

Can technology eradicate supply chain risks?

By Kelvin Tan, Co-founder and Chief Investment Officer, GTR Ventures

In recent years, supply chains have come under tremendous scrutiny: in the information era, it is all too easy for consumers to find out whether their favourite clothing brands use sustainably sourced cotton, or whether the diamonds they buy are conflict stones. From fake eggs, horse meat passed off as beef, to fraudulent claims on coffee origin, consumer-facing industries face increasing pressure to commit to better practices. As a result, giants like WalMart, Sainsbury's, Tesco, Unilever, Levi's, Zara and many others have made ethical and sustainable supply chains a priority.

In turn, these commitments have led to the emergence of a plethora of traceability tools. For example, track-and-trace software started gathering product data from QR or barcode scanned at different stages of the production process, and sensors were added to factories and warehouses to monitor and adjust conservation conditions. In recent years, the increased focus on environmental concerns has led these systems to add more layers of data input: water and power usage, greenhouse gas emissions and waste



Kelvin Tan

disposal, for instance.

In financial supply chains too, a transformation has taken place. Financial institutions have been under pressure from consumers and regulators to know exactly which customers and trades they are supporting. In the UK, the Modern Slavery Act of 2015 forced companies above a turnover threshold of £36mn — including financial services companies — to report on the checks they put in place to ensure their supply chains do not use slavery. Meanwhile, constantly evolving trade sanctions place companies involved in international trade at risk of inadvertently doing business with sanctioned entities. Because of this, transparency has been brought to the forefront of banks and insurers' concerns, who want to know about not only their own customer (KYC), but also their customer's customers (KYCC).

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Leveraging technology

In the fintech space, more and more companies are facilitating this due diligence. Some, like the Dow Jones and Polestar collaboration, scan sanctions lists and integrate them with maritime and vessel tracking data, to better assess the various counterparty risks associated with a trade transaction. Others collect data automatically from customers' ERP systems and present a picture of a firm's financial health to help financiers make investment decisions, or monitor the deals they are supporting.

AIG has been using one such system — Aronova — for the past 10 years. "The system we use essentially links into the ERP system of the seller to provide full visibility in relation to the invoices between a seller and its buyers. It tracks things like face value, dilutions, payments etc, down to individual invoice level. We believe that all transaction parties are able to better assess the risk profile and create more certainty, because there are all sorts of data checks that go on throughout the life of the deal to find any discrepancies in values, or even via DUNS matching unexpected connections between companies or aggregations. It drives much improved traceability, and helps to tackle the fraud issue," says Marilyn Blattner-Hoyle, AIG's global head of trade finance.

According to her, using such an automated system can make all the difference when it comes to fraud detection. "Using the data up front during due diligence is key too. There are deals where for example using the system we were able to see discrepancies that made us question the deal, and either that allowed us to ask more questions to get the cover right, or even avoid a fraud-type situation altogether. This is the type of thing that could be picked up by the system very quickly up front with great visibility and analysis of the data pools, but might not be picked up by reams of spreadsheets. That's a perfect example of where traceability can have improved the outcome for everyone," she adds.

New data for enhanced risk mitigation

On top of combating fraud and improving transparency, these tools represent a shift in how risk mitigation frameworks can be enhanced, through new data sources. These new digital avenues represent an opportunity for financial institutions and insurers, to consider adjusting their underwriting models,

so as to adapt to ever-changing supply chains.

For example, some of the nimbler lenders in the market – both fintechs and conventional banks – are already tapping into customs, shipping and logistics data, to improve risk underwriting as well as to enhance the lending experience for their borrowers. If giants like Maersk now have

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their own trade finance arms to selectively finance their own customers, why not eventually the likes of DHL, Fedex, and other major shipping lines?

For SMEs, lenders are finding ways to mitigate risks, through data gathered directly from small businesses' accounting software. Quickbooks, a popular accounting software, is already partnering with fintech lending platforms such as Ondeck and Funding Circle, to meet SMEs' liquidity needs. To date, over US\$1bn has been provided in financing to Quickbooks customers. The digital arm of Euler Hermes, EHDA, has taken this one step further. Its invoice insurance product for SMEs – Tradelock – works not only with over 10 accounting software services, but is also directly integrated with Xero, creating a simplified user experience for Xero's customers.

