PROVENANCE

Supply chain finance on Provenance

Supply Chain Finance on Provenance Blockchain

Supply chain finance on blockchain can benefit suppliers, lenders and the end manufacturer (the entity originating the first purchase order). Suppliers improve access to credit through reduced fraud risk and visibility of linked purchase orders throughout the supply chain. Lenders keep more capital working throughout the chain and can tap secondary markets to access liquidity and manage risk. The end manufacturer can see the health of the supply chain ecosystem, including status of orders and availability of capital. Provenance, the largest production blockchain in financial services, is uniquely positioned to deliver these benefits.

About Provenance

Provenance is a production blockchain for the financial ecosystem. Provenance combines the distributed, trustless and immutable characteristics of blockchain with the function of a ledger, registry and exchange. Introduced in late 2018, Provenance has been used by firms such as Jefferies, Figure and Caliber Loans to reduce costs and improve execution in the loan origination, financing and securitization space. Over $1 billion of assets have been originated, financed and sold on Provenance, with industry participation and business use cases growing each month.

Reducing Risk

In considering supply chain finance on Provenance, we'll make a simplifying assumption of three tiers of suppliers, with one supplier in each tier. The initial purchase order will come from the end manufacturer X ("X"), and we'll refer to each supplier by their respective tier (e.g., T1, T2, and T3). We'll assume one lender ("Lender").

Assume X places an order with T1, and as a result of that order, T1 places an order with T2, and T2 with T3. We'll break each purchase order into two components: the intrinsic and the dependent. The intrinsic value is the dollar amount of the purchase order that is value-add from the supplier. The dependent cost is the dollar amount of the purchase order that comes from the downstream supplier. For example, assume X's purchase order is for $100. T1 needs inputs worth $75 from T2. The intrinsic value is $25, and the dependent cost is $75. The last supplier's dollar value – in this case T3 – is entirely intrinsic value.

When X places the purchase order, it is done on Provenance. That order is authenticated, immutable and distributed and cannot be copied (similar to how Provenance guarantees authenticity for loan documents). As each supplier in the chain passes orders on, they are booked on the blockchain and linked back to their predecessor order. This information is available to the supplier and to the lender, providing two important features to the latter.

First, the lender has certainty as to the authenticity and status of the purchase order between two suppliers. When a lender finances a purchase order, that order becomes encumbered by that loan. When a purchase order is delivered, it is designated as such on Provenance. There is minimal risk that a supplier is financing the same purchase order across more than one lender or financing an expired purchase order.

Second, a lender can see the entire chain of purchase orders, knowing that there are payments that will make their way to any individual supplier no matter how far deep they are in the supply chain. The lender can also see how much of the purchase order is intrinsic versus dependent. This shifts a portion of the credit risk from the supplier to the upstream chain, ultimately ending with the end manufacturer, who likely is the strongest credit in the chain.

Financing the Chain

Having visibility of the entire chain not only reduces risk, it also allows for the lender to deploy more capital. Consider the following scenario, where X issues a purchase order of $100 to T1:

Period	Intrinsic	Dependent
X		$100
T1	$25	$75
T2	$25	$50
T3	$50	

Each supplier will need to finance both its intrinsic production and its dependent costs. If we assume there is $5 of profit before interest and $1 of interest from T3 to T2 to T1 to X, the financing looks as follows:

Period		1	2	3	4
T1	Intrinsic	20	21	22	23
	Dependent			75	76
	Paid				−100
		20	21	97	−1
T2	Intrinsic	20	21	22	
	Dependent		50	51	
	Paid			−75	
		20	71	−2	
T3	Intrinsic	45	46		
	Dependent				
	Paid		−50		
		45	−4		

Working backwards, in period 1 T3 needs an advance against its $50 intrinsic value from the purchase order, and T1 and T2 need $20 each to finance their intrinsic production. When T3 delivers its order to T2, the lender pays T3 the net of $50 due from T2 and $46 due to the lender, or $4. The lender then rolls that financing into the $21 ($20 loan plus $1 interest) already extended to T2. This process repeats each period until X receives its goods and T1 covers its final loan and captures its net profit – in this case, $1.

The lender has visibility into (and controls a portion of) use of proceeds for each loan and has visibility into the original credit (X). The lender is also keeping more capital working than it would lending to a single supplier.

Monitoring Health of the Chain

Using Provenance blockchain, the end manufacturer (X), other suppliers and lenders have the ability to constantly monitor the health of the overall supply chain ecosystem. They can see what contracts are outstanding and their status and who has gotten funding and who needs it, and react accordingly.

Marketplace

Provenance has an established marketplace for the trading of digital assets. Should a lender wish, they could put their funded or pre-funded obligations on the marketplace for other investors to purchase. For example, a lender might do this as goods flow up the supply chain and the risk of lending changes. The lender may intermediate to the supplier or allow the buyer to displace the lender for servicing and collection.

Similarly, suppliers have the ability to put their contracts out for bid. A supplier could entertain financing offers for more than one lender, choosing the most advantageous terms.

More Complicated Chains

The process described here scales easily to larger tiers and a greater number of suppliers per tier. It can also scale to multiple original orders (more than one X) and work across currencies, even between suppliers.

Risk

The risk in this system is that a supplier breaks the continuity of the chain; they have a downstream supplier, but they don't represent that purchase order on Provenance. There are two ways to mitigate this. First, X can dictate that all purchase orders must be represented on blockchain. X will often have visibility into the reasonableness of a supplier having or not having a downstream source. Second, banks can limit their purchase order financing purely to entities on Provenance, where such entities either show the matching upstream and downstream purchase orders or demonstrate that they are the end of the chain.

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