



DIGITAL BUSINESS

Blockchain for Trade Finance: Payment Instrument Tokenization (Part 4)

Process inefficiencies in post-shipment financing reduce liquidity of trade receivables and increase the costs of extending credit to smaller enterprises. Digitizing payment instruments on blockchain prevents invoicing fraud, reduces business risk for financial institutions and lowers overhead when issuing and managing trade receivables.

EXECUTIVE SUMMARY

Payment instruments - such as promissory notes issued by the buyer as a “promise to pay” and checks, drafts or bills of exchange drawn by the seller as an “order to pay” - act as a documentary title of money and represent the monetary obligation of the buyer to the supplier. Once accepted by the drawee, an instrument such as a bill of exchange serves as a financial asset for the specified payee or the bearer. The prominence of bill of exchange and promissory notes in domestic transactions has shrunk in recent years as a result of increased reliance on direct payments and inter-bank relationships between trusted and known paying and collecting banks; however, these options remain popular payment settlement mechanisms in international trade, especially within emerging market economies.

Bills of exchange and unconditional promissory notes also act as negotiable instruments and can be transferred to a third-party through endorsement and delivery, making it possible for suppliers to get funding to meet their working capital needs by sale or transfer of these assets through discounting, factoring or forfaiting. For the financier, these types of short-term, self-liquidating and collateralized instruments present a good risk-return trade-off opportunity and also provide a way for fulfilling other cash management and liquidity needs of corporate customers.

Article 3 of the Uniform Commercial Code¹ contains provisions that further strengthen the position of the bearer or “holder in due course” as the legitimate holder by:

- Protecting against the consequences of any omissions or oversights during creation of the bill.
- Guaranteeing payment to the holder regardless of non-performance or contractual disputes in the trade transaction.
- Overriding the rights of the transferor or previous holder in favor of the current holder.

In sum, such elements make these instruments safer and more attractive investments for the bank or forfaiting house.

This white paper, the fourth in our five-part series that explores the applicability of blockchain in trade finance,² provides a deep dive into how distributed ledger technology can eliminate process inefficiencies and reduce bank operating costs and risks in the financing of trade receivables in open account trade.

EXISTING PROCESS CHALLENGES

The workflow disconnect between the trade and financing sub-processes contributes to the lack of oversight for financiers into the trade interactions underlying the payment obligation. This, along with the paper-based nature of the receivables instruments and manual process flows, leads to several challenges in receivables financing (see Figure 1).

Current Process Pain Points

Trade receivables financing is fraught with fraud, compliance and default risks.