Complex supply chains in huge domestic markets involving thousands of SME suppliers, however, require different solution sets. How does an insurer adequately cover and monitor the risks in distributor and wholesaler finance, in more opaque markets

such as China, India and Indonesia? Beijing-headquartered Q&X Credit was established to solve this issue. Through trials with large Chinese anchor manufacturers, Q&X has developed a digital underwriting and monitoring system by using transaction data to analyse SMEs' credit needs/risks and monitor their business operations and financial capabilities on a real-time basis. The model does not rely on financials but focuses on trade-related data, and makes SME risks transparent and foreseeable for insurers, financiers and trading partners, so insurers are able to provide coverage against SMEs' payment risks while the banks or non-bank financiers are willing to provide funding to SMEs with the risks covered by insurers. "Our model makes the business-related data, especially trade data and cash flow data, connected and cross-checked to prevent from fraud risks, operational risks, fund misuse risks and financial inability risks. We change the traditional way of financial analysis based on financials, which doesn't work for SMEs," says Hui Wang, Q&X's chief executive.

Stumbling blocks

Opening the door to the financing of the tail end of supply chains is key to making them more transparent and sustainable, and finding ways to fund SME trade is essential in order to reach that tail end. Other technology platforms have tried in the past, with mixed results. In 2015, PrimeRevenue struck a deal with AIG to provide cover to mid-market, non-investment grade sellers in large supply chains. In 2016, Euler Hermes made a similar agreement with URICA in France. But since these initial announcements, no news has come out on the progress of these initiatives. In fact, URICA decided to suspend its operations in France in July 2018 following a significant fraud perpetrated by one of its clients. "Technology can sometimes give a false sense of security. Who's inputting the data? Bad data in is bad data out, it doesn't

matter what technology you use," points out Blattner-Hoyle.

Indeed, fraud in the world of trade is a recurrent beast that is hard to tame, despite the most advanced technological tools and a seemingly sophisticated digital environment. In July this year, asset management products backed by falsified transactions and fake JD.com receivables (China's no. 2 e-retailer) are set to incur over US\$1bn of losses for close to a dozen financial institutions and factoring houses in China. Arising from this incident which sent shockwaves throughout the supply chain finance industry, the Chinese Banking and Insurance Regulatory Commission (CBIRC) has issued a set of guidelines for financial institutions to validate trade documents and take active steps to combat fraud. Amongst them, CBIRC encourages the use of technology such as Internet of Things (IoT) and blockchain.

Still, innovation is constant, and financial institutions and fintechs shall continue to learn from their and their predecessors' mistakes. Transper, a new kid on the block, is focusing on the traceability of financial flows, making sure the supply chain is transparent but also well-funded. The company came up with a 'Digital Payment Obligation' emitted by the large buyer, which can be transmitted to suppliers, tier after tier, in the supply chain, allowing the release of financing to even the smallest suppliers "at the click of a button", according to co-founder Nisha Singh. Based on the lack of success of SWIFT's Bank Payment Obligation, which aimed to achieve a very similar purpose, Transper will need to bring something radically different to the table: top-notch technology that would make on-boarding fast and secure for all participants. Pilots in the US, Europe and India are set to be concluded in October 2019.

Julian Hudson, global head of credit at Chubb, says he has been approached by a very large number of fintechs hoping to make SME trade financing easier for

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financing institutions. “One of the issues we found with them is that they’ve all got good ideas and good technology but it seems that that’s not enough. In order to launch their product they need additional funding. It’s a Catch 22 situation because people want to see a tried and tested system that underwriters are comfortable with, but in order to get there you need funding, and the funders don’t bet on what’s not tried and tested. One of the fintechs we’re working with should have launched two to three years ago but is still waiting for that big influx of fund,” he points out.

Sustainability in financial supply chains

While there are no regulations governing sustainability standards in financial supply chains yet, public pressure has led to voluntary commitments: many financial institutions have stopped funding coal projects, and others have put in place financial products incentivising green practices. In May 2019, MUFG announced the provision of 20 trillion yen (US\$189bn) to sustainable finance between FY 2019 and FY 2030 to help attain the UN’s Sustainable Development Goals (SDGs). Shue-Heng Yip, the bank’s head of digital for Asia and Oceania, explains how MUFG uses technology to ensure its green financing goes to sustainable trade. “We have found that traceability, while it helps, does not equate to sustainability. The main driver of success in sustainable financing is dependent on addressing the participants’ pain points across the value chains on priority, with minimal new steps. In this regard, an example of a traceability tool is a well-designed closed looped e-payments and e-loans platform to direct and control funds to the value chain participants for business-related purchases like agricultural inputs,” he says, adding that the development of green credit scoring is also key to the bank’s efforts.

In this area, the Financial Stability Board’s Task Force on Climate-Related Financial Disclosures (TCFDs) should help. The final recommendations published in 2017 advise companies to disclose information such as governance around climate-related risks and opportunities, actual and potential impacts of climate-related risks and opportunities on their businesses, strategy, and financial planning, as well as the metrics and targets used to assess and manage relevant climate-related risks and opportunities. While still voluntary, the TCFDs have been adopted by a number of large multinationals in sectors such as mining, financial services, construction and utilities. The more companies join the scheme, the more data will be available, and the easier it will be to develop green credit scoring for all. Additionally, many expect the TCFDs to inspire mandatory disclosure requirements in the near future.

