SMART CONTRACTS, BLOCKCHAIN AND CROWDFUNDING: HOW THE LAW IS GETTING TO GRIPS WITH TECHNOLOGY

These days it is difficult to open a newspaper or go online without reading a story about Bitcoin and the disruptive potential of blockchain – the technology that underpins Bitcoin and other cryptocurrencies. We are hearing more and more about smart contracts and their link to the so-called internet of things, while the term crowdfunding has been an established part of business vocabulary for several years already.

And yet a discrepancy exists between the hype surrounding these forms of financial technology (or FinTech) and the lack of clarity regarding their regulatory status and the legal risks associated with them. Many countries have enacted crowdfunding legislation but this varies widely and there is little consensus as to what constitutes international best practice. When it comes to smart contracts, blockchain and other applications of distributed ledger technology (DLT), there is a vacuum as many countries have only just started considering how to regulate them.

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The situation threatens to prevent businesses, governments and citizens from reaping the benefits of FinTech as fully or as quickly as they might. According to the Cambridge Centre for Alternative Finance, part of the Judge Business School at Cambridge University, the legal risks resulting from the unclear regulatory environment are most often cited as the key factor keeping companies and public institutions from adopting DLT.[1]

Since its creation, the EBRD has prided itself on aiding entrepreneurs to make use of new financial instruments to support their activities and contribute to economic growth. In 2017, the Legal Transition Programme (LTP) launched two technical cooperation (TC) projects that seek to help regulators across the Bank's region of operations address the legal issues created by these nascent technologies and unleash their full business potential. LTP lawyers also initiated a TC project aimed at helping Ukraine draft an electronic governance law that will, among other functions, regulate cryptocurrencies.

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SMART CONTRACTS AND BLOCKCHAIN

The first regional TC project focuses on the regulation of blockchain-based applications and smart contracts. Although there is no universally accepted definition of a blockchain, in essence it is a distributed ledger – a database shared by a multitude of users – that makes use of cryptography and data rules to achieve consensus among participants about which updates to the records in the ledger are valid. This removes the need for a trusted central authority to maintain the ledger or for users to know and trust each other.

Records in the ledger have a unique timestamp and cryptographic signature, making it in theory nearly impossible to change a record without leaving a trail of this modification, as a result of which distributed ledgers are considered virtually tamper proof. Often (but not always), valid transactions are grouped into blocks and chained together in a sequence that can be added on to but not reversed, hence the term blockchain, which is often used interchangeably with the term distributed ledger (although not all DLT makes use of blockchains).

A smart contract is a "self-executing software programme that automatically performs some function"[2] when a pre-defined event occurs (for example, a vending machine dispenses a soft drink when a certain amount of money is put into it). Smart contracts often live on a distributed ledger, which is why they are important to the world of blockchain. Despite their name, they are not legal contracts although they are often linked to the legal system through the use of legal prose.

Connecting smart contracts to objects linked to the internet – the internet of things – opens up a plethora of opportunities for transforming the way we go about our daily activities. For example, smart contracts could permit electric vehicles, when stopped in traffic, to sell small amounts of electricity to each other based on their battery needs.[3]

For the purposes of the EBRD, the possible applications of blockchain-based smart contracts to public and financial services are of the most interest. Governments may be able to use them to collect taxes or pay welfare benefits, manage procurement processes and ensure the integrity of other government services such as voting. Countries such as Georgia are looking at how they could employ DLT to create land registries that are immune to tampering and illicit land transfers.[4]

Finance is another area in which the combination of blockchain technology and smart contracts offers great promise. Financial institutions could use smart contracts to automate and speed up a wide variety of transactions such as clearing and settlement processes or trade finance disbursements.[5] Blockchain, meanwhile, could provide access to financial services to the many millions of people across the globe who do not have a bank account because they live in remote areas or cannot afford the fees banks charge customers for the services they offer.[6]

Tantalising though they are, these possibilities pose many legal questions that the LTP project will consider. How can smart contracts be made legally binding and capable of capturing the complexity of commercial agreements contained in natural language contracts? Transactions in the public blockchain of a smart contract can be seen by anyone, so how can users protect their confidentiality? In the case of a smart contract between parties in different jurisdictions, which jurisdiction applies in the event of a dispute? How can the pseudonymous nature of some blockchain transactions be reconciled with increasingly strict anti-money laundering (AML) and know your customer (KYC) regulatory requirements?