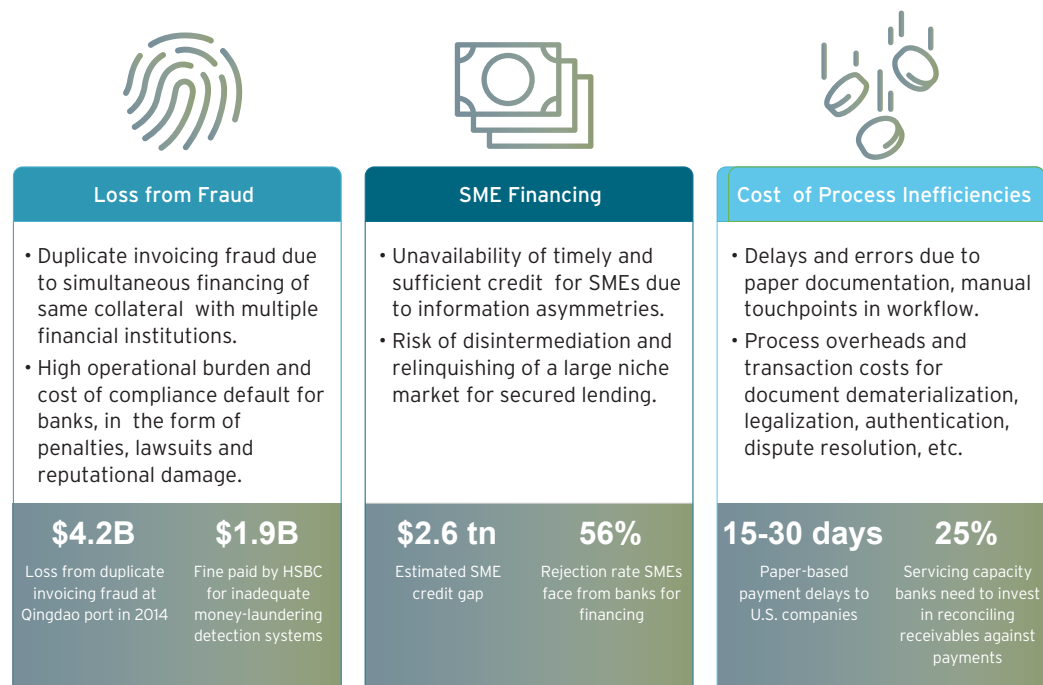


Figure 1

Losses & Increased Operational Burdens Arising from Financing Fraud

Fraud in receivables financing causes losses running into billions of dollars annually and can lead to reputational damage and costly lawsuits for banks. One of the common fraud practices is duplicate financing, which occurs when a payment receivable or trade collateral is simultaneously financed with different parties. A recent much-publicized example of this is the 2014 Qingdao port fraud incident, in which the Chinese trading company Decheng financed the same collateral of metals stockpiles multiple times, exposing Chinese banks to \$3.2 billion and other international banks over \$1 billion in potential losses.³

Other fraudulent practices include forging the bills of exchange and invoices to imitate genuine trade transactions and submitting these for financing. For example, Citigroup took a \$400 million hit in Mexico by discounting fake bills that were submitted by an oil services company over several years. This happened because the bank had no way of checking whether the bills submitted by the company corresponded to actual services performed.

In such cases, even if the fraud is perpetrated by the payee, the financing bank can still be held liable and penalized for the laxity in financing controls. For its part, Citigroup faced a billion-dollar negligence lawsuit for failure to detect falsified documents.⁴ For banks, such issues increase the cost of financing and spur an unwillingness to extend financing to new or unknown players. Beyond banks, invoicing fraud also impacts trading parties and other service providers. A 2016 study by Tungsten Network estimates annual losses of over £9 billion to UK businesses from invoice fraud.⁵

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Given the limited availability of trade information, reliance on documentary proofs of trade and the high cost of manual screening required, banks face challenges in detecting deviations and ensuring compliance, rendering them vulnerable to business risks, reputational damage and ever-increasing penalties in the form of multibillion-dollar fines. From 2007 to 2014, compliance-related fines imposed on U.S. and European financial firms grew from \$30 million to \$58 billion.⁶

Recent TBML examples include a \$16.5 million fine on Credit Suisse in 2016 for significant anti-money laundering compliance deficiencies in identifying potentially suspicious trading,⁷ an \$8.9 billion penalty paid by BNP Paribas in 2014,⁸ and a \$1.9 billion fine levied on HSBC in 2013 for inadequate money-laundering detection systems.

Risk of Bank Disintermediation from SME Financing

Another key pain point in receivables financing is the unavailability of sufficient and timely trade credit for small- and medium-size enterprises (SME) that generally receive deferred payment terms from corporate buyers but need liquidity in the interim to meet their working capital needs. Compared with large companies that have more publicly accessible credit ratings, data on SMEs' credentials, including past performance, payment history, disputes, litigation and other financial health indicators, is not easily available. The information asymmetry between the bank and the SMEs, arising from a lack of insight into the latter's creditworthiness, leads to unfavorable financing terms offered to SMEs to cover the cost of more thorough due diligence and potential risk of loss. This in turn tends to filter out the bigger and more established players that have access to better financing terms from other sources.

To mitigate this risk, banks may opt for credit rationing, which further restricts financing access to even those SMEs that are willing to pay the higher interest rate. Even for SMEs that have been approved for financing, the lack of operational transparency places limits on a bank's supervisory ability over the deployment of disbursed funds and can increase the chance of moral hazard (i.e., ineffective use of funds and the risk of fraud), again increasing the bank's risk of loss and default. This increases the cost of monitoring and incents the bank to also ration the funding, for instance by only partially financing the approved SME.

Finally, financiers also face difficulties in offloading these financed instruments from their portfolios since there is no proper market for secondary trade in these receivable assets.

