A look at how Blockchain could redefine the structure of the capital markets

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Could blockchain redefine the structure of the capital markets? The venue for trading and the management of risks of trades have traditionally been the role of exchanges and market infrastructure organizations such as the central counterparty clearing houses (CCPs). But blockchain and other distributed ledger technologies (DLTs) have the potential to decentralize the system and eliminate the need not only for CCPs, but also for other trusted, regulated platforms through which the markets have operated for decades.

In this hoganlovells.com interview, Hogan Lovells partner Michael Thomas discusses how blockchain could disrupt capital market infrastructure and cause substantial changes in regulations, processes, and perspectives.

Can blockchain technology change the capital markets infrastructure?

**Thomas:** Yes. At the moment, capital markets operate with a heavy dependence upon regulated, centralized, and trusted infrastructure, comprised of multilateral systems connected to a lot of different parties, through which a significant amount of activity is channeled. These entities operate on the basis of rules and include exchanges, clearing houses, central securities depositories, and regulatory reporting facilities such as trade repositories.

Blockchain has significant potential to disrupt this structure by replacing or dis-intermediating some of these platforms. So instead of having a central trusted party through which trades are settled, you could have the record of the parties' entitlements to the assets that are being traded held on a decentralized distributed ledger. This could have a number of advantages, including greater transparency for parties to see where ownership of assets are held.

What are the biggest obstacles to implementing a blockchain-based system?

**Thomas:** Widespread blockchain implementation would require a significant change in regulatory attitude; a significant amount of work to assess how such systems could be implemented without introducing systemic risk into the markets; and, in many cases, changes to
the law.

Clearly, one of the greatest obstacles is regulatory comfort. One potential scenario is to replace the CCP with a system based on a distributed ledger, so that when a trade is effected on an exchange, instead of it being submitted to the clearing house that manages the risk of a counterparty default in the period between execution and settlement, you instead have an instantaneous transfer of value or ownership of an asset at the point the ledger is updated. This means that there is no need for a CCP because there is no risk to be managed. You are looking to the ledger as the definitive record of title.

If you apply that to the securities market, with stocks and shares trading, you could potentially do away with both the CCP and central securities depositories (CSDs), because instead of having two trusted parties mediating the trades and acting as the record of title, you’d have just a single blockchain ledger.

Whether that is desirable is another matter. There are all sorts of reasons why parties to a trade may want to live with the current cycle that takes a couple of days for a trade to settle. And it's always possible, even now, for you to have close to real-time execution at settlement if you ask for that functionality within the existing infrastructure.

What are the drawbacks to eliminating the CCP?

**Thomas:** In the derivatives world, a trade results in an open position that remains open for a period of time, and I don't see an easy application for a blockchain-based solution to replace the CCP. The reason for the CCP being there is to manage the risk if one of the counterparties to the trade becomes insolvent. The CCP has privileged status under law to ensure that the trade can continue to settle, because it interposes itself between both sides, and guarantees the settlement of the trade for a non-defaulting party even if another counterparty defaults. A blockchain-based system that operates by providing instantaneous settlement on the blockchain wouldn’t be useful for derivatives, where settlement is necessarily non-instantaneous.

But if there were some way in which the blockchain ledger recorded the open interest for a period of time, without there being a central counterparty to manage the risk of default, there would be significant legal uncertainties as to what would happen if one of the counterparties were to go insolvent. A blockchain-based ledger, operating as a decentralized ledger, outside the responsibility of a single entity currently doesn't have any specific legal status. Nor does it benefit from any privileged protection, whether for the blockchain ledger itself or the operator of the blockchain system (if any) to protect it from the application of insolvency law to determine who owns what or what the status of a transaction is if one party to the transaction becomes insolvent. Such legal protections are available for the current market infrastructure, which benefits from extensive legal protections against challenge to the actions taken under their default powers, or the finality of settlements that occur through their systems, even where a
participant in their system has become insolvent.

So there are a couple of issues. First, is the use case workable? Notwithstanding that you could have a blockchain disintermediate some of the infrastructure, is it desirable from a functional perspective? And secondly, even if you could make it desirable from a functional perspective, is it desirable from a systemic risk perspective? The current infrastructure operates worldwide within a benign regulatory framework that's been designed around that infrastructure. If you were to fundamentally replace that infrastructure with something else, you'd need to update the regulatory framework as well.

**Another potential use case involves the replacement of CSDs. How might blockchain disrupt those operations?**

**Thomas:** CSDs are organizations where, for dematerialized securities, the share certificates involved are immobilized, which enables the electronic transfer of the title to the securities. CSDs are the mechanisms through which the ledger to record the ownership and transmission of those securities is maintained.

You could potentially see a circumstance where, instead of having a central body that maintains the central ledger, there is a decentralized system, such as a blockchain-based ledger, which represents the definitive record of title for a particular security or group of securities. So updating the blockchain would update the register of title, thereby providing definitive proof of who owns the security. That's something that theoretically could work and would probably have less issues that intermediating a CCP.