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In theory, blockchain technology makes tampering virtually impossible, but just how secure is it really and would a cyber attack constitute a case of *force majeure* exonerating any contract breach? If code performs in a way that the parties did not expect, what remedies will they have and against whom? Are there terms in the text part of the smart contract that will override any erroneous outputs from the code and, if so, would that not defeat the purpose of having a self-execution code altogether?

These are highly complex, multi-faceted issues and LTP hopes that its expertise will help policy-makers feel more confident in deciding how they are addressed by legal frameworks, as a result of which smart contracts and blockchain should enjoy much wider uptake in the EBRD region. One thing seems certain, however: a careful balancing of the potential of smart contracts and the many aspects of regulation that may apply will be required. That means starting with small steps: testing the technology in simpler contexts that are well understood and where performance is easy to automate using existing systems and on a small scale, then building the system up.

CROWDFUNDING

Crowdfunding platforms offer smaller companies and individual entrepreneurs valuable opportunities for accessing finance which may not be available to them through financial institutions or the capital markets. Initial public offerings (IPOs), for example, require companies to produce an investor prospectus and undergo extensive due diligence, both of which are expensive procedures and effectively exclude smaller players from entering the equities market.

Crowdfunding, by contrast, allows businesses with fewer resources to draw on a multitude of investors by linking them together through the internet. This approach also enables entrepreneurs to benefit from the expert advice that many of these investors are likely to possess, which further increases the chances of a venture being successful.

The downside of crowdfunding is that it does not offer investors the same degree of protection that capital markets provide: entrepreneurs seeking investment in this way do not need to disclose the detailed information that stock exchanges, for instance, require of them. It is conceivable, as things stand in some jurisdictions, that investors could be invited to finance a project without having received any guarantee that the venture actually exists.

Several countries within the EBRD's region of operations have enacted crowdfunding legislation or are in the process of doing so and most of the leading economies in the European Union have a bespoke regulatory regime in place for this form of FinTech.[7] There exists, however, no consensus as to what constitutes best practice in this area, which makes it difficult for the EBRD to advise policy-makers in the Bank's region who have asked for support with regulating crowdfunding.

Our crowdfunding regional TC project will therefore seek to offer best practice recommendations for issues including the minimum capital and liquidity requirements of investee companies; anti-money laundering and KYC checks; maximum loan size; the disclosure requirements needed to protect investors; rules on conflicts of interest and the organisation requirements of crowdfunding platforms.

The Bank hopes that, thanks to these recommendations, regulators in the EBRD region will become more comfortable with the formulation of crowdfunding regulation, which in turn should give legitimacy to crowdfunding platforms, while ensuring the adequate protection of investors. Apart from Estonia, most EBRD countries of operations lag behind western Europe when it comes to the financial volumes mobilised by crowdfunding, often as a result of inadequate legislation.[8]

E-GOVERNANCE IN UKRAINE

Quite a few countries in the EBRD region have recognised the transformative potential of technology for the delivery of public services. Estonia, Georgia and Latvia have been particularly active in this area and have scored notable successes.

Ukraine introduced mandatory electronic public procurement in 2016. Now the country is developing a law on electronic governance (or e-governance). Following a request for assistance from the Ukrainian authorities, EBRD lawyers are advising policy-makers on the legislative framework for e-government services, based on the Estonian model. Another focus of this TC project will be how best to regulate blockchain-based cryptocurrencies. In that context, our lawyers are advising on international practices for the regulation of cryptocurrencies, particularly Japan's recent Cryptocurrency Law, which focuses on the regulation of cryptocurrency exchange services, with the primary aim of protecting users and preventing money laundering and terrorism financing.