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As a result, SMEs face constraints in obtaining adequate receivables financing, especially in developing countries, and are forced to borrow from the market at prohibitively high interest rates, thus increasing their cost of doing business. Approximately 70% of all micro, small- and medium-size enterprises in emerging markets lack access to credit, and the total credit gap for both formal and informal SMEs is as high as US\$2.6 trillion.⁹ SMEs also have a 56% rejection rate from banks,¹⁰ which is substantially higher than that for multinational corporations and big corporates, and they also increasingly need to resort to informal financing channels due to the constraints faced in traditional trade finance. This situation is unattractive for SMEs facing a liquidity crunch due to the high cost of financing, as well as for banks that risk disintermediation as they lack the ability to serve a large niche market for secured lending.

Increased Costs Due to Process Inefficiencies

A third issue in receivables financing relates to the cost, errors and delays inherent in the management of receivable instruments. In the case of documentary collection methods, for example, acceptance of bill of exchange is conducted through a presentment process that requires the presence of all parties. Similarly, its transfer by negotiation cannot be completed without delivery of the physical document. While the requirement of physical presentment or delivery of these instruments provides payment certainty and removes ambiguities in the contractual obligations of the issuer, it also makes for an operationally inefficient, costly and time-consuming process. These paper documents are also prone to discrepancies and errors in execution and have to be manually matched with the underlying contract documents for auditability and compliance purposes.

Banks need to invest substantial effort, by some estimates 25% of their servicing capacity,¹¹ in tracking and reconciling these receivables with payment. Redeeming these paper assets also involves bank

float post-deposit, making these processes slower and costlier and generating overall less liquidity for corporates. It is estimated that while payment terms are usually set at 30 days for North American companies, these typically are paid in 45 to 60 days due to paper-based delays.¹² Financing costs can be as high as 5% of a supplier's total cost of goods sold, so reducing the cash conversion cycle by increasing asset liquidity can have a big positive impact on profitability.

Finally, paper instruments are also vulnerable to loss from damage and theft. In January 2016, two major state banks in China, the Agricultural Bank of China (AgBank) and CITIC Bank International, reportedly lost 3.8 billion yuan (US\$596 million) and 969 million yuan (US\$147 million), respectively, due to alleged theft of bills of exchange by bank employees.¹³

Blockchain/Distributed Ledger Technology in Action

Since payment instruments are essentially credit instruments created by the trade transaction, rather than being tokenized or dematerialized, they can be directly issued on a blockchain network as a native asset. Payment instruments such as bills of exchange or notes can be digitally created as financial contracts between the issuing and the redeeming parties.

Depending upon the underlying blockchain or distributed ledger technology (DLT) protocol, a receivable asset can be issued by the owner as a special type of transaction and uniquely defined with an asset ID, ownership, and metadata to specify quantity, value, type and other attributes, along with business rules for change in ownership and redemption. These assets can be transferred by the owner, split or combined with other assets through new transactions, which are finalized through consensus and immutably recorded on the ledger. For example, the transfer of such an asset to the "holder in due course" can be initiated by the current owner and approved by other stakeholders through a consensus-based multi-signatory mechanism.

After the transfer is finalized, the new status is visible to all parties on the blockchain network. The previous owner no longer has control of the asset; it can be further transferred or redeemed only by

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Post-Shipment Financing on DLT

Trade receivables like bills of exchange and approved invoices can be natively issued on blockchain to reduce fraud and enable banks to offer more attractive financing.

