does not only concern IT investments, but is rather

part of a larger shift in the corporate culture and course of action. In Finland, the local financial giant OP is in my opinion keeping the pace as well by building up new service units in healthcare, residency and even auto leasing industry. For example, OP already operates its own hospital and is also offering customers electric cars for monthly fees.

The banks are also exploring ways to utilize opportunities that might come from working together with fintech companies. The financial institutions in Finland have prepared for the digitalization by increasing IT-resources, increasing their knowhow about digitalization, and by developing new services and service channels. When it comes to digitalization, financial institutions in Finland see the biggest challenges in existing organizational structures, lack in knowhow and lack in regulation. However, according to some international polls, international players strive to network with fintech companies in higher degrees in comparison to Finnish market participants. Therefore, some of the Finnish financial institutions may need to further increase cooperation with fintech companies to remain competitive. Everywhere you look, the key words and strategies seem to be co-operation with the fintech companies in one way or another; traditional banks can acquire lucrative fintech's, they can invest in fintech's and the fintech sector, they can invite fintechs to their inno hubs and inno programs – the sky is the limit.

Opinions on the extent on which fintech companies pose a threat to traditional banks, vary among experts in Finland. As traditional banks are the only players to provide all banking services under one roof, fintech companies cannot by definition be considered as real threats for the existence of banks in Finland. However, loss of revenue is a real threat that banks need to prepare for, and according to Accenture Strategy, Nordic banks could lose up to 47% of their revenues due to the effects of PSD2. Before the PSD2 comes into force, banks now have less than a year to build a new set of basic services for consumers, day traders, businesses and institutions, so that they can secure existing revenues. According to estimates by Accenture Strategy, banks may increase their revenues in the Nordics with up to five billion euros by the year 2020 if they strategically utilize the possibilities that cooperation with fintech companies provide them.

A concrete example of legislative acts in the field of new technology in financial sector is the new Finnish Crowdfunding Act that entered into force in September 2016. The objective of the act is to clarify the responsibilities of various authorities in the supervision of crowdfunding, to improve investor protection and to diversify the financial markets. It does not, as such, regulate the technology itself, but aims at clarifying some ground rules for loan-based crowdfunding. Recently, new players

have created a totally new scene for alternative financing and the legislator obviously sees that it is important to establish certain rules to cover this. However, there is a lot to do from legislator's perspective and it is worth keeping in mind that adding more regulation is not always the best solution. In addition, we have of course legislation concerning data protection and information security matters, which is awaiting the upcoming implementation of the General Data Protection Regulation in the EU member states.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Apart from a few exceptions, the creation of the Single Euro Payments Area (**SEPA**) has almost entirely replaced the national payment systems in Finland. This is due to the regulations set out by the European Union. The legal framework consists of the (PSD2) and the SEPA regulation (260/2012).

SEPA consists of the member states of the European Union, the four member states of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland), Monaco and San Marino. It is a payment-integration initiative of the European Union for simplification of bank transfers denominated in euro. It allows European consumers, businesses and public administrations to make and receive credit transfers, direct debit payments and card payments under the same basic conditions, rights and obligations regardless of their location. SEPA's aim is to improve the efficiency of cross-border payments and turn the fragmented national markets for euro payments into a single domestic one. It enables payment transfers in the euro-zone by using a single bank account and a single set of payment instruments. The European banking industry, represented by the European Payments Council (EPC), is in charge of carrying out the measures required.

From November 2008 to December 2011, the Finnish banking community migrated its domestic credit transfers to STEP2 -system upheld by the EBA Clearing. STEP2 provides banks across Europe with one channel through which they can send and receive their SEPA Credit Transfers (SCT) as well as their SEPA Direct Debits (SDD). Migration to STEP2 allowed the Finnish banks to close down their domestic infrastructure and move to the SEPA Credit Transfer as demanded in the EU

regulations. The national direct debit payments, however, were replaced by the electronic invoices instead of SEPA Direct Debit.

The other payment systems used by Finnish banks are POPS, EURO1 and CLS. EURO1 is operated and owned by EBA Clearing and it is intended for single euro transactions of high priority and urgency, and primarily of large amount. The CLS (Continuous Linked Settlement) is a settlement system for foreign exchange trades that eliminates settlement risk. The CLS Bank runs it and transactions are settled on a payment versus payment basis. POPS is the domestic banks' online payment system for interbank express transfers and cheques. The inconvenience of the system is that it is arduous and expensive. Therefore, it is mainly used by corporations when they have an urgent need to transfer money quickly.

The lack of instant payment systems suitable for consumers has inspired private entrepreneurs and created a new opportunity for national payment systems. A good example of this is pikasiirto.fi –service founded by Alexander Hanhikoski. The business idea rests on a simple insight: money transfers instantly from one bank account to another within the same bank. Therefore, pikasiirto.fi has a bank account in every consumer bank in Finland. The transfer process happens automatically and in less than a minute. The price, however, is relatively high: the transfer fee is two euros plus 2,9 % of the amount of money transferred.

In addition, Danske Bank's MobilePay offers a certain kind of instant payment service for the consumers as well. It has become quite popular among the Finnish consumers, although it might not be an instant payment system in the literal meaning since the transfer process might take some time. Consequently, The Finnish banks have discussed about developing a new express transfer system of their own. The aim is to allow the customers to make urgent transfers, not only in Finland, but also in the SEPA area within a few seconds and whenever needed. The decision on this matter has been delayed due to the planning of the pan-European instant SEPA payment system. According to the latest news, an instant payment system created by the biggest banks in Finland might be available in the near future. However, it is still unclear whether it will be a system developed in cooperation with SEPA or not.

Overall, the national payment systems in Finland have reduced greatly due to SEPA. However, the shortage of consumer friendly instant payment systems between Finnish banks, have created a niche for the national solutions. It remains to be seen, whether the national markets regarding the instant transfers will evolve. Moreover, the national instant payment systems of other countries might be adopted as well, as can be seen from the example of MobilePay. Considering the nature of SEPA and

the regulations set out by EU, it is still likely that the harmonization of the European payment systems will continue and the pan-European system might cover the national instant payment systems as well.

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Commission(s) in charge of the Session/Workshop:

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TOKYO, 2017

5 National Report of Germany

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

According to a study of the Federal Bank of Germany, 79% of all payments in 2014 within Germany were paid in cash. Additionally in another recent survey by statista, only 12% of the respondents indicated, that it would be highly probable or probable, that they will use Bitcoin or another digital currency in 2017. Both results indicate that digital currencies are not frequently used in Germany.

Germany's financial supervisory authority's (BaFin) decided in the context of legislation on units of account within the meaning of section 1 (11) sentence 1 of the German Banking Act (Kreditwesengesetz - KWG), Bitcoins are so called financial instruments. Included are also value units which function as private means of payment in barter transactions and any other substitute currency that is used as means of payment in multilateral accounting on the basis of contracts under private law.

Legal consequence of this classification is that a commercial use of Bitcoins may require a licence as bank or financial institution by Germany's financial supervisory authority pursuant to section 32 of the German Banking Act. However the mere use of Bitcoins as a substitute currency for cash to participate in the economy through exchange transactions like the sale or purchase does not require such authorisation. On the other hand, a licensing requirement may arise in case Bitcoins are mined, purchased or sold to users on an existing market and, in addition, a special contribution is paid to create or preserve such market. This is for instance the case where a person advertises on the market to buy or sell Bitcoins on a frequent basis or if a provider exchanges legal currency to Bitcoins. Other examples for proprietary trading are mining-pools, which offer commercial revenue shares of mined or sold Bitcoins for the transfer in return of computing power by users.

If a person buys or sells Bitcoins commercially in his own name on account of a third party a so called financial commission business can be assumed which requires a license by BaFin a wellIn case of Bitcoin platforms a financial commission business is given if until the execution of their order the individual users may give instructions to the platforms by specifying the number and price of the transactions, the users are not aware of their trading partners and the Bitcoin platform does not act as a

representative of the participants but in its own name, the economic advantages and disadvantages of the transactions effect the users who transfer money to platform accounts or transfer Bitcoins and the Bitcoin platform is obliged to report to the users on the execution of the transactions and to transfer the Bitcoins acquired.

Furthermore, a banking license is required in case of running a multilateral trading system with a Bitcoin platform. Due to BaFin this shall be the case if users offer Bitcoins on a Bitcoin platform for sale with a (minimum) price limit or if users secure transactions by depositing Bitcoins with the Bitcoin platform and the Bitcoin platform only releases the Bitcoins in case of confirmation of the payment by the user.

In the offer of regionally structured paid web directories of persons, who offer Bitcoins in their place of residence for the purchase or sale an investment and acquisition brokerage can be assumed and a license is required as well.