But there are other issues. In many cases, the law mandates how title to property transfers. In the case of shares, this usually involves you signing a stock transfer form; if it's a dematerialized security, you transfer ownership through the books and records of the CSD. In the UK, we have the Uncertified Securities Regulations, which say that transfer to the title of securities is maintained through CREST systems. Under European law, you've got the CSD Regulation, which specifies that, for transactions in securities that take place on a trading venue, exchange, or multilateral trading facility, securities must be recorded in book entry form in a CSD. The law as it's currently structured therefore envisages a role for the CSDs.

Therefore, under the current law, to enable you to have a blockchain-based system of transfer of title to securities, the blockchain would need to be the system that the CSD operates, which is not truly distributed. Or you would need to create a new legal regime that recognizes that the transfer of title on a blockchain is effectively a transfer of title to the relevant property, and allows that in the context of securities trading.

**In the case of reporting and reconciliations, you've said that**
blockchain has the most attractive use case in the current environment. Why is that?

**Thomas:** Regulatory firms must comply with an increasing number of reporting obligations in relation to transactions in the financial markets. This ensures that there is proper regulatory monitoring of transaction and a mechanism for ensuring that the regulator understands what transactions are out there and who the counterparties are.

Currently, the reporting mechanisms are different and dispersed. You may have records being held in the back offices of each firm doing the trading. As a consequence, there is a need for reconciliation between the back offices of all those firms with each of their counterparties to make sure that they’ve all got matching data, so they know what their open exposures to each other are.

But if you were to have a DLT-based reconciliation tool, so that you had multiple trading firms participating in a record-based system — and this is not a system that would be transferring the legal title to a relevant instrument, but would still occur within the CCP or CSD, which is the single point of reference for reconciling your records — then a blockchain solution may be useful.

Once you have that, you could potentially use it for generating transaction reporting to regulators. At the moment, only certain trusted bodies are approved and able to report to regulators, such as trade repositories (for EMIR-governed derivative trades) or Approved Reporting Mechanisms (for MiFID II trades). But you won’t necessarily need those trusted reporting bodies if the regulators have the ability to directly view the record of transactions themselves on the blockchain. There could be any number of ways in which that could work. For example, maybe maintain those reporting bodies just to provide a conduit to the blockchain for a regulator, or ensure that the information is visible in the right format.

**In what ways could a blockchain-based system introduce systemic risk?**

**Thomas:** Regulators are familiar with the existing market infrastructure and how it works: they regulate the market infrastructure directly. And the legal regime was designed with that market structure in mind and provides protections for it. So, for example, CCPs and CSDs have protections against insolvency of a member, so that an insolvency practitioner cannot unwind the transactions. Insolvency practitioners have extensive powers to unwind transactions or query the basis of the transaction, but that's potentially unhelpful when you're dealing with management of a major default of a financial institution with large volumes of open trades. In the interests of maintaining the function of the markets, the ability of an insolvency practitioner to take apart transactions is not always desirable. That's why you have special protection for CCPs and CSDs — to ensure that what happens within their systems is unchallengeable.
So if you moved from a system based around the existing infrastructure to a DLT-based system, without updating the regulatory and legal regime, you could introduce new systemic risk into the financial system. Regulators and legislators are unlikely to be comfortable in allowing the wholesale replacement of the existing infrastructure with DLT-based solutions until they understand how they work, what the protections are, and that they are not creating a less-safe system.

For example, when Lehman Brothers failed during the financial crisis, CCPs and CSDs were critical in ensuring that information about trades and what positions were out there could be identified and existing transactions continued to settle. There were still huge numbers of trades that were not capable of being settled, and a lot of information that was not available to enable people to know what their positions were. But the result of that, with the G-20 commitments in Pittsburgh, was to create obligations for more trades to go through market infrastructure and be reported to centralized bodies. So it may well be that blockchain can help with that, particularly with ensuring that there are consistent records of trades.

But the management of an insolvency of a party, particularly if there is a position that is not settled and the relevant contract is not yet completed — it’s not clear how blockchain can be used in that scenario — or indeed whether it’s feasible.

**About Michael Thomas**

As a partner in our financial services team, Michael Thomas has spent his career advising all types of financial institutions on a wide range of matters. The core of his practice is the provision of financial services regulatory advice. Michael advises firms on how financial services regulation will apply to them from their initial set-up, to their ongoing business, and in relation to key events such as corporate transactions or outsourcing arrangements.

Michael has extensive expertise in advising market infrastructure providers on a range of matters, including: the operation of exchanges, clearing houses, trade repositories, and other market infrastructure, the establishment of clearing houses, Exchange and CCP rulebooks and member documentation, compliance with regulation, and arrangements with third-party service providers in support of trading, clearing, and settlement functions.

**Contacts**