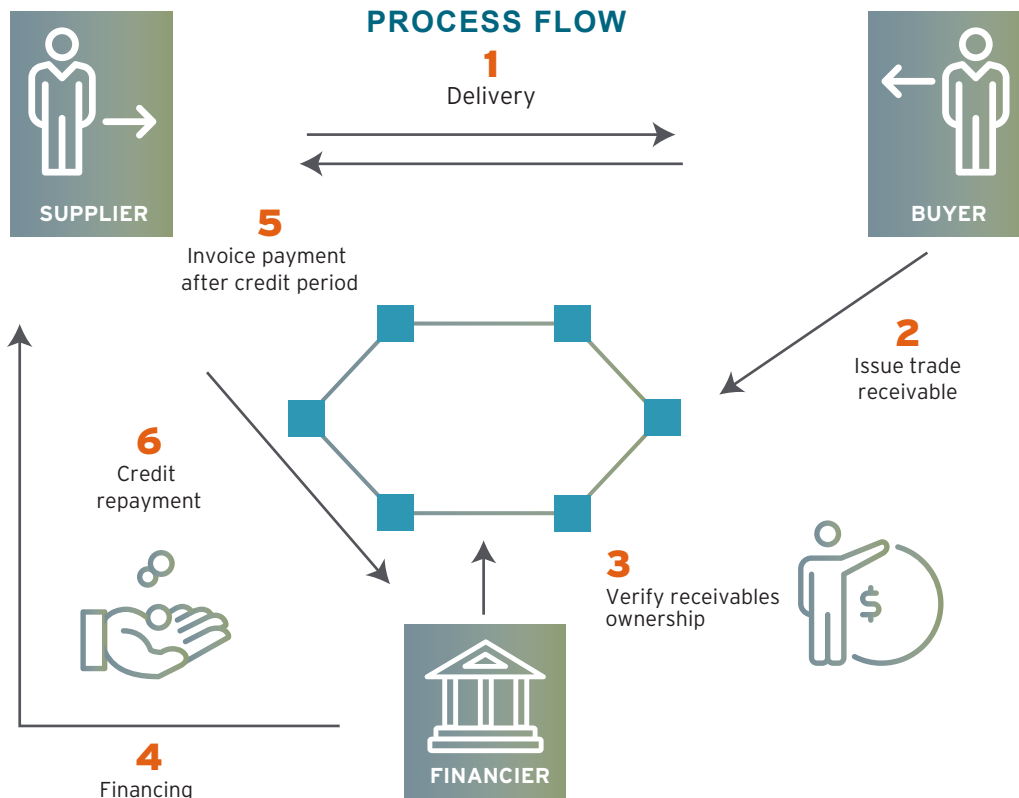


Figure 2

the new owner of that instrument. Similar to its creation and exchange, the payment against receivables can also be done quickly and efficiently on the blockchain network without the need for physical presentment or delivery (see Figure 2).

BLOCKCHAIN BENEFITS: DELIVERY ASSURANCE TO BUYER

Payment instrument digitization on blockchain reduces business risks for banks by preventing fraud stemming from duplicate invoicing and misinvoicing; improves financing options for small suppliers by removing information asymmetries and increasing liquidity of receivables; and eliminates process inefficiencies in managing trade receivables (see Figure 3, next page).

Binding Receivables with Underlying Trade Transactions Eliminates Financing Fraud

By digitizing receivables on blockchain networks, organizations could link the issued assets to the underlying trade transaction in a verifiable and immutable manner, eliminating the risk of fraudulent transactions. Doing so also prevents misinvoicing as participants can verify and track the ownership and value of the asset at all times. For receivables assets issued directly on a blockchain,

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Benefits of Payment Instrument Digitization on Blockchain

BLOCKCHAIN BENEFITS

Eliminates financing fraud



Native issuance on blockchain eliminates fraud by preventing double spend by seller.



Enables better credit access and terms for SMEs

Increased visibility for risk assessment and monitoring of receivables on blockchain.

Reduces process inefficiencies



Enables direct issuances, transfer and redemption of receivables assets on blockchain.

Figure 3

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In the case of supplier financing, the ability to place all invoices and receivables seeking financing on a blockchain network makes it possible for financiers to query whether a receivable has been financed elsewhere before approving its financing. This can be done while preserving data confidentiality, by hashing these on blockchain and masking confidential attributes.

Improved SME Financing through Better Trade Visibility and Collateral Liquidity

The coming together of trade entities and their financiers on a common blockchain network provides the latter with increased insight into the receivables lifecycle and associated trade transaction information, as well as verifiable data on SMEs' past payment history and credentials, enabling better and faster assessment and credit approvals.

End-to-end supply chain visibility on blockchain networks also provides financiers with a more accurate understanding of the risk and dependencies of small suppliers because they can see these in the context of the bigger payment value chain. This visibility also allows small suppliers to secure better terms of financing for working capital needs since risk assessment can be based on the corporate buyers, which have stronger payment credentials due to their large size and scope of operations. Blockchain networks will also facilitate this for reverse factoring scenarios, wherein the trade counterparty (i.e., the corporate buyer facilitating or initiating the financing agreement) can provide further assurance to the financiers and enable them to offer more competitive financing rates to SMEs, which in turn would enable buyers to negotiate better terms of trade with their suppliers.