Overall, banking license requirement for BitCoin serive providers is a complex legal issue. Potential providers should early get an opinion relating to their business by Germany's financial supervisory authority.

This legal classification applies in general to all digital currencies. What software they are based on or which encryption technologies they apply is immaterial in this respect.

By contrast, digital currencies are not legal currency and so are neither currencies nor foreign notes or coins. They are not regarded e-money either within the meaning of the German Payment Services Supervision Act (Zahlungsdiensteaufsichtsgesetz – ZAG), which implements the EU payment services directive; they do not represent any claims against an issuer, as in their case there is no issuer.
The situation is different for digital means of payment which are backed by a central entity that issues and manages the units. Such companies usually carry out e-money business pursuant to section 1a ZAG and thus require a licence to issue such payment means.

Currently the Federal Bank of Germany discusses the establishment of a "Staatsbitcoin". It is considered to establish a maximum limit for cash payment of EUR 5.000. However this discussion is at an early stage.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether

this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

Generally most of the banking institutions recognize the value and potential of the blockchain technology. The Federal Bank of Germany has built a new blockchain prototype focused on securities trading in partnership the Deutsche Börse back in November 2016. The prototype is said to enable the transfer of both electronic securities as well as virtual cash. Nevertheless most of the banking institutions claim that further knowledge has to be researched before blockchain technology becomes part of the day-to-day business strategy. The development is only at the beginning. Banks and FinTech-startups established discussion panels for this purpose.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

The level of mobile wallets´ integration in Germany is relatively small. According to a July 2016 survey of smartphone owners in nine different countries by data-driven marketing analytics company Aimia, German respondents are less likely than other people around the world to use a mobile wallet. Just 21% of the respondents in Germany said they would be likely or very likely to use a mobile wallet. This is the lowest rate among the countries studied including India, South Korea, South Africa, United Arab Emirates, United States of America, Australia Canada and United Kingdom. Germany also had the lowest percentage of respondents currently using a mobile wallet at just 4%.

There are no privacy laws on mobile payment in Germany. However, the new EU General Data Protection Regulation with its very high privacy standard will be applicable to mobile wallets. Furthermore, especially the financial sector is subject to new IT security requirements on the basis of the German IT Security Act of 2015 and the EU NIS-Directive of 2016, which both are aimed at strengthening the IT security of critical infrastructure, whereby digital payment transactions are considered to be critical infrastructure. Additionally, the second payment service directive (PSD II) enables the EBA to define a minimum standard of IT security measures which probably will be applicable to mobile wallets.

The best known technique using biometric data in Germany is the fingerprint. Eight out of ten Germans want to use fingerprint in the future instead of a classic PIN-number or signature. However, the iris, voice, the face or even the heartbeat could

also be used to indent a person. Even though a 2016 study by ECC showed that 45,5% of the responding customers were interested in biometrical payment systems, only 1,2% of the respondents had already used some sort of biometric payment. This high rate of consent among customers might put pressure on merchants to implement biometric payment system within the next years. Plans to adopt regulation against fraud and privacy risks are not known.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

   Basically the implementation of mobile payments could lead to a reduction of waiting times and a win-win situation for both sides. In addition to the security dimension, which is always a key issue and must be observed, technical failure especially on the customer´s side could impede the transaction and make purchase processes ineffective.

   So far mobile payments through the use of Near Field Communication are of lesser importance in everyday business. Apps like "Telekom My Wallet" or "Vodafone SmartPass" are using the technology already. Anyone wishing to operate the e-money business as an e-money institution in Germany requires the written permission of the Bundesanstalt (Federal Institue), which takes over the ongoing monitoring in cooperation with the Deutsche Bundesbank (German Central Bank).

   In general, at least three parties are involved in mobile payment transactions. These parties conclude different contracts, regularly a purchase contract between the customer and the local merchant, as well as a payment service contract between the customer and the payment service provider on one hand and a payment service contract between the local merchant and the payment service provider on the other hand.

   Mobile payment systems are legally possible, even if numerous legal frameworks are to be met.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

New processes, such as the "chipTan-method", are increasing the level of security constantly. Nevertheless the risks in case of bank fraud is highly relevant to the customers and providers. Therefore legal regulations relating to internet banking were passed in 2009.
In case of an unauthorized payment procedure the payment service provider is obliged to refund the payment amount immediately to the account owner and, if the amount has been debited to a payment account, to restore this payment account to which it would have been exposed without the burden of the unauthorized payment procedure (Sec. 675u German Civil Code).
However, the account owner is obligated to pay compensation, e.g. in case of fraudulent intent or grossly negligent breach of obligations (Sec. 675v, 675l German Civil Code).

In case of fraud, often the account owner accuses the payment service provider of having caused an unauthorized payment instruction. On the other hand, the endeavor of the payment service provider is characterized by calling into question the alleged nonauthorization by the account owner or by accusing the account owner of acting at least gross negligence in the protection of the personalized security features (like PIN) against unauthorized access.

A decisive question is therefore, which party is responsible for the presentation and the burden of proof. If the consent of the account holder to a payment process is controversial, the payment service provider has to prove that the concrete online banking procedure, including its personalized security features, has been used and this has been verified by means of a procedure. However, this proof does not necessarily suffice in order to guide the payment service provider to the proof of the authorization of the payment process by the payment service user.

In January 2016, the Bundesgerichtshof (Federal Supreme Court) clarified a disputed question on the scope of the prima facie evidence and asked payment service providers for future disputes to make considerable demands on the burden of presentation and evidence, which is a knowledge of the current development of crime and the functioning of the concrete Online banking system.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

Currently fintech startups solely fill niche markets, whether they can replace the traditional banking business remains to be seen, but the fintech market has grown a

lot in recent years. Due to a study about the fintech market in Germany from October 2016 by Prof. Dr. Gregor Dorfleitner and Junior Prof. Dr. Lars Hornuf, conducted on behalf of the Federal Ministry of Finance, a total of 433 fintech businesses actually exist in Germany. Approximately 1.2 million Germans used such independent financial management systems to manage their personal finances in 2015. The total market volume of fintech businesses was EUR 2.2 billion during 2015. While someone can say the fintech industry does not currently represent a systemic risk to the German economy and especially the banking system, taking into consideration that a total population of about 82 million inhabitants exist in Germany, fintech is a very fast moving and dynamic industry. Almost 87% of the surveyed financial institutions currently cooperate with a fintech business and strive for cooperation with or a participation in a fintech business in the future. Instead of a competition between traditional banks and fintech businesses a cooperated and joint market seems to be the solution in the near future.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Germany neither has an own national payment system nor is developing such an own payment system. However Germany is part of the Trans-European Automated Real-time Gross Settlement Express Transfer System (TARGET2-system), which covers all European Union member states using the Euro as their currency. Efficient and secure payment systems are the basis of a stable financial system. The European Central Bank together with the national central banks of the member states (in this case the Federal Bank of Germany) secure and monitor the cashless payments around Europe and increase their value. An efficient payment system reduces the cost of exchanging goods, services and assets. Therefor it is indispensable for the interbank, money and capital market and for all of its participants. It is a political and social issue to reduce costs in the financial services in order to support business in your own area. By establishing a European payment system this goal can be reached.

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6 National Report of The Netherlands

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

No, there is no specific Dutch (nor European) regulation implemented with respect to digital currencies yet. Virtual currencies such as bitcoins currently do not fall within the scope of the Act on Financial Supervision (Wet op het financieel toezicht) of the Netherlands. Digital currencies cannot be seen as 'electronic money,' " because it fails the definition set by the Dutch law.

In 2013 already, the Dutch Central Bank (De Nederlandsche Bank, **DNB**) called attention to the risks posed by the purchase of virtual currencies, including bitcoins and litecoins and warned consumers to be wary. It noted that the development of such currencies were growing but that exchange rates are volatile and that the DNB does not supervise them. The former President of the DNB, Nout Wellink, has called dealings in bitcoins a bubble that is "pure speculation" and "hype" and "worse than the tulip mania" of the seventeenth century because "at least then you got a tulip (at the end), now you get nothing."