READY FOR THE FUTURE

The excitement surrounding many of these new technologies, in particular blockchain and smart contracts, makes it hard to tell what is pie in the sky thinking and what could offer concrete solutions to longstanding problems. Just as with the advent of the internet more than two decades ago, a wind of change is in the air and it is highly likely that the way we all do business and go about our daily lives will shift radically – although whether this takes one, five or 10 years remains unclear.

The EBRD has a well-deserved reputation as a reliable partner in uncertain times. With these three TC projects, the Bank is demonstrating its continued commitment to helping clients to ready themselves for the future.

By the time next year's edition of *Law in Transition* journal is published, we hope to be able to report significant progress in putting together clear best practice recommendations for regulating crowdfunding and solving some of the key legal obstacles to the use of smart contracts. This should provide inspiration for a broader debate on how EBRD countries of operations can make the most of innovations that offer the prospect of a more transparent and inclusive economic future.

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BOX: SHARIA-COMPLIANT FACTORING – AN AREA OF GROWING INTEREST FOR LTP

Another form of alternative finance occupying the attention of LTP lawyers is factoring that complies with Sharia law – the law of Islam. A financial service based on the sale of accounts receivable, factoring is a useful tool for small and medium-sized enterprises (SMEs) to access finance. Because smaller businesses in the southern and eastern Mediterranean (SEMED) region often struggle to obtain affordable financing, there is growing interest in expanding the provision of factoring in that geographical area. Ensuring that the service is available in a way that respects Sharia law can help in this endeavour, as Islamic finance is a popular alternative system of finance.

In order to be Sharia-compliant, factoring must not generate a profit through the charging of interest for the service provider as charging interest is considered *haram*, which is the Arabic term for something forbidden by Islamic law. Furthermore, the economic activities financed by factoring must be *halal* – which in Arabic means allowed by Islamic law. For example, gambling and the consumption of alcohol or pork are forbidden under Sharia law, so using factoring for businesses that involve these in any way would not be Sharia-compliant.

The EBRD has been active in the promotion of factoring through the activities of the Trade Facilitation Programme (TFP) and the investments of the Financial Institutions (FI) team for some time now. At the same time, LTP lawyers have been engaged in offering technical assistance to improve the legal and regulatory environment for factoring in the Bank's countries of operations.

As part of this work and its wider commitment to standard setting, the LTP will explore the legislative framework for Sharia-compliant factoring. The challenge is to develop legislation that meets the requirements of Sharia law while ensuring that factoring remains financially viable for the service provider. For instance, legislation would need to be crafted in a way that avoids references to the charging of interest and instead refers to the benefits that a provider would receive, as benefits are considered *halal*.

Successful examples of Sharia-compliant factoring already exist in countries such as Malaysia and the United Arab Emirates. We are exploring how these operate in order to see whether and how they could be adapted for the purposes of the EBRD region. Challenges to offering Sharia-compliant factoring exist: the most obvious commercial impairment would be the lack of availability of entities that can offer this alternative source of finance. From a legal perspective, one significant challenge would be the enforceability of laws governing assignment.

The LTP expects that, once a legal framework for Sharia-compliant factoring has been established, SEMED economies and others (such as Turkey) could use this as the basis for their own legislation in this area. This would open factoring up to finance providers and SMEs that are keen to operate within the requirements of Islamic law, thereby making it easier for such small businesses to access the finance they need in order to grow.

