



MINTZ
GROUP

Blockchain Analysis: A Powerful Early Warning System for Crypto Insolvencies

Sean Anderson and Eleanor Warnick

Previously published in
ICC FraudNet Global Annual Report 2023

In this paper, Sean Anderson and Eleanor Warnick consider how greater use of blockchain data analytics can provide an early warning of financial trouble and complement the traditional asset recovery toolkit, by reference to some recent high-profile crypto cases.

While cryptocurrency gained traction as an alternative asset class in 2021 and 2022, many fundamental questions about how crypto fits into the processes and standards of the fiat financial system remain unresolved. The ongoing wave of crypto insolvencies has provided a new sense of urgency to those open issues, particularly regarding due diligence and asset recovery.

The announcement by a leading accounting firm in December that it was suspending all work with crypto clients illustrates the extent to which those investing in the crypto space are operating without the safeguards, tools and assurances customary in financial markets. Fortunately, new analytic techniques using blockchain data can indicate reserves held by the business, provide early warning signs of impending financial distress and establish a foundation for 164 mapping and recovering assets after an insolvency. Indeed, over the past two years, more sophisticated software, more experienced investigators, and more aggressive government enforcement actions and private litigation cases have helped debunk the myth that the movements of crypto assets are untraceable.

Leveraging blockchain's transparency

The ability to analyse the solvency of a crypto enterprise in real time stems from the transparency of crypto transactions on the blockchain. Blockchain analytics firms and independent observers on social media first identify crypto addresses associated with major exchanges and hedge funds. Blockchain analytic software then makes it possible to identify irregular flows of funds out of exchanges. These fund flows can signal the crypto equivalent of a bank run, in which customers sense or hear that a crisis is looming and attempt to withdraw their funds before the exchange collapses. In November 2022, before declaring bankruptcy, FTX faced USD 6 billion in withdrawals in short succession in part due to concerns raised on social media by Changpeng Zhao, the head of rival exchange Binance. Crypto

holders promptly pulled their funds out of what was previously seen as a “safe” exchange—leading FTX to first freeze withdrawals and later admit it was insolvent. FTX's collapse was accelerated when users on social media, monitoring FTX's known addresses, encouraged other users to get their funds out before the addresses were eventually emptied.

In addition to crypto bank runs, investors can also observe sudden changes in behavior that could be a sign of financial distress. By watching for mispriced transactions—where a hedge fund, for example, might have overpaid to ensure a transaction took place quickly, or sold a token at a loss due to inadequate liquidity when selling the position over time may have avoided the loss—analysts can flag funds that are rushing to repay loans or cover positions. For example, the collapse of crypto hedge fund Three Arrows Capital was presaged by panicked trades, uncharacteristic OTC deals and hasty deposits to cover positions or add collateral— all of which were visible to trained observers.

The ability to analyse developments in real time is particularly critical given the speed at which crypto insolvencies can occur. Part of crypto's appeal lies in its ability to execute transactions near instantaneously, without the security controls, oversight and other constraints that can slow down fiat currency transactions. As recent events have illustrated, however, frictionless efficiency is a double-edged sword: When things go south in the crypto world, they can do so with blinding speed. On the decentralised lending platforms on which many crypto companies were leveraging positions, there are no human managers from whom a trader could request an extra hour to meet a margin call. Instead, the platforms' code liquidates positions based purely on collateral requirements and price. And those liquidations can occur at any time of the day or night, without the buffer provided by the need to wait for the market to open.

Further, because many crypto companies use highly volatile cryptocurrency or tokens as collateral, a sudden drop in the value of that collateral can quickly snowball into a cascading series of potential liquidations or margin calls. FTX, for example, collateralised its loans with its own token, FTT—of which FTX held roughly 80 percent of FTT's total supply, while affiliated hedge fund Alameda Research held roughly 40 percent of its USD 14.6 billion in assets in FTT. Once the price of

FTT began to drop, it created a crisis for both FTX and Alameda, which were suddenly unable to meet loan obligations, and the public nature of their financial distress only further drove down the price of FTT and other cryptocurrencies.