Having that said, digital currencies are on the political and legal agenda for years already and it continuously gets lots of attention in the media.
In an item entitled "Virtual Currencies Are Not a Viable Alternative," published in its news bulletin, DNB put forward its stance on the Bitcoin and similar digital currencies. According to the DNB, "virtual currencies such as bitcoin are unlikely to replace the current financial system and money as we know it. Although media attention seems to suggest otherwise, the use of these currencies is as yet at a very low level." (*Virtual Currencies Are Not a Viable Alternative*, DNBULLETIN, May 8, 2014).) While there were under 1,000 bitcoin transactions in the Netherlands in 2013, it stated, there are over 16 million payments a day in euro, the legal tender in the country. (*Id.*)

The statement went on to point out that "the virtual currencies are not fully able to take up all the functions that money has, and market players in virtual currency systems provide only weak security guarantees. In addition, users run considerable risks when buying, spending, or receiving virtual currencies."
However, according to news reports, "neither the central bank nor any

other official body has required any bitcoin-related businesses to obtain a license or face any type of official scrutiny," and "the Netherlands shows big numbers for its size," being "home to about 5 percent of the bitcoin 'nodes' … which "is not far off the rates for Germany, Britain, Canada and France, and more than China … ." (Carter Dougherty &Maud van Gaal, *Bitcoin Grabs Dutch Fancy as Bankers Mull New Technology*, BLOOMBERG, May 29, 2014).)

Moreover, Dutch banks are said to be very willing to do business with undertakings that focus on virtual currency, unlike the major banks in China and the United States, for example. The Dutch regulators, unlike their foreign counterparts, are not cracking down on big Bitcoin startups, and so those enterprises are setting up business in Amsterdam. According to Jeroen Blokland, with the Rotterdam-based asset manager Robeco, the authorities have examined the potential for Bitcoin, and "they are willing to let this technological experiment unfold," while at the same time they "are warning anyone who wants to use it as an investment to 'be careful, be very careful.' In the view of Mark Buitenhek, global head of transaction services for ING Groep NV, "The Netherlands is among the absolute front runners" in Bitcoin, and "I think we will be and remain pioneers, just as bitcoin is rising very rapidly here compared to other countries."

On a European level, the legislator acknowledged the importance of regulating virtual currencies within the EU. Only very recently, on 9 March 2017, the EU Commission published new draft legislation that covers the use of cryptocurrencies within the borders of the European Union. The proposal suggests changes and additions to the "Directive (EU) 2015/849 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing" that include regulating and overseeing electronic money transfer systems (4th Anti-Money Laundering Directive), which could potentially be used for money laundering and terrorist financing activities. The EU Commission has proposed an amendment to Article 2 of thee Directive "*in order to add to the list of obliged [regulated] entities virtual currency exchange platforms as well as custodian wallet providers*".These are broadly speaking, from the Commission's point of view, the "*Gatekeepers*" into virtual currencies. In addition, for legal certainty, the Commission has provided a definition of "Virtual Currency".

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

At this moment, it appears that blokchain is considered an attractive option for financial services business, but the financial market players are currently in the process of investigating the possibilities and restrictions of blockchain in the daily use of its business.

Please note that The Netherlands intends to be a front runner with respect to the introduction of blokchain technology into the financial system. In an attempt to achieve this desired status, the Dutch government recently (September 2016) opened a 'blockchain development campus', supported by DNB, which will enable banks to develop and share information regarding the use of blockchain.

In addition, The Netherlands has appointed a Fintech 'Ambassador' Willem Vermeend, a professor of Economics and a former minister of Social Affairs and Employment. He is expected to play the role of a bridge between the government, the fintech sector and the regulators.

One of the goals of the blokchain campus is to facilitate learning and sharing of information among banks and other financial institutions. Co-operation is certainly on the agenda as the Fintech Ambassador of the Netherlands Willem Vermeend told the Dutch daily De Volkskrant that while there is creativity in the Netherlands, the problem is that there are twenty parties (working on blockchain) who have no idea what the others are doing.

As an example, ABN Amro has already deployed a team of 30 people to look at the possibilities of using blockchain-like systems within their bank. Rabobank too has signed up to a partnership with NexusLab to explore further possibilities.

This is not the first time the DNB has toyed with blockchain, In June 2016, DNB's head of market infrastructures policy department, Ron Berndsen, had revealed details about the central bank's experiments with its own experimental currency called 'DNBcoin'.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

The Netherlands is one of the countries where mobile commerce has really taken off and the level of mobile wallets integration in The Netherlands is relatively high, with constant new developments.

Figures from research company Telecompaper reveal that smartphone penetration in the Netherlands is more than 80% of the 16.8 million Dutch population. In 2015, the About Payments database put the number of smartphones in the Netherlands at 11.5 million and tablets at 8.1 million. Some 10.9 million Dutch people shop online, partly through their mobile devices. In 2015, online sales generated an estimated turnover of €18bn for the country's businesses, up from €14bn in 2014, the year when mobile commerce sales passed €2bn.

This is partly because the major Dutch banks – Rabobank, ING and ABN AMRO – have updated their banking apps to enable swift checkouts using iDEAL. This bank-developed payment system is the most popular in the country with a market share of 54% in 2015.

ING offers contactless mobile payments via a smartphone app. This app, which is separate from the regular ING banking app, was launched in December 2015, when it was immediately usable in more than 100,000 stores throughout the country. Coverage will continue to increase as shops replace older payment terminals with newer wireless versions that also support mobile payments through NFC. ING prides itself on being the first bank in the Netherlands to offer mobile payments on a variety of smartphones. ING is not the only Dutch bank to blaze a trail for mobile payments. Rabobank co-operates with Dutch telecoms company KPN to allow its customers to use the Rabo Wallet via their standard NFC SIM. This free Android app by Rabobank also has the capacity to process loyalty cards, store offers and mobile payment of parking fees.

Another striking example of the application of mobile wallets in The Netherlands is the payment bracelet that festival-goers in the Benelux countries can use to pay for beverages and merchandise at events run by Apenkooi Events (such as Amsterdam Open Air and DGTL). "The bracelets have multiple uses other than payments – entrance control, social links, and so on," said Apenkooi's Tom de Louw. The bracelets are universal for all festival-goers and enable rapid transactions at the bar, he added.
Despite this high level of integration of mobile wallets, The Netherlands has not adopted specific tailored laws or regulation to reduce fraud and privacy risks. Mobile wallets are governed by the existing Dutch (general) legal framework (i.a. the Dutch Civil Code and the Act on Financial Supervision and European legislation (i.a. Directive 2007/64/EC on payment services in the internal market, which establishes a harmonised legal framework for payment services throughout the single market (PSD), Directive 2009/110/EC, which covers the taking up, pursuit and prudential supervision of the business of electronic money

institutions, Regulation 2006/2004 (consumer protection and Directive 95/46/EC (data protection).

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

Yes, they are. Nowadays, all newly issued bankcards support the use of NFC and local merchants switching to NFC-enabled technologies. Within a short period of time, The use of NFC payments is widespread and seem to have become the new standard with respect to relatively small payments (amounts up to EUR 25,-).

I do believe the use of NFC technologies (and mobile payments in general) is a win-win scheme for both customers and merchants. Mobile payments can be a more convenient and portable means of payment than traditional payment methods because they eliminate the burden of carrying multiple plastic cards, coins and currency in a physical wallet. A payment via a mobile device may also be an improvement in terms of flexibility, since consumers are able to link mobile payments to card accounts or use other online payment systems, such as PayPal. Another possible advantage of mobile payments to consumers is faster transaction speeds for certain types of purchases. With contactless payment methods, including contactless cards and NFC-based mobile payments, the consumer only needs to tap or wave the contactless device in front of a reader in order to make a purchase. According to one study, this type of payment is up to 15 to 30 seconds faster than swiping a traditional card, signing the receipt or entering a PIN code. Despite higher initial equipment costs for purchasing a more advanced mobile phone or a tablet, it is argued that ongoing costs to the consumer are lower. The payment flexibility that mobile payments provide enables consumers to choose the lowest-cost payment instrument for each purchase.
For merchants, mobile payments are faster and cheaper (as the processing of cash money is time consuming and costly) and safer (large sums of cash money involves material safety risks).

On the downside, the use of mobile wallets involves fraud, cyber attacks and privacy risks. It is of utter importance that all involved financial institutions (banks, PI's, etc.) take full responsibility for those risks and hold consumers harmless. Consumers should be informed about security precautions, but financial institutions should be responsible for fraud costs, unless caused by the customer. The final responsibility

for security measures relating to different payment methods cannot lie with customers.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

   See answer to question 4 above. In addition, we have seen that several Dutch banks aim to invest in developing (or have developed already) internet only subsidiaries. For example: ABN AMRO has launched MoneyU, a B2C bank, offering online services only (savings accounts, loans, credits and mortgages). There is no specific regulatory framework applicable to such online banks, so it need to be fitted with the existing legal framework.

   Van Lanschot recently (9 March 2017) launched an innovative investment advice app, which will give its clients easy access to their own portfolios and their dedicated investment adviser.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

   No, fintech startups are considered innovative and progressive, encountering the financial services industry with a creative and fresh view. The existing banks are interested and cooperative towards fintechs, looking for opportunities to learn, share information and work together (see answer to question two above).