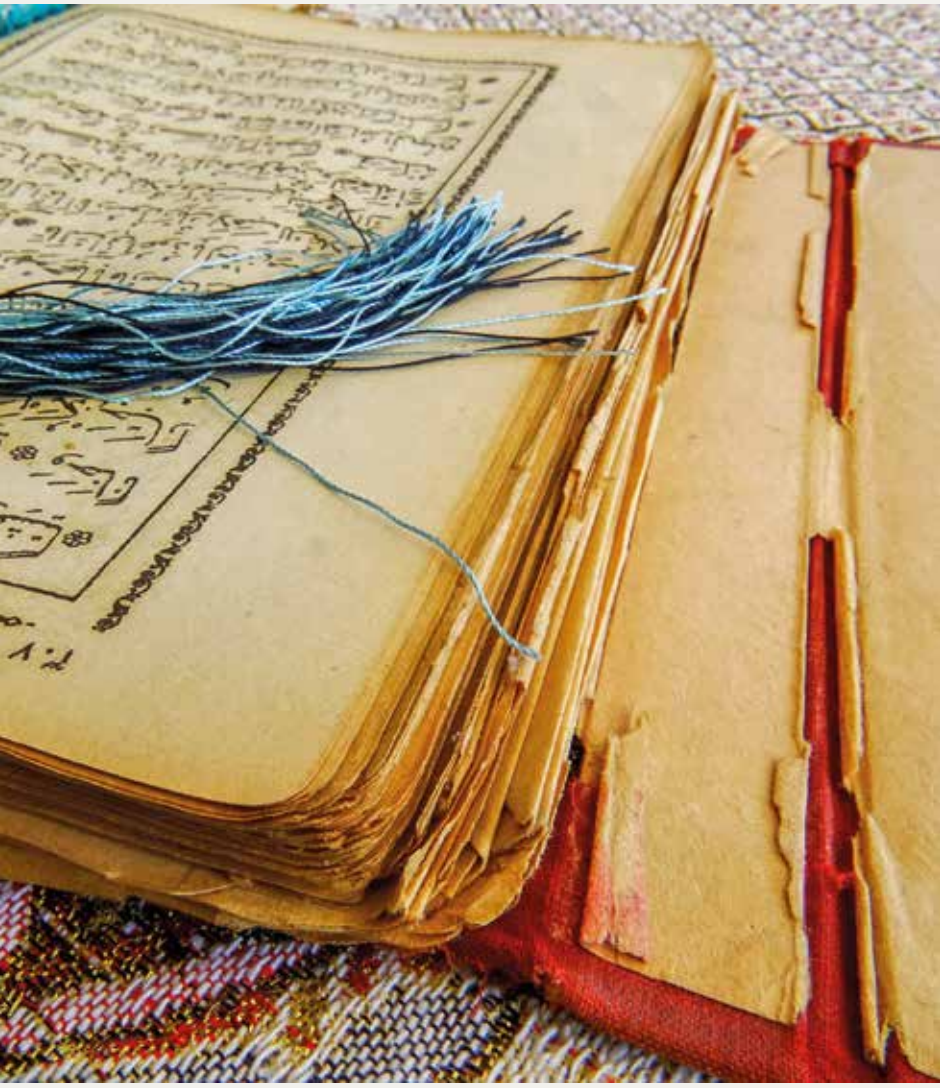
1 Global Blockchain Benchmarking Study, 2017, Cambridge Centre for Alternative Finance https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/global-blockchain/#.WhFodP5LEdU (last accessed 5 December 2017).

2 Global Blockchain Benchmarking Study, 2017.

3 http://f.datasrvr.com/fr1/416/66238/2.pdf (last accessed 5 December 2017).

4 https://www.forbes.com/sites/laurashin/2016/04/21/republic-of-georgia-to-pilot-land-titling-on-blockchain-with-economist-hernando-de-soto-bitfury/#7e6ddf8f44da (last accessed 5 December 2017).

5 https://www.ft.com/content/7dc8738c-a922-11e7-93c5-648314d2c72c (last accessed 5 December 2017).



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6 https://digitalchamber.org/assets/blockchain-and-financial-inclusion.pdf (last accessed 5 December 2017).

7 https://ec.europa.eu/info/system/files/crowdfunding-report-03052016_en.pdf (last accessed 7 December 2017).

8 https://www.sbs.ox.ac.uk/sites/default/files/Entrepreneurship_Centre/Docs/OxEPR2/current-state-crowdfunding-europe-2016.pdf (last accessed 7 December 2017).