Along with better credit decisioning and faster corporate onboarding, blockchain enablement also facilitates efficiency in funding and loan servicing through the use of self-executing smart contracts for conditional disbursement of funds based on loan covenants and collateral status tracking.

A financial asset natively issued on a blockchain network is more liquid due to the ease of authentication and transfer. Its value as a payment obligation for an underlying contract is also verifiably linked to the overall trade transaction, making it more acceptable to third parties. This increased liquidity and acceptance facilitates secondary market trade for re-discounting receivables to other factors and makes it easier for financial institutions to offload these assets, further reducing SME financing risks. The SME financing proposition is also strengthened by the verifiable and tamper-proof records of the asset provenance chain and corporate payment history on the blockchain platform, which enable the creation of effective and reliable risk profiling capabilities for asset valuation and corporate buyer rating.

Digitization Reduces Process Inefficiencies

A third benefit of asset digitization on blockchain is the elimination of delays, discrepancies and errors in the management of payment instruments, leading to substantial process efficiencies in their issuance, transfer and redemption. This also reduces costs and increases operational agility for banks by eliminating reconciliation effort and leading to faster disbursement and early receipt of funds for the supplier.

Digitization also eliminates the possibility of loss through damage or theft as the asset value is securely and immutably stored on the blockchain network, and only the current owner is authorized to initiate asset ownership transfer.

LOOKING AHEAD: ASSESSING INDUSTRY IMPACT

Process Optimization

A case-in-point for how a blockchain implementation can optimize business processes and reduce redundancy is provided by the issuance process of bills of exchange. It is common to draw two or three originals of the same bill of exchange instrument on the drawee bank, which are referred to as the “first of exchange,” “second of exchange,” etc. This practice stems from a time when bills of exchange were sent by post, and there was a risk of information being lost in transit. Therefore, multiple copies were sent to ensure that at least one draft reached the drawee. If the first bill of exchange letter was received safely, the subsequent bills could be cancelled.

However, the existence of multiple copies of these documents is a common cause of fraud, as these copies can be used for financing the same collateral multiple times with different financiers. With blockchain technology, approval and receipt of such payment instruments can be monitored in near-real-time; as a result, this practice, which can lead to confusion and fraud, can be eliminated. Identifying and remedying such obsolete processes will increase standardization and overall process efficiency.

Industry Adoption

During the last couple of years, several industry initiatives have emerged to explore blockchain/DLT applicability for trade payables and receivables financing with a focus on SMEs. Digital Trade Chain (now WeTrust)¹⁴ is one such multi-bank consortium-driven initiative, which aims to create a digital platform for initiating and managing trade transactions between SME customers of banks using Hyperledger Fabric.¹⁵ More recently, in February 2018, 12 R3 Consortium member banks, including BNP Paribas, ING Group, Standard Chartered and Commerzbank, announced a pilot for a post-shipment trade finance solution.¹⁶ This solution, called Marco Polo, was built along with TradelX on Corda DLT and focuses on trade data matching, payables and receivables financing for Open Account Trade. Government agencies like HKMA (Hong Kong Monetary Authority)¹⁷ and MAS (Monetary Authority of Singapore)¹⁸ are also exploring the use of smart contracts for open account trade through proofs of concept (PoC). Meanwhile, start-ups such as Skuchain, Hijro and Tallysticks have created blockchain solutions around supply chain financing and trade assets digitization on DLT.

As these networks mature and move from PoCs and pilots toward production readiness, banks and other participants need to address broader issues around regulatory compliance and legal acceptability of these digital assets, as well as manage operational challenges in on-chain settlement of these assets through fiat-backed tokens or cash on ledger functionality. Other considerations include achieving interoperability between different platforms and networks; DLT integration with back-end banking systems for enabling the convergence of the physical, financial and information supply chains; and designing easy-to-onboard, commercially viable solutions with a zero-infrastructure footprint option to encourage adoption by banks, trading parties and third-party service providers.

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FOOTNOTES

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