   In the past years, we have seen several joint ventures of banks and fintechs and banks have invested and are participating in fintechs on a large scale. As an example: Rabobank and Triodos Bank recently entered into partnership agreements with online P2P lending platforms, pursuant to which the Rabobank refers potential clients to the respective platform and Triodos Bank has set op a P2P lending platform itself.

   On 9 March 2017, Van Lanschot announced that it entered into an agreement with Fidor, an innovative German fintech player, to outsource its payments activities. Van Lanschot expects that this will result in state-of-the-art online and mobile payments for its clients next year.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

We don't have (and we are not developing) a national payment system in The Netherlands.

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Commission(s) in charge of the Session/Workshop:

BANKING, FINANCE AND CAPITAL MARKETS

TOKYO, 2017

7 National Report of Portugal

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1. Are digital currencies frequently used in your country?

No, digital currencies are not frequently used in Portugal.

In Portugal, there are few digital currency ATM's, which can be accepted in commerce and services. However, there is no specific protection mechanism to cover losses incurred in the event of the collapse or cessation of the activity of an electronic currency-trading platform.

Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law?

No, digital currencies (currencies not issued by a central bank or a public authority) have not been recognized or directly prohibited by Portuguese law.

The Bank of Portugal has issued a Public Warning stating the risks on the use of digital currencies, namely because the issue of digital currencies is made by non-regulated entities, not subject to any supervision including any prudential ratios.

What are the spheres where digital currency is used**?**

With respect to digital currencies, as referred above, they are not commonly used in Portugal.

Is it possible to use digital currencies in commercial transactions?

Yes, only when the parties have expressly agreed on that.

Has your local central bank or any other governmental institution considered establishing state digital currency?

Early this year, the European Central Bank ("**ECB**") published the conclusions of the ESCB Legal Conference 2016 where it was discussed how the ECB could design, issue, and manage a central bank digital currency for everyone, to be used alongside cash.

In addition, as mentioned above, the Bank of Portugal has issued a Public Warning stating the risks on the use of digital currencies.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

   Blockchain is the core component of bitcoin. However, whereas the use of bitcoin is still anecdotal, blockchain technology offers a potential use that promises to be a solution for an overall problem such as making a database both secure and not requiring a trusted administrator. The blockchain technology allows a number of participants in a restricted or unrestricted peer-to-peer network to validate new transactions or blocks of new transactions and append them to the chain of previously validated transactions or blocks of transactions. The chain of validated blocks then constitutes a blockchain, which is updated and distributed to all participants, in order to ensure consistency of information. Any party that joins the network receives either the entire latest version of a blockchain file or its hash.

   Although Portuguese authorities have not make a specific statement yet regarding the use of blockchain, the ECB has reported recently that it is looking towards new innovations such as blockchain (also known as distributed ledger) technology to help run payment and settlement systems.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

   Mobile wallets do not play a relevant role in the Portuguese market and its use is still very residual. On the other hand, no specific regulation has been adopted to specifically address fraud and privacy risks connected with mobile wallets. Additionally, so far biometrics does not have a role to play in our jurisdiction as a method of secure payment.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

   Portuguese merchants are adapting to the new payment tendencies. Although some small businesses are still reluctant to the use of non-cash payment methods

(especially in case of small purchases), there is a clear tendency towards card and mobile payments, particularly amongst young people.

On the other hand, new POS (point of sale) enable contactless payment methods, which includes both contactless cards and mobile payments. With respect to the latter, all major Portuguese banks have a NFC solution (e.g. BPI, CTT, BCP, etc.).

Although merchants face in some cases high commissions vis-á-vis banks, it is expected that the Payment Services Directive 2 ("**PSD2**") will generate more competition among financial entities and, accordingly, lower fees with respect to payment services.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

Portuguese banks are indeed providing a number of new digital innovations. Among others, MB WAY is the first inter-bank solution that enables purchases and immediate transfers via smartphones and tablets. At the moment, there are 14 participant banks such as ActivoBank, Bankinter, BBVA, Best Bank, Banco Popular, BPI, Caixa de Crédito Agrícola, Caixa Geral de Depósitos, Millennium BCP, Montepio, Novo Banco, and Santander Totta. MB WAY is a Multibanco service (an interbank network in Portugal owned and operated by SIBS) that provides the same guarantees as those today in effect for the acceptance of card payments at traditional Multibanco Network Automatic Payment Terminals. Among the countries with higher levels of bank card utilisation, Portugal reports some of the lowest general levels of fraud and is duly identified by the European Central Bank as one of the countries with the most secure payment systems. Regarding legal framework, the upcoming PSD2 is expected to pose new competitors to the payment services market.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

In general, Fintech start-ups are still a minor phenomenon in Portugal since most of the consumers still rely on traditional firms with respect to financial services (investment services, payment services, lending, etc.). However, this is a growing trend and cannot be disregarded.

On the other hand, with respect to certain financial services (e.g. exchange services provided to businesses), some FinTechs businesses are becoming a real competitor and a challenge to banks. Examples include the SIBS PayForward, an innovative accelerator for FinTechs, the first to be produced in Portugal for the field of payment related financial services, in a partnership between SIBS and Beta-i or the working group set up last month by the Portuguese government with the aim of developing measures which encourage the creation if FinTechs.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Current Portuguese regulation on payment services derives from the payment services directive (adopted in 2007), which sets forth the legal foundation for a European Union single market for payments. The objectives of said directive were to make cross-border payments as easy, efficient and secure as "national" payments within a Member State.

In 2013, the European Commission proposed to review the payment services directive mentioned above to take into account new types of payment services. Additionally, the new directive aims to remove current regulatory arbitrage and uncertainty created with the transposition of the 2007 directive.

As a result, in 2015 the European Union adopted a new directive on payment services (PSD2) to improve the existing rules and consider new digital payment services. It includes provisions to (i) make it easier and safer to use internet payment services, (ii) better protect consumers against fraud, abuse, and payment problems, (iii) promote innovative mobile and internet payment services, (iv) strengthen consumer rights and (v) strengthen the role of the European Banking Authority (EBA) to coordinate supervisory authorities and draft technical standards.

The directive is part of a legislative package that also included a regulation on multilateral interchange fees. Together, the regulation and the PSD2, limit the fees for transactions based on consumer debit and credit cards and ban retailers from imposing surcharges on customers for the use of these types of cards.

The directive also aims to open the EU payment market to companies offering consumer- or business-oriented payment services based on access to information about the payment account, particularly: (i) account information services which allow a payment service user to have an overview of their financial situation at any time, allowing users to better manage their personal finances, and (ii) payment initiation services which allow consumers to pay via simple credit transfer for their online purchases, while providing merchants with the assurance that the payment has been initiated so that goods can be released or services provided without delay.

EU countries shall transpose the PSD2 into national law by January 2018.

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TOKYO, 2017

8 National Report of Russia

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

Digital currencies that have spread all over the world and gain more and more popularity are quite new for Russia. Currently the Russian Federation has no regulations with respect to digital currencies. However, the question on whether to implement it within current legislation or to prohibit it directly is still on the agenda of Russian authorities.

In 2015 the Ministry of Finance of Russia released a draft, which proposed a criminal liability for the use of digital currencies as these "currency surrogates" may threaten the financial stability and financial sovereignty of Russia. Little later, the same state authority has passed additional amendments according to which:

- Individual users of digital currencies are either charged with the penalty of about $8,6k USD or they will face the imprisonment with the term of 4 years;
- Organizations' representatives are to repay about $17k USD or spend 6 years in jail;
- Individuals employed on finance-related positions are to face a penalty of about $17k-43k USD or 7 years in jail.

Moreover, the Ministry of Economic Development of Russia was also against implementation of the digital currencies in Russia as such currencies have no asset back up and no authorized regulator responsible for its functioning.

Later in 2016 the Central Bank of Russia (hereinafter the "**CBR**") proposed to arrange for a working group together with Russian authorities involved in order to review and analyze functionality of digital currencies. Based on the official statements provided by the CBR representatives, the CBR currently intends to use extensively the technology of Blockchain which invention could be compared to Internet. However, usage of digital currencies, especially cryptocurrencies still are not acceptable from the CBR's perspective.

Based on the above we believe that the position of authorities with respect to digital currencies, especially cryptocurrencies is quite unclear at this stage. As the result such digital currencies are not frequently used, including for the purposes of transactions.