A perfect supply chain?

So when will the traceability goals of large corporates align with the transparency needs of the financial sector? When will track-and-trace software link up to fintech protocols, which are in turn synced with sellers’ ERP systems? Broadly, it looks like everything is converging in the direction of fully transparent, traceable and sustainable supply chains, but the reality is much more complex.

For one, international trade has to deal with hundreds of different jurisdictions, each with its own set of regulations. And even within the same jurisdiction, regulations sometimes contradict each other. In Europe, the Open Banking Initiative means to make it easier for individuals to share their financial data (including account transactions, for example) with not just banks, but also insurers and fintechs. But at the same time, GDPR aims to protect consumers’ privacy by forbidding the sharing of certain information necessary to the underwriting process.

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Secondly, the fintech sector needs to reach a higher level of maturity. Pilot schemes need to result in real commercial use-cases, which, as mentioned earlier, isn't always easy. And when they do commercialise, fintech solutions need to be wary of reproducing the very silos they try to remove. Right now, each and every digital and/or blockchain trade initiative (think we.trade, Voltron, Marco Polo, komgo, Forcefield etc.) runs on its own protocol, and requires major onboarding, which of course has a cost impact. If transparent supply chains are to become a reality, data needs to be easily shareable between the different players in the market.

Finally, addressing fraud and sustainability in supply chains goes well beyond technological solutions. It requires education and financial incentives for small producers. Ensuring financial flows trickle down to the smallest end of supply chains is a first step, but how do you achieve that when suppliers don't even have a bank account? Taking an industry-specific approach may be a smart way to go.

Tackling the issue via industry verticals

Carbon Chain is one fintech looking at digitalising the steel industry, with a view to broaden to other commodities at a later stage. The UK-headquartered firm is blockchain-based and plans to replace paper-heavy contracts and bills of lading with electronic versions, leveraging blockchain's currency of trust. It has the support of a regulatory body for the steel industry, as well as a bank and a small to medium-sized trader, and is now looking for a port or shipping company and an insurer to join the scheme.

"We have got use cases at various stages in the market, but we haven't been able to get an end-to-end trade. We need to try to join up a lot of the loose parts of the process and make it into one big sustainable supply chain. Then that will lead to the commercial solution," CarbonChain CEO and Co-Founder Adam Hearne says. Having worked in the diamond sector, he was inspired by the notion of self-provenance: each diamond has on it over 250 identification points, making it fully traceable. "We unfortunately don't have the same mechanism for steel, but we're taking the approach of enforcing a chain of custody and providing a live or real-time view of the location and transfer of

ownership of goods," he adds.

Another promising sector initiative is Singapore-based HeveaConnect, which focuses on sustainably-produced rubber. The company, whose shareholders comprise a leading rubber producer (Halcyon Agri), a top tier APAC bank (DBS) and a global trader (Itochu), works via a three-pronged approach: creating sustainability standards to secure procurement of natural rubbers and ensure farmers' livelihood; digitalising this ancient industry; and modifying behaviours by working with NGOs on training programmes. By having people on the ground to integrate with local communities and mapping the farmers involved in the supply chain, HeveaConnect hopes to incentivise good behaviour. Further in the production process, it has placed Internet of Things (IoT) devices inside factories to automatically monitor greenhouse gas emissions and water recycling. Finally, it offers a sustainable natural rubber trading platform. This is very much a technology-led initiative, but technology is only seen as the enabler for something much bigger.

Yvonne Zhang, the firm's head of products and partnerships, explains: "We're not trying to reinvent the wheel. We have been asked to consider using blockchain and machine learning but AI is a data play, without the right data you can forget about it. We are dealing with a very old industry where mistakes do happen, so we need to solve these issues first, otherwise we're going to be passing along the wrong data."

With the support of DBS and Halcyon as shareholders, HeveaConnect plans to roll out payment schemes with financial institutions, sustainable finance, emissions procurement or bundle services next year, and ultimately hopes that its work will result in sustainability premiums being paid to the various players in the supply chains. To Zhang, fraud and sustainability are one and the same issue: "How do you acquire the right information and pass it along so that the right people see it at the right time?"

At the end of the day, a committed fraudster will always find ways to go around regulations and automated data checks. But the majority of what is considered fraud today is a reflection of a lack of education or lack of financial support for small suppliers. Growing sustainability and transparency concerns are giving us an opportunity to reeducate entire supply chains, but there is no easy way out — not even with technology. ■