Asset recovery: Following the crypto

Just as analytical techniques give investors and others important tools to evaluate the soundness of crypto enterprises, those techniques may also be able to help in the asset recovery process after insolvencies by identifying assets that may have been improperly funnelled to entities or addresses controlled by the founders, their alter egos or even third-party attackers. For example, as FTX was entering insolvency, an unauthorised user began transferring and laundering cryptocurrency, which online analysts have already traced through a mixer to an exchange. In addition, Ethereum (ETH) addresses associated with Alameda began swapping remaining crypto through instant exchangers, and eventually mixers. At the same time, some insiders appear to have received forewarning that Celsius and FTX would soon be insolvent, and withdrew their assets before those implosions. Other users—particularly in the Bahamas—were able to make withdrawals after authorities froze assets on FTX. Observers on social media have alleged that Bahamian account holders were using NFT sales to help users withdraw frozen crypto. In some of these cases, blockchain investigations will help the trustee identify individuals who received these funds.

Law firms, investigators and other advisors are likely to be sifting through the fallout of last year's crypto frauds and insolvencies for the foreseeable future. These cases will require sophisticated blockchain analysis to trace and recover cryptocurrency holdings, but will also involve the standard suite of asset recovery tools. In addition to cryptocurrency, investigators and lawyers will be pursuing private equity investments, revenue flows, third party debt and other tangible assets like yachts and mansions.

Regaining trust

In the midst of the current turmoil, crypto's future is far from clear. However, if it is to regain any of the momentum it once had, it will be essential to create a stronger system of validation for centralised crypto

companies. Existing efforts to provide a “proof of reserves,” crypto's analogue to the traditional audits of the fiat world, proved too easy to manipulate and lacked standards to allow less technical users to trust these claims. Here too, blockchain analytics offer a potential path forward.

Currently, the independent monitoring of crypto assets is a two-step process, in which third-party observers first identify ownership addresses and then track fund flows in and out of those addresses. However, exchanges could become active participants in that process by publicly identifying cold wallets where reserves are stored and maintaining a publicly facing ledger of those assets. To prove ownership and control, institutions can also sign smart contracts or engage in other on-chain transactions to demonstrate they actually control the private keys for the addresses. From there, blockchain analytics firms and investigators can monitor the stability of the exchanges' holdings and analyse trading patterns, as they do now.

While this approach should provide a more trustworthy tally of assets, the challenge of fully accounting for liabilities, including those in off-chain collateral agreements, remains. As such, there will always be the need for a third party to attest to proof of reserves. New cryptocurrency-focused auditing companies with the expertise to handle on-chain assets, while also conducting a larger audit of traditional assets, may fill the gap left by larger auditors. Over time, new expertise and tools—or acquiring the companies that have them—may allow the larger auditing firms to more comfortably re-enter the cryptocurrency space. Although it is difficult to accurately value crypto's market capitalisation, one estimate places it at roughly \$900 billion as of the start of 2023. While that figure represents only a sliver of global assets—and a third of what it was only recently—it is still substantial enough to warrant the efforts of accounting firms, developers, investigators, regulators and independent observers to build an infrastructure that allows for greater accountability. Although there is much work to be done to provide future users with greater insight into the risk of platforms they use, blockchain analytics provide a solid foundation on which to begin.

ABOUT MINTZ GROUP

For corporations, investors and the legal, financial and talent advisors who need actionable facts to assess risks, protect reputations and win disputes, Mintz Group is the partner of choice for due diligence, investigations and background screening anywhere in the world. Since 1994, Mintz Group has developed a uniquely transparent and practical approach to fact gathering before hires and transactions, during disputes and after allegations. We provide impartial facts that are comprehensively researched, properly sourced and stand up to the toughest scrutiny in the boardroom or the courtroom. To learn more, please visit [mintzgroup.com](https://www.mintzgroup.com).