Notwithstanding this, the CBR currently discusses the implementation of the national equivalent of the most popular cryptocurrency all over the world – Bitcoin. However, based on the plan of the CBR the national cryptocurrency (if implemented) will be regulated by the CBR and will not have a decentralized functionality as opposite to Bitcoin.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

   Please note that Blockchain technology becomes more popular among financial market players in the territory of the Russian Federation. Blockchain system will give the Russian banks an opportunity to make all transactions more transparent, quick as well as cost effective in terms of operational activity, identification of the clients and interbank settlements.

   At this stage, certain major market players experiment with implementation of Blockchain. For example, Sberbank together with Russian Federal Antimonopoly Service implements a pilot project for document maintenance based on the Blockchain. In case the project will be effective, this will let both Sberbank and Federal Antimonopoly Service to stop involving third operators while exchange of documents.

   In Russia Blockchain is already used for the remote identification purposes. One of the major banks in Russia, RosEvroBank, has developed a Blockchain prototype to launch the remote customers' identification. This initiative provides customers of Russian banks to access to a wide range of banking services through a single login window without necessity to visit bank offices. It is planned that identification will be made through the palm prints, face features and the voice patterns received through the video conference with the Russian bank's representative. In such cases, Blockchain will be required to secure of the information maintained in the Russian banks with respect to its customers.

   At this stage, other options with respect to Blockchain system implementation are discussed mainly within the Russian bank community.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks

connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

Mobile wallets became one of the most rapidly developing segment on Russian payment market. Mobile wallets enable users to store their personal financial information regarding cards, vouchers as well as tickets in organized form on their smartphone. However, still mobile wallets application raise concerns about security.

Notwithstanding the fact that the Russian law provides for the criminal liability in case of the fraud and fights against the illegal activity connected with mobile wallets fraud, still the most effective way to avoid fraud is technical capabilities provided by the operators. This results in additional passwords and other authentication means, which make such mobile wallets more and more cumbersome.

Biometric information is one of the technologies with the growing popularity on the territory of Russia. Currently the Russian law does not contain any particular provisions regarding the ability to use biometrical information for payment purposes. However, it is not prohibited directly by the law.

Biometrict information usage is mostly promoted by the Russian banks. Recently, Sberbank which heads the initiative to use biometric information for authorisation purposes confirmed that it intends to implement a biometric base of its customers. However, due to significant investments needed for these purposes the progress is modest at this stage. Notwithstanding this, certain biometric payments projects are now launched by Sberbank in collaboration with Russian supermarkets (Azbuka Vkusa). In order to pay for the good bought in respective supermarket you were required to put your finger on a special POS terminal with an imbedded biometric scanner. All customers that intended to use such kind of payments in the supermarket were required to undergo preliminary registration procedure at the cash desk of the supermarket with binding up customer's fingerprints to a bank card through a POS terminal. Based on the information provided by the participants of the project respective biometric data is secured and is transformed into a unique set of numeric codes. Currently such technology is used only in one supermarket but the project participants believe that such technology will expand the market soon.

Moreover, little later (in the end of 2016) both Samsung Pay и Apple Pay continuing the worldwide expansion became available to Russian smartphone users. Notwithstanding the fact that biometric authentication procedures are still the most reliable ones, the Russian experts still believe that could be place for fraud which are among others stealing the information about transactions and personal data of

customers in case the processing machines are infected by computer viruses of defrauders, making of fingerprint copies by the defrauders. Russian experts believe that biometric data is the most secure way of making payments at this stage, thus biometric data, such as fingerprints could not be changed or 'blocked' comparing to the lost or stolen bank card or pin code. Given this, Russian banks and authorities still have to implement the mechanisms which will be effective to fight against defrauder activities.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

   NFC technologies flooded into the Russian payment market. The number of smartphones that support respective function of contactless payments substantially increased comparing to 2014 - 2015 years. This trend of usage the NFC based devices is quite new for Russia comparing to other countries in Europe or Japan, for example. Given this, the potential of NFC based payments is huge.

   NFC technology makes payment wallet out of the smartphone. All participants of respective transactions in Russia point out that NFC based technologies make payments more fast (payments are processed by the merchant faster up to 25%) and secure as no information is provided to the merchant (i.e. the card is not shown while payment, the seller is not able to review the pin code while the use of the bank card (unless pin code verification is switched on by bank card settings), etc.). Certainly, in Russia NFC based technologies could be evaluated as win-win scheme.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

   Notwithstanding the fact that now internet banking is a service provided by a bank that allows its customers to conduct financial transactions remotely using a mobile device, several years ago, only a narrow circle of specialists were familiar with the remote internet banking.

   Rapid growth of the phones based on different operating systems used by Apple or Google (Android) has led to use of the special mobile applications developed by banks.

Respective mobile bank applications provide the full range of services in Russia including provision of information regarding the bank account, making of transactions (such as credit and debit of the funds through respective bank account), portfolio management services and etc.

However, such popularity made respective mobile banks and its users in Russia targeted by the defrauders. Actually, most of the cases when fraud is made with the help of the internet banking is connected with confidence of the users towards the actions of defrauders as well as financial negligence of the Russian banks' customers (e.g. provision of personal confidential information while the phone conversation with defrauders, leaving the mobile phone or provision of such phone to unknown persons, ignorance of filing information on the change of mobile phone number to the Russian bank, etc.).

Currently the Russian Federal Law On national Payment System provides for the obligation of the Russian bank to repay all amounts written off from the bank account without the consent of the Russian bank's customer. The aim of respective terms of the Russian law is to provide the bank's customers with the full protection against fraudulent activities of the defrauders. However, the Russian bank will not be liable for the amount written off from the bank account in case (1) the bank notified its customer on the amounts written off from the account and such customer has not objected such withdrawal, (2) the bank has proved that respective writing off was the result of the customer's negligence, (3) the banks client provided unauthorised persons with the bank card requisites, pin code, login and password to internet banking, etc., (4) the customer made payments through the computer infected with the virus.

Additionally to the abovementioned regulations the Russian law provides for the criminal liability in case of the fraud, including via usage of bank cards, usage of the personal information that was illegally received by the defrauders, issuance of fake identification documents (in order to access personal details of the bank's customer or to receive access to the reissued bank card).

In 2016 the CBR has announced the new approach to distance payment services which will become effective beginning with 2017: the CBR intends to launch total check of the internet banking applications of the Russian banks. Previously the Russian banks were required to check the security of payments made with internet banking on their own. Moreover, the CBR intends to implement the national standards and specific certification procedure for Russian banks' distance payments

services. Based on the comments provided from the CBR representatives such approach will affect directly requirements to the Russian banks' capital adequacy and the ability of the Russian banks to provide credits to its customers and raise deposits.

Concerns of the CBR about distance payments and intention to control respective operations are clear: the number of incidents with unauthorised withdrawals still increase. The statistics maintained with the CBR states that in January of 2016 the number of hacker attacks through the distance payment services were equal to approximately 100 000 comparing to January 2015 where the same statistics was equal to 16 000 attacks.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

All over the world fintech startups are an evolving and progressive industry, which put traditional banks under pressure and forcing them to change their way of working with clients. However, this statement can hardly be applied to Russian financial market.

The actual size of financial industry is considerably lower than in many western countries as very few Russian fintech startups can attract enough clients and make profit. Moreover, an average customer in Russia would rather go to one of the big league large banks and use its full range of financial services. Thus, Russian fintech startups try to narrow their development work down to one or two products, usually dedicated to satisfy Russian bank's needs.

Moreover, the development pattern of Russian fintech industry differs from the global trends. In Russia potentially successful startups are eager to be bought by the big Russian or international banks and develop B2B technologies, rather than boosting profit, and attract customers to their product. Such approach meets the Russian bank's strategy to acquire useful startups. For example, over the last couple of years Sberbank has invested in three Russian fintech startups, despite the fact that it has its own research and development department with more than 8000 employees.

However, we should bear in mind that fintech startups have a positive impact on the traditional banking in Russia. One of the main problems of Russian banks is the fact that they often use disconnected technologies and archaic operating models that are incapable of evolving with consumer expectations. Fintech startups force banks to become more customer-oriented and innovative.

Given the level of fintech startups' development in Russia, it may be concluded that traditional banks do not risk with their part of business and profitability at this stage.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

In the Russian Federation the national payment card system (hereinafter – the "**NSPK**") was established in 2014 year due to the fact that the international payment systems temporarily stopped operating cards issued by the Russian banks due to sanctions imposed against Russia. Please note that in the Russian Federation international payment systems VISA and MasterCard are more popular comparing to any other payment systems. Therefore, freezing of processing applied by these leading payment systems in Russia made the Russian authorities to proceed with implementation of the national payment system.

