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Beyond decentralisation: Why digital assets need risk mutualisation

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Introduction

Decentralisation has been one of the defining ideas behind the growth of blockchain networks and crypto markets. Distributed governance, censorship resistance and the absence of central control are often cited as features that empower participants and challenge traditional financial structures.

Regardless of how decentralisation is viewed as a broader principle, its application to risk management exposes a fundamental weakness. In this domain, decentralisation undermines a core requirement of resilient markets: mutualisation.

Risk management is not philosophical. It is mathematical, behavioural and, in times of stress, a practical necessity. History shows that markets that fail to mutualise risk eventually fragment, reprice unpredictably or even cease to function completely.

The reality of bilateral trading

In a decentralised market, the most basic derivative trading model is bilateral. Any participant can trade directly with any other, with each relationship governed by its own terms, credit assessment and margining arrangements. At first glance, this appears flexible and inclusive, but there are structural consequences to this setup.

Each participant must carry the sum of the individual risks of all its counterparties. Creditworthiness matters: trading with counterparty A is not equivalent to trading with counterparty B, and as a result prices may differ for the same product. In some cases, trading simply does not happen at all. Coherent price formation may be distorted by credit risk considerations rather than reflecting supply and demand. It is important to bear in mind that credit risk analysis is not an exact science – two analysts at two different institutions may have different assessments for the risk profile of the same counterparty.

While initial margin (IM) and variation margin (VM) mechanisms can mitigate some of this risk, bilateral margining lacks consistency. Margin requirements are not automatically enforced across the market, and entities with negotiating power may be tempted to secure favourable terms. Furthermore, eligible collateral to be posted by market participants may be different. This may result in opacity, uneven protection and hidden leverage. This underlines the importance of global coordination and regulatory convergence which regimes such as EMIR are designed to ensure.

When a participant fails in such an environment, the consequences are difficult to contain. The counterparties to such defaulting entity, have only a partial view of the latter's aggregate real exposures and overall risk profile. Losses lead to unpredictability, confidence quickly erodes and domino effects can soon follow. Capital markets can operate in a bilateral regime, but the financial crisis of 2008 has shown the limits of this model.

Concentrating risk to reduce it

A first step towards effective mutualisation is the introduction of clearing houses, where risk can be concentrated and managed collectively, even if only for a given set of products. For example, following the 2008 Global Financial Crisis, the central clearing of over the counter (OTC) derivatives became mandatory. EMIR itself emerged from recognition of the structural weaknesses and systemic risks inherent in a predominantly bilateral market. In principle, a central clearing house does not need to be unique. But economies of scale are so prevalent that in practice there are only one or two for any given product.

With crypto derivatives, the industry has taken steps toward central clearing, but only partially. In practice, this means that many different venues list and clear similar derivatives, but these contracts are not fungible. Participants end up having a set of bilateral relationships with different exchanges instead of facing a single central clearing house. They do not carry the risk of the original counterparty they traded with, but still carry the risk of the exchange. In traditional finance (TradFi), concentration into one or possibly two clearing house(s) goes a long way to ensuring more stability and resiliency.

Indeed, the presence of an independent third party responsible for risk fundamentally changes the market structure. Products, processes and reporting become standardised, removing friction in trading and settlement. Risk measurement is consistent and transparent across all participants, as are margin requirements. Everyone posts margin according to the same rules, with the same collateral eligibility matrix.

The following two examples illustrate how the crypto market structure differs from TradFi:

- To trade on two different crypto venues, a participant needs to prefund two accounts. To enable large enough positions, a sizable deposit has to be routed to each exchange, thereby increasing the overall credit risk, even in the absence of any market exposure. In TradFi, collateral is routed to a small number of clearing houses, independent from trading venues. Even if pre-funding is required, it is much less capital intensive.

- A spread position (long on one exchange, short on another) is vastly inefficient because it requires two deposits. It is also tedious to manage, as a brutal price move may trigger liquidation on one leg, creating an unintended directional exposure on the other. Because crypto trades 24/7, such a liquidation may occur at any time. In TradFi, the existence of a small number of clearing houses makes fungibility and cross-margining much more prevalent, resulting in more efficient spread margining.

These difficulties disappear when a central clearing house is inserted into the system. But a single clearing house would require industry-wide cooperation and create an immediate loss of (clearing) revenues for existing crypto venues. This makes the idea highly unlikely to happen.

Mutualisation also makes it straightforward to establish a default fund designed to protect all participants. In the event of a default, positions are liquidated as a diversified portfolio rather than as isolated trades, spread across different venues. The default process is administered by a single entity empowered to act quickly in the collective interest of participants.

Without bilateral counterparty risk, anonymous trading becomes the norm. Participants no longer need to know who is on the other side of a trade. Price formation is no longer contaminated by credit concerns, allowing markets to function more efficiently. All participants face the same margin requirements, which means that no competitive advantage can be obtained by a participant due to its size or competitive standing.

Margining also becomes more efficient. A participant with a diversified portfolio can sometimes benefit from offsets across positions. A trader long Bitcoin and short Ether posts less margin than if these positions were held with two separate counterparties.

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Governance, ownership and trust

Effective mutualisation requires more than operational efficiency – it also relies on robust governance and clear legal structures. In a central counterparty (CCP) model, governance is segregated. The clearing house operates independently to manage defaults without conflicts of interest. Ownership is also segregated; collateral is held for each participant and, in the event of default, it is used by the CCP to ensure orderly resolution.

If this reasoning is taken to its logical conclusion, the optimal structure for a given product is indeed a single CCP. From a market risk standpoint this is a desirable outcome, but there are other considerations pushing in the opposite direction. One is operational risk: a single clearing house creates a single point of failure. Another area is regulation: differences in regulatory regimes still exist today, making it potentially difficult for a participant trading in region A to clear all its business in region B. A third element to consider would be collateral availability and eligibility: regional differences also act as liquidity rails.

The same ideas apply to the crypto ecosystem. Today there are as many products as there are clearing houses, and as many clearing houses as there are venues. Concentration is happening, but the industry probably ought to question the relevance of separating clearing from trading and promoting cross-venues central clearing.

The inevitable convergence

The same causes produce the same effects. Risk in crypto finance is therefore bound to concentrate, just as it has in TradFi. This is not a rejection of innovation, but a maturation process. As markets grow, the cost of managing fragmented risk rises and structures evolve accordingly.

For crypto-native participants, this evolution invites reflection on long-term growth and sustainability. For traditional institutions, it reinforces the importance of regulated, cleared and resilient market infrastructure. In both cases, the direction of travel is the same.

Conclusion

Despite crypto's origin story being rooted in decentralisation, the practical necessities of risk management are increasingly evident in crypto markets. Mutualisation and redistribution of risk are not optional features but prerequisites for growth.

LCH exists to provide risk mutualisation. Entering the crypto space through a centrally cleared Bitcoin index derivative product follows directly from that purpose, offering a structure that reflects decades of experience in managing systemic risk.

For more information on the benefits of risk mutualisation in digital asset derivatives at LCH DigitalAssetClear, please visit our website or contact us at digitalassetclear@lseg.com

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