

APPLYING BLOCKCHAIN TO TRADE FINANCE

After Clearing and Settlement as a blockchain use case, the next big area of interest is Trade Finance. This is primarily because it's an area full of inefficiencies and open to fraud. Bills of Lading and Letters of Credit are old world methods of managing the shipping of goods and services, and the potential to replace these paper processes with digitalised operations via blockchain has become *carpe diem* in the last few months. *(Ed: are you being ironic by saying that you can seize the day in months?)*

Barclays Bank has produced a white paper on the subject, which provides a pretty good opening:

Distributed ledger technology, popularly known as blockchain, ★¹ came into the picture in early 2014 and banks are now beginning to catch onto and further investigate the trend. Blockchain is revolutionising the exchange of value in a similar way to how the internet revolutionised the exchange of information and communication.

There are two aspects of this technology: the promise of new opportunities and scope for cost savings.

The technology offers a potential medium to exchange assets without centralised trusts or intermediaries, and without the risk of double spending. The tamper-proof nature of the blocks eliminates the possibility of fraud. This technology could also address operational risk through transparency and immutability, thus significantly helping banks reduce their operational costs when executing controls.

Why this is important for trade finance

The positive properties of blockchain technology look set to address some of the key challenges facing the trade finance sector. For example:

- *Capabilities around transparency and consensus will help mitigate the ever-present risk of documentary fraud and hopefully reduce the cost of transaction reconciliation between and within banks*
- *The traceability associated with blockchain could potentially provide assurance and authenticity of products in the supply chain*
- *The immutability and digital uniqueness ★¹ inherent in this technology also offers the potential to provide a secure transfer of value and deliver a solution to the trade finance problem of endorsement*
- *The challenge of maintaining Chinese walls or data privacy among counterparties to trade transactions*

could be overcome by utilising tokenisation as a form of cryptography, whereby parties are only allowed to access permissioned information

- Because of the distributed nature of blockchain, there is an indicative promise of resilience and robustness; this could potentially be broadly adopted at a reasonable development cost*
- Smart contracts offer the possibility of self-executing contracts triggered by the efficient exchange of digital data, potentially revolutionising the long-serving Letter of Credit.*
- Internet of things (IOT) which is still in the early stages of application to trade finance could be used to move physical assets while they are simultaneously tracked and purchased.*

The Euro Banking Association (EBA) also sums it up well. Releasing the results of their working group in May, the EBA summarises the use in trade finance as follows:

Cryptotechnologies have the potential to transform the trade finance industry. As technology has evolved and the popularity of open account trading has expanded (making up about 90% of global trade today), banks and corporates require solutions that will enable them to overcome the pain points found in trade finance today. While distributed ledgers could radically transform trade finance in the long term, it is likely that the adoption of cryptotechnologies will proceed gradually around specific use cases. The EBA's cryptotechnologies working group has identified two such use cases for the use of cryptotechnologies in trade finance: the exchange of trade data and financing.

The exchange of trade data serves as the backbone for the trade finance workflow, making it an ideal starting point for the use of cryptotechnologies. The approval and matching of data found in trade documents such as invoices can be a trigger for events that follow such as the transfer of ownership or execution of a payment. By facilitating easy access to data and end-to-end transparency of the entire value chain, cryptotechnologies can create a level playing field for all parties involved in a trade transaction and facilitate improved exchange of trade information. The exchange of trade data and auditability of a participant's credit history can also help increase speed, efficiency, and security in financing between buyers, sellers, and their banks. The real-time visibility of events along a supply chain means that financing triggers can be identified sooner, which means that funds can be released faster. Cryptotechnologies can also help improve credit ratings and risk assessment procedures, which can help ensure security for banks and could lead to improved financing terms for buyers and sellers.

The adoption of cryptotechnologies in trade finance still faces a number of challenges, including an unclear

legal and regulatory environment, the need to ensure the confidentiality of data and the need to provide the stability of the technology, and the challenge of creating a network effect to spur adoption of distributed ledgers in the trade finance space. But if industry stakeholders work together to meet these challenges, they stand to realise tangible benefits. Distributed ledgers can ensure full transparency of the value chain, reduced error rates and credit risk, lower costs, improve convenience, and provide a level playing field for all participants. This in turn can help corporates improve liquidity and working capital, upgrade the reconciliation process, and provide additional financing opportunities, while allowing banks to meet customer expectations, modernize IT systems, enable the development of new products, and avoid disintermediation.

This is why there are three stand-out proofs of concept that have been announced, including a link-up between Standard Chartered and DBS using Ripple. The use case support for that is quite clear:

A distributed ledger shared among banks could also save millions, as evidenced by a recent case of fraud where banks lost millions.