The main objectives of the Russian national payment system are:

- provision of a reliable money transfer service with the use of national payment instruments;
- building of trust to cashless means of payment;
- creation of Russian sovereign payments area independent from foreign companies;
- issuing of MIR Russian national payment card;
- promotion of MIR cards on the international market.

Please note that the CBR actively developed NSPK and tried to make it competitive with abovementioned international payment systems. NSPK expanded in 2015 - 2016 years, including, but not limited, by issuance of approx. 200 000 cards of NSPK ("**MIR**"). Respective MIR cards are accepted now for payments in Russia as well as co-badged cards "MIR – JCB" or "MIR – Maestro" accepted for payments abroad.

This is certainly a case to be studied by other countries considering creating their own payment systems. Particularly this is a show-case of pairing domestic payment systems with international payment systems to increase the card acceptance.

To ensure MIR's survival in the competitive world of cards the CBR implemented new law regulations promoting the cards among persons paid by state (i.e. state employees, the elderly and the disabled persons, etc.).

Please note, that Russian law does not provide special treatment for national payment systems of other countries.

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Commission(s) in charge of the Session/Workshop:

BANKING, FINANCE AND CAPITAL MARKETS

TOKYO, 2017

9 National Report of Spain

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1. Are digital currencies frequently used in your country?

   Understanding virtual currencies as equivalent to digital currencies, the answer is that no, they are not frequently used as only a very small percentage of the population use them.

   Understanding digital currencies as a wider concept, including any digital representation of value, our response may vary as electronic money is indeed a relatively frequent payment method regarding e-commerce (e.g. PayPal).

   Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law?

   For the time being, virtual currencies (currencies not issued by a central bank or a public authority) have not been recognized or directly prohibited by Spanish law.

   On the other hand, electronic money is subject to the Spanish electronic money regulation, which derives from a 2009 European Union directive.

   What are the spheres where digital currency is used?

   Virtual currencies, as referred above, are not commonly used in Spain. By contrast, electronic money is a payment method commonly used in e-commerce.

   Is it possible to use digital currencies in commercial transactions?

   It is only possible to use virtual currencies in very specific commercial transactions, where the parties have expressly agreed on that.

   Has your local central bank or any other governmental institution considered establishing state digital currency?

   Early this year, the European Central Bank ("ECB") published the conclusions of the ESCB Legal Conference 2016 where it was discussed how the ECB could design, issue, and manage a central bank digital currency for everyone, to be used alongside cash.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether

this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

Blockchain is the core component of bitcoin. However, whereas the use of bitcoin is still anecdotal, blockchain technology offers a potential use that promises to be a solution for an overall problem such as making a database both secure and not requiring a trusted administrator.

Although Spanish authorities have not make a statement yet regarding the use of blockchain, some experts in the ECB have already issued declarations on the opportunities and challenges posed by distributed ledger technologies on financial markets and the need of a set of standards and harmonisation at a global level to achieve interoperability.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

The use of mobile wallets is growing although many payment services are still subject to payment confirmation based on text messages. On the other hand, no specific regulation has been adopted to specifically address fraud and privacy risks connected with mobile wallets. Although biometrics as a secure payment method is increasingly used, payment confirmation is, generally subject to a double check system based on text messages or code cards.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

Spanish merchants are adapting to the new payment tendencies. Although some small businesses are still reluctant to the use of non-cash payment methods (especially in case of small purchases), there is a clear tendency towards card and mobile payments, particularly amongst young people.

On the other hand, new POS (points of sale) enable contactless payment methods, which includes both contactless cards and mobile payments. With respect to the

latter, all major Spanish banks have a NFC solution (Santander Wallet, BBVA Wallet, CaixaBank Pay, Sabadell Wallet…).

Although merchants face in some cases high commissions *vis-á-vis* banks, it is expected that (UE) 2015/2366 Payment Services Directive ("PSD 2") will generate more competition among financial entities and, accordingly, lower fees with respect to payment services.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

Spanish banks are indeed providing a number of new digital innovations. Additionally, banks are increasing their collaboration with Fintech businesses or developing their own FinTech projects. In this regard, in 2016 the main Spanish banks (amongst others, CaixaBank, Banco Santander and BBVA) launched Bizum, a mobile payment platform, Bizum (by virtue of which the payer may order transfers to another Bizum user or to a merchant without using any card).

Regarding legal framework, the upcoming PSD2 is expected to pose new competitors to the payment services market. Additionally, regarding KYC procedures it should be noted that the Spanish Executive Service of the Commission for the Prevention of Money Laundering and Monetary Offences (SEPBLAC) is currently accepting non-present identification by means of videoconference. This new feature streamlines clients' identification process and may align KYC procedures with online banking business model.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

In general, Fintech start-ups are still a minor phenomenon in Spain since most of the consumers still rely on traditional firms with respect to financial services (investment services, payment services, lending, and etcetera). However, this a growing trend and cannot be disregarded. On the other hand, with respect to certain financial services (e.g. exchange services provided to businesses), some FinTechs businesses are becoming a real competitor and a challenge to banks. However, it is too early to judge whether FinTech startups can force the traditional banks out of the local market.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Current Spanish regulation on payment services derives from the European payment services directive (adopted in 2007), which provided the legal foundation for a European Union single market for payments. The objectives of that directive were to make cross-border payments as easy, efficient and secure as 'national' payments within a Member State.

In 2013 the European Commission proposed to review the directive mentioned above to take into account new types of payment services. Additionally, the new directive was drafted in order to remove current regulatory arbitrage across European countries and uncertainty created with the transposition of the 2007 directive.

As a result, the new payment services directive (PSD2) updates and complements the European Union rules, being its main objectives to contribute to a more integrated and efficient European payments market, to improve the level playing field for payment service providers (including new players), to make payments safer and more secure, to protect consumers and to encourage lower prices for payments.

In this regard, one of the most important changes that this new regulation will introduce is the opening by the banks of their payment services to third party payment service providers. It is expected that removing these entry barriers will create a greater competition among incumbents and new players.

The deadline for transposition of PSD2 within the internal legal system ends January 2018.

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10 National Report of Switzerland

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

Digital currencies are in use in Switzerland. However, for the time being, their economic importance is marginal. The most important digital currency, Bitcoin, had a trade volume of approx. CHF 1,4 million in 2016 according to http://bitcoincharts.com. Bitcoin is currently accepted by around 150 businesses in Switzerland according to http://coinmap.org, ranging from restaurants, hotels and retailers to service providers, traders etc. One might assume that most of these businesses are, for the time being at least, accepting Bitcoin to demonstrate their open-mindedness towards technological developments rather than for economic reasons. The same is true for the Swiss Federal Railways, which are accepting Bitcoin payments for train ticket sales, as well as the city of Zug which, as the first public entity to do so worldwide, has been accepting Bitcoins for payments of public fees for up to an amount of CHF 200 since 1 July 2016. This has promptly earned the city the "sexy" label of "Crypto Valley" and generated an impressive buzz in media around the globe.

From a legal perspective, digital currencies are not recognised currencies, meaning that no one is obliged to accept payment in digital currencies against their will. It is up to the parties of a contract to decide whether or not to accept payment in a digital currency. The use of digital currencies as a payment method for the purchase of goods and services is not regulated specifically under Swiss law.

From a regulatory point of view, digital currencies are treated as financial assets. Therefore, some activities involving digital currencies may be subject to a bank licence and anti-money laundering regulations, in particular if they involve accepting deposits or the acceptance of (official or digital) currencies by a trader on an account owned by such trader in order to use them for subsequent exchange transactions. The same is true for online trading platforms if they are not limited to facilitating transactions or matching parties, but involve the processing of payment transactions by accepting official or digital currencies on accounts owned by the platform operator. Although not subject to a bank licence, the transmitting or exchange of official or digital currencies by professional financial intermediaries is subject to anti-money laundering regulations such as KYC requirements.

The difficulties that both service providers and authorities face when applying existing regulations to business models involving digital currencies can be illustrated with the example of Bitcoin wallet provider Xapo, who announced in 2015 that it was transferring its non-U.S. business to Switzerland. It took the Swiss regulator FINMA two years to decide to qualify Bitcoins as "objects" (as opposed to mere claims towards the service provider, as is the case for deposit money). This means that in case of a bankruptcy of Xapo, the Bitcoin owners will be able to segregate their Bitcoins from the bankruptcy estate and, therefore, no customer protection in the form of strict equity capital requirements is necessary. The result is that Xapo does not have to obtain a bank licence. It is, however, subject to AML-regulations and will have to join a self-regulatory organisation recognised by FINMA.

If digital currencies are used to obstruct the identification of the origin, the tracing or the forfeiture of assets which originate from a felony or aggravated tax misdemeanour, this may constitute money laundering pursuant to the Swiss Criminal Code and be subject to criminal sanctions. As digital currencies are financial assets, they can be the object of offences against property such as misappropriation, fraud, extortion, unauthorised access to data processing systems etc.

To our knowledge, the Swiss National Bank is not considering establishing state digital currency.

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

Blockchain has been the buzzword in the FinTech industry in the past 24 months. It is, in my opinion, too early to tell whether this is a temporary hype or a real game changer to the financial industry, making central counterparties, clearing systems and even "traditional" banks obsolete.

In November 2016, the Federal Department of Finance issued a position paper containing specific proposals to reduce market entry barriers for FinTech enterprises (including those developing blockchain technology) and, in February 2017, the Federal Council opened a consultation on draft amendments to the Federal Banking Act and the Federal Banking Ordinance implementing these proposals.

The three pillars in order to reach this goal are:

i. the extension of an existing exemption from the bank licence requirement for settlement accounts which would allow platforms and traders to keep funds on their own accounts for up to 60 days (as opposed to 7 days currently) without being subject to a bank licence;

ii. the introduction of a threshold of CHF 1 million for the acceptance of deposits without being subject to a bank licence (so-called sandbox). Currently, there is no monetary threshold and everyone accepting more than 20 deposits at a time or publicly offering to take deposits is deemed to be a bank;

iii. the introduction of a so-called FinTech licence for FinTech companies falling into the scope of the Federal Bank Act without carrying out the core business of a bank (lending business with maturity transformation) up to a deposit threshold of CHF 100 million, such licence being subject to less onerous requirements than a regular bank licence. FINMA may, on a case to case basis, grant FinTech licences to companies operating above this cap and the Federal Council shall be entitled to amend the cap as such if necessary.

The extension of the deadline for settlement accounts and the regulatory sandbox regime entered into force on 1 August 2017. It remains to be seen if and how the above measures will improve the development of local FinTech companies and/or attract foreign players in the FinTech sector.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plans to adopt) regulations to reduce fraud and privacy risks connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

Mobile wallets have been introduced in Switzerland relatively recently. By end of 2016, there were five big local players (Paymit and Twint – which are supposed to merge this year, PostFinance App, SwissWallet and Migros App) along with a few others. The only international provider that has entered the market in 2016 was Apple Pay, but some other outfits such as Alipay, Samsung Pay, Android Pay or IBM Pay have made or are about to make a move into Switzerland.

As far as we are aware there are no specific regulations (yet) planned with regard to the reduction of fraud or privacy risks in this regard.

Biometrics is one method, along with others such as tokenisation and cryptography, that is used by certain providers in order to secure customer data.

4. Currently financial markets are trying to address customers' interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

   Some of the providers mentioned under 3 above offer NFC-enabled technology for their mobile wallets. However, as Apple has blocked the NFC-interface integrated in iPhones, this technology is only available for iPhone owners using the Apple Pay wallet. Apple's iPhone having a market share of approx. 50% of the Swiss smartphone market, the other wallet providers still have to work with technologies such as beacons, Bluetooth and QR codes. There have been rumours that Apple might, at least partially, lift this blockade with the release of its new iOS 11 which is due for mid-September 2017.

   The Swiss consumer protection foundation has asked the competition commission (ComCo) to investigate this conduct from a competition law perspective. However, it is not clear whether ComCo has actually initiated such proceedings.

   In the meantime, some of the major credit card issuers and banks which hold interests in some of the other mobile wallet providers do not allow the use of Apple Pay with their credit cards. However, it appears that a mobile app was launched in order to bypass this "ban" by creating "virtual credit cards" that can be used with Apple Pay and "loaded" with money from "banned" credit cards…

   I personally believe that mobile payment is the future and, in the long run, it will replace cash transactions. However, it will take a lot of time to get one and all users accustomed to the new technology so I expect to see traditional payment methods such as cash, debit and credit cards alongside mobile wallets for many years to come.

5. Internet banking is popular now with bank clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

   In March 2016, the Swiss Financial Market Supervisory Authority FINMA issued "Circular 2016/7" which sets out the anti-money laundering due diligence requirements for client onboarding through digital channels.

The circular states that, subject to certain conditions, financial intermediaries may onboard clients via video transmission. Other forms of online identification are possible as well, as an electronic confirmation of the authenticity of the client's ID is now recognised without requiring in-person identification at the financial intermediary's place of business, provided that the electronic documents are in one of the forms set out in the circular.

Furthermore, the declaration of beneficial ownership no longer requires a handwritten signature but may be submitted electronically.

The circular being "technology neutral" should still facilitate digital business, provided that the requirements set out in the circular can be implemented in a user friendly manner. It certainly is another step towards "real" internet banking without any media break.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement true for your country? Do you believe that fintech startups could force the traditional banks out of the local market in the near future?

For the time being, the traditional banks are not forced out of the local market by FinTech start-ups. Quite the opposite is true: We see traditional banks investing in FinTech start-ups and by doing so, save them from financial distress. As an example, the Basellandschaftliche Kantonalbank (BLKB) has recently acquired a stake in Switzerland's first independent robo advisor, True Wealth.

In my opinion, the real question is whether the traditional banks are flexible enough to "take the bull by the horns" and to participate from the very start in FinTech trends that have the potential to threaten their business model. In a way, they are predestined to be at the forefront of FinTech innovation as they do not, like FinTech start-ups, need to try and avoid having to obtain a bank licence; they already have it. Along with this, they have the manpower and know how to guarantee regulatory compliance. Therefore, they are (relatively) free to embrace new technologies without always fearing the intervention of the regulatory watchdog.

By investing in early stage FinTech enterprises, traditional financial services providers can use the new technologies as a real add-on to their existing business model, generating added value for their customers, e.g. in the form of mobile apps.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country

(e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive compared to commercial systems present in your local market? Does your local legislation regime provide for special treatment for national payment systems of other countries?

In principle, Switzerland does not have an exclusive national payment system.

However, the Swiss National Bank (SNB) is obliged by the National Bank Act, amongst other tasks, to facilitate and secure the functioning of cashless payment systems in Switzerland. For this purpose, the SNB acts as system manager for the Swiss Interbank Clearing (SIC) system, which is operated by SIX Interbank Clearing Ltd on behalf of the SNB and processes both large-value payments and retail transfers. Therefore, SIX Interbank Clearing Ltd happens to be *de facto* the national payment system of Switzerland.

Payment systems of other countries are not entitled to a special treatment under Swiss law. However, the SNB supervises systemically relevant foreign payment systems provided that they have substantial parts of their operations or significant participants in Switzerland or if they clear or settle significant transaction volumes in Swiss francs. For this purpose, the SNB may, amongst others, cooperate with foreign supervisory authorities.

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11 National Report of Turkey

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1. Are digital currencies frequently used in your country? Is there any regulation implemented with respect to digital currencies? Are they recognized or directly prohibited by the local law? What are the spheres where digital currency is used? Is it possible to use digital currencies in commercial transactions? Has your local central bank or any other governmental institution considered establishing state digital currency?

- **It is believed that Digital currencies are frequently used in Turkey. Not suprisinglu, the discussions in Turkey revolve around Bitcoin. The only way to answer this question is to look into Bitcoin.** According to an article about Turkish industry published in www.btcmanager.com, it is stated that **"***there is a huge bitcoin community* (in Turkey*). These guys are young and mostly with IT background. They are following the world, and they trade Bitcoin.***"** In addition, in a survey conducted by ING, Turkey is among the countries where the acceptance is highest more than all EU countries in respect to the following premises: 'digital currencies are the future of spending'. However; there are recent developments in the Turkish digital currency industry which makes it difficult to foresee the future. Even though the Turkish Regulator's (Turkish Banking Regulation and Supervision Agency) approach was known as negative, the market has been in operation somehow and many users have been actively trading. One of the well known blog, Coin-Turk.com, published an overview in mid 2016 regarding the Turkish Bitcoin exchanges stating that BTCTurk, the first Bitcoin exchange to trade using Turkish Lira, was having a trade volume of 500 to 700 bitcoin per day. Therfore, it can be argued that digital currencies are frequently used in Turkey.