London-based Standard Chartered had to write-off \$193 million last year after a metals warehouse company committed fraud against the UK bank and other banks including Citigroup and Standard Bank Group. The Chinese company reportedly pledged the same metal stockpiles to different banks multiple times for loans.

The flaw in the current system is easy to see. Currently, trade finance transactions only exist between a borrower and a bank. Shirish Wadivkar, head of payables and receivables at Standard Chartered points to their proof-of-concept distributed ledger that would reveal every recorded transaction between the ledger's participants. He also added that the transaction, once recorded, cannot be erased from the system.

The Standard Chartered and DBS trial began in late 2015, but just last week there were two announcements almost on the same day. One based upon HyperLedger for Bank of America and HSBC whilst the other is the first real use of R3CEV's financial blockchain platform Corda.

The Bank of America-HSBC trial is reported in depth in *The International Business Times* (IBTimes):

Bank of America Merrill Lynch, HSBC and the Infocomm Development Authority of Singapore (IDA) are using a blockchain prototype to streamline the paper-heavy world of global trade. The consortium used the Linux Foundation open source Hyperledger Project blockchain fabric, supported by IBM Research and IBM

Global Business Services.

The application mirrors a paper-intensive Letter of Credit (LC) transaction by sharing information between exporters, importers and their respective banks on a private distributed ledger. This then enables them to execute a trade deal automatically through a series of digital smart contracts, said a statement.

The proof of concept shows potential to streamline the manual processing of import/export documentation, improve security by reducing errors, increase convenience for all parties through mobile interaction and make companies' working capital more predictable.

The consortium now plans to conduct further testing on the concept's commercial application with selected partners such as corporates and shippers.

How the concept works

Step 1: Importer creates an LC application for the Importer Bank to review and stores it on the Blockchain.

Step 2: Importer Bank receives notification to review the LC and can then approve or reject it based on the data provided. Once checked and approved, access is then provided to the Exporter Bank automatically for approval.

Step 3: Exporter Bank approves or rejects the LC. Once approved, the Exporter is able to view the LC requirements and is prompted to view through the application.

Step 4: Exporter completes the shipment, adds invoice and export application data and attaches a photo image of any other required documents. Once validated, these documents are stored on the Blockchain.

Step 5: Exporter Bank approves or rejects the application and documents.

Step 6: Importer Bank reviews the data and images against the LC requirements, marking any discrepancies for review by the Importer. When approved, the LC goes straight to completed status or is sent to the Importer for settlement.

Step 7: If required due to a discrepancy, the Importer can review the export documents and approve or reject them.

Intriguingly Bank of America and HSBC are both in the R3 consortia, but did their own thing with HyperLedger rather than joining the Corda experiment. The Corda experiment is being created by 15

banks: Barclays, BBVA, BNP Paribas, Commonwealth Bank of Australia (CBA), Danske Bank, ING Bank, Intesa Sanpaolo, Natixis, Nordea, Scotiabank, UBS, UniCredit, US Bank and Wells & Fargo. *The Australian Financial Review* summarises what is going on nicely from the viewpoint of CBA:

The 15 banks are working together to use *“smart contracts to execute invoice financing documents and letters of credit for the financing of international trade, in another indication that blockchain technology is set to be deployed in the coming years by global banks to reduce costs.*

R3 CEV, a consortium of 51 global banks, said its Corda platform is “significantly faster, more reliable and cost-effective” than traditional trade finance processes that are largely paper-based, risky and open to fraud. Corda has been developed by R3 to allow banks to only share what’s needed for other banks to confirm assets and cash have changed hands.

CBA, which said at its full-year results on Wednesday it would continue to invest in technology focused on boosting productivity, has completed more than 25 blockchain-related experiments over the past year and believes trade finance is one of the areas offering the most potential for blockchain. At present CBA has three projects under way with global banks and export clients, including one sending shipments of cotton abroad.

R3 CEO David Rutter said traditional processes for trade financing “have become antiquated and unfit for purpose in today’s increasingly digital world. These trials have proved that the blockchain-inspired technology used on our Corda platform holds the key to transforming trade financing for modern financial markets.”

Niki Ariyasinghe, R3’s associate director for product strategy in APAC, said last month that over the next 12 to 18 months, various trade finance pilots will be tested in the market and within three years, real trade in physical goods could be underpinned by smart contracts executing payments on a blockchain. “I think you will see an actual, live in market proposition within two to three years,” he said at an event at CBA.