- In Turkey, there were discussions whether digital currencies can be considered as electronic money and under the Law on Payment and Securities Reconciliation Systems, Payment Services and Electronic Money Institutions" number 6493 which has been entered into force following its publication on the Official Gazette dated June 27, 2013 number 28690. **However; Regulator clarified that there is no regulation implemented with respect to the digital currencies in Turkey**. **Therefore, the industry is unregulated**. On November 25, 2013, Turkish Banking Regulation and Supervision Agency published a press release specifically in relation to one Bitcoin. The Agency stated that *''Bitcoin, known as a virtual money unit for which there are no guarantees for its collateral and which is not issued by a any official or private institution, is not considered as electronic money within the scope of the Law by its present structure and functioning, and thus its surveillance and supervision are not possible within the frame of the Law." Furthermore, Agency points out that "..the lack of identification of the parties in operations realized using Bitcoin and other similar virtual money creates a suitable environment for these virtual monies to be used in illegal activities.*" Consequently, Agency's perception regarding the Bitcoin is as *''Bitcoin has risks due to its market value which*

may be extremely volatile, or it may be stolen from digital wallets or get lost or may be used illegally outside the owners' knowledge; but also it is open to risks arising from the operational errors due to the irreversibility of the transactions made or from the abuse of malignant vendors."

- By the end of 2016 BTCTurk had to halt its operations. The reason was not regulation, since bitcoin is more or less unregulated in Turkey. BTCTurk announced that "our company has shown the highest possible sensitivity to legal compliance and has never allowed anonymous transactions. BTCTurk has shared all the information requested by itself in numerous inquiries with the security units…..Our relationship with the bank has always been problematic due to various reasons. Unfortunately, the last bank account that our company can keep open is closed today." However, even though BTCTurk stopped its operation, according to the Article published in www.btcmanager.com the "market is somehow active in Turkey. The Over the Counter market is booming."

- **In consequence, digital currencies are neither recognized nor directly prohibited by the local law. However; through different mechanisms digital currencies are blocked in Turkey.**

- **Bitcoin is used for primarily investment or trading purposes as well as for purchasing items or games.**

- **Establishing state digital currency is not on the agenda in Turkey at the moment. Neither Turkish central bank or any other governmental institution such as Banking Regulation and Supervision Agency is taking digital currencies positively at the moment.**

2. Currently, blockchain is considered to be a cheap and generally attractive option for financial services business as compared to bitcoin. Please share your opinion whether this is true for your local financial market players. How does your country plan to introduce blockchain technology into the financial system?

   The statement is not true for the Turkish case. Even though fintechs are aware and discussing the rise of blockchain there is no action or concrete plan where we can refer to the strategy in this matter. On the other hand, simply, blockchain is not in the agenda of the government at the moment. Therefore, for us it is difficult to talk about Turkey's plans to introduce blockchain technology into the financial system.

3. Please describe the level of mobile wallets' integration in your country. Has your jurisdiction adopted (or plan to adopt) regulations to reduce fraud and privacy risks

connected with mobile wallets? Does biometrics have a role to play in your jurisdiction as a method of secure payments?

In Turkey, there two types of players who can provide mobile wallets whom are Banks and Electronic Money Institutions. Both players are regulated by Banking Regulation and Supervision Agency and must get operation permission.

Apart from above-mentioned, it is not possible to provide mobile wallets in Turkey. E-money institutions are quite recent as the Law No. 6493 has been introduced in 2013 and in effect since then. Banks are now have to compete with such new fintech companies in their operations particularly regarding the mobile wallets services. Even though, Banks are much more stronger than e-money institutions, still such new companies are bringing better solutions with a cheaper deals to merchants. However, the problem ahead for them is the users (consumer) part. Banks are of course starting the game ahead as they have well established customers and they can just promete such technology of mobile wallets.

Mobil wallets are at the stage of intergration we would say. You cannot find many merchants who are integrated to accept such payment method. However, it is clearly increasing. From our observance, it is seen that Turkey will be a well integrated in this respect within 2-3 years.

In respect to the fraud and privacy risks, both Banking Law Nr. 5411 which regulates banks and Law Nr. 6493 on Payment and Securities Reconciliation Systems, Payment Services and Electronic Money Institutions which regulates e-money institutions introduced measures and some rules.

Besides, the the newly enacted Law on Protection of Personal Data Nr. 6698 mainly aims to protect the privacy, rights, and freedoms of persons in connection with the processing of their personal data and accordingly defines personal data as any information relating to an identified or identifiable natural and legal person. Such law brings about banks and e-money institutions to re-define their internal system for processing all personal data, including biometric n the way that law put forward.

Another regulation connected to the mobile wallets which shows us the way of authentication is as follow: At the beginning just for once, users must provide their identity details pursuant to the below provision of the Regulation on Measures Regarding Prevention of Laundering Proceeds of Crime And Financing of Terrorism.

Before a mobile wallet account is opened for a new customer below details must be controlled.

Customer identification of natural persons
ARTICLE 6 – (1) In customer identification of natural persons, their name, surname, place and date of birth, nationality, type and number of the identity card, address, sample of signature, and telephone number, fax number, e-mail, if any, and information on job and profession, and for Turkish citizens, as additional information, the names of mother and father and T.R. identity number shall be received.15
(2) Name and surname, date16 of birth, TR ID Number, type and number of the identity card of the person concerned shall be verified through
a) T.R. identity card, T.R. driving license or passport for Turkish citizens; b) Passport, certificate of residence or any type of identity card considered proper by the Ministry for non-Turkish citizens.
After originals or notarized copies of documents which are subject to verification are submitted, their legible photocopy or electronic image shall be received or information regarding the identity shall be recorded in order for submittal upon request of authorities.
(3) The address submitted while establishing permanent business relationship shall be verified through a certificate of residence, any utility bill drawn up within the previous three months from the date of transaction for a service requiring subscription such as electricity, water, natural gas, telephone, any document issued by a public institution or through any other documents or methods approved by MASAK. Legible photocopies or electronic image of the documents to be verified shall be received or the information specific to them shall be received.

4. Currently financial markets are trying to address customer's interest in adoption of mobile payments, especially through the use of Near Field Communication (NFC). Are your local merchants switching to NFC-enabled technologies? Do you believe that this is a win-win scheme for both customers and merchants?

Use of NFC in Turkey is not so popular yet. Following the introdution of Law on Payment and Securities Reconciliation Systems, Payment Services and Electronic Money Institutions numbered 6493, there are many licensed Payment Institutions who are better in terms of developing technologies than banks and we see a fast improvement in terms of the usage of NFC technologies. Therefore, Banks had to react and payment services market become more active in this respect. It is clear that some of the high street merchants have already switched to NFC-enabled technologies. Progress is expected in this respect. We definitely, believe that it will bring a win-win scheme for both customers and merchants. The most important

reason for this is that Banks are now have to compete with the newly emerged e-money institutions.

5. Internet banking is popular now with bank's clients. Larger banks are developing constantly in this sphere by providing a number of new banking services through mobile platforms. What are some recent developments in your jurisdiction and how are legal frameworks changing to help?

   Internet banking legislation in Turkey does not develop in a fast pace; the only open regulation is dated back to 2005 and did not change since then. However this regulation is mostly on the security aspects of internet banking. Therefore we may say that most innovations in the internet banking market fall under the general banking legislation and regulations. Despite the slow paced legislation side, internet banking is growing at a considerably fast pace. In 2006, there were 15 million people registered at online banking and only 2.5 million of them were actively using the system. In 2016, number of registered people rose to 51 million and of active users rose to 27 million; the transaction volume was 1 trillion Turkish Liras. On the other hand, there were 30 million registered users at mobile banking and around 20 million of them were active users; and the transaction volume was 330 billion Turkish Liras.

6. There is a belief that fintech startups are putting banks under pressure. Is this statement fair for your country? Do you believe that fintech startups could force the traditional banks out of the local market in near future?

   The question was whether fintech companies could pressure traditional banks or force them out of market. We have to firstly state that between 2012 and 2015 the fintech market has grown almost 8-10 times, the investments are consistently increasing. However, although the market is growing, most of the fintech companies are cooperating with banks, such as developing systems for major banks' infrastructures, being an intermediary point of cash flow between banks and e-commerce companies.

   In simple terms, Banks are still taking a position where fintech companies cannot act without them.

7. Currently certain countries have or are developing national payment systems. What are the main reasons for local national payment system development in your country (e.g. political reasons, internal safety promotion, etc.)? Are national payment systems competitive comparing to commercial systems present on your local market? Does your local legislation regime provides for special treatment for national payment systems of other countries?

Regarding the question on payment systems, Turkish system is mostly centralized. All of the payment system companies are operating either under Banking Regulation and Supervision Agency or Central Bank of the Turkish Republic (TCMB) by obtaining an official authorization from them. Among the six (6) payment systems in Turkey, Electronic Fund Transfer System and Electronic Security Transfer System (EFT-EMKT System) operates under TCMB. Other five (5) are officially authorized to operate in the market. With regard to legislation, there is no provision that differentiates the treatment towards foreign nationals.