The collapse of FTX

Lessons and implications for stakeholders in the crypto industry

November 2022

Origins

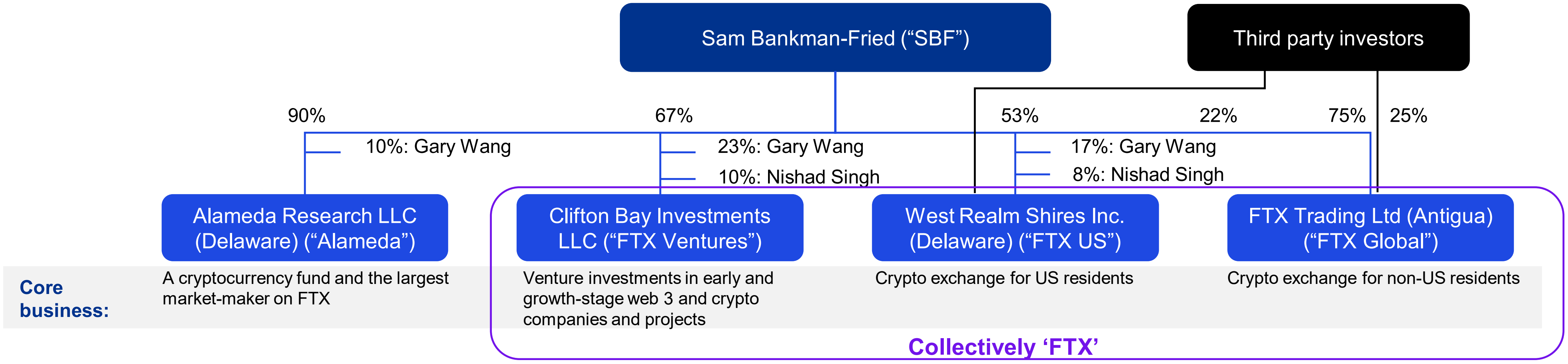
Origins and the relationship between FTX and Alameda

In 2017, Sam Bankman-Fried (“SBF”) co-founded Alameda Research (“Alameda”), a crypto fund. Alameda became a prominent market maker on crypto exchanges.

In 2019, SBF founded FTX, an crypto futures exchange built to meet the needs of serious traders (“by traders, for traders”). The FTX OTC desk was powered by Alameda and SBF was the CEO of both businesses. FTX launched it’s own token, “FTT”. FTT provided holders with a discount on trading fees and OTC rebates, with FTX buying back and ‘burning’ FTT tokens based on FTX profitability – reducing supply hence increasing token price.

By 2021, FTX had become one of the largest and most popular exchanges for professional traders due to its fast listing of tokens, user-interface, and high liquidity (driving tighter spreads between bid and ask prices). FTX’s market leading liquidity was in part due to its unique liquidation engine which effectively acquired holdings from sellers in the event of a large liquidation event – thus preventing collapse of prices. The backstop for this liquidation engine was Alameda.

Simplified corporate structure[a]



Source: Declaration of John J Ray III in support of Chapter 11 petitions (“the Declaration”), 17 November 2022

Note: (a) Simplification on Exhibit A and Exhibit B from the Declaration.

The rise

2017

Sep
SBF and Tara Mac Aulay founded Alameda.

2018

Nov
Alameda raised debt from investors, offering a 15% annualised fixed rate loan – and promising “high returns with no risk”.

2019

May
SBF and Gary Wang co-founded FTX and launched the FTT token.

Jul/Aug
Launch of FTX, closing a USD 8m seed round from six investors.

Sep
Alleged attempt by Alameda to manipulate futures on Binance.

Dec
Binance announced a strategic investment in FTX, acquiring a 20% stake for ~USD 100m.

2020

Aug
FTX launched Project Serum – a decentralised exchange for the Solana blockchain ecosystem.

Dec
FTX became directly involved with Solana ecosystem blockchain projects, with Alameda investing and FTX launching many tokens on its exchange.

2021

Apr
Alameda moved away from delta-neutral strategies and began to take large directional risks on leverage.

Alameda used tokens, such as FTT as collateral for loans.

Jul
USD 900m funding round at **USD 18bn** valuation of FTX

SBF bought back Binance’s stake for approximately USD 2bn. Binance is paid in FTT and stablecoins.

Oct
USD 421m funding round at a **USD 25bn** valuation of FTX

SBF officially handed over Alameda CEO role to co-CEO's Caroline Ellison and Sam Trabucco.

2022

Jan
FTX raised USD 1.9bn in Series C funding from investors at a valuation of **USD 32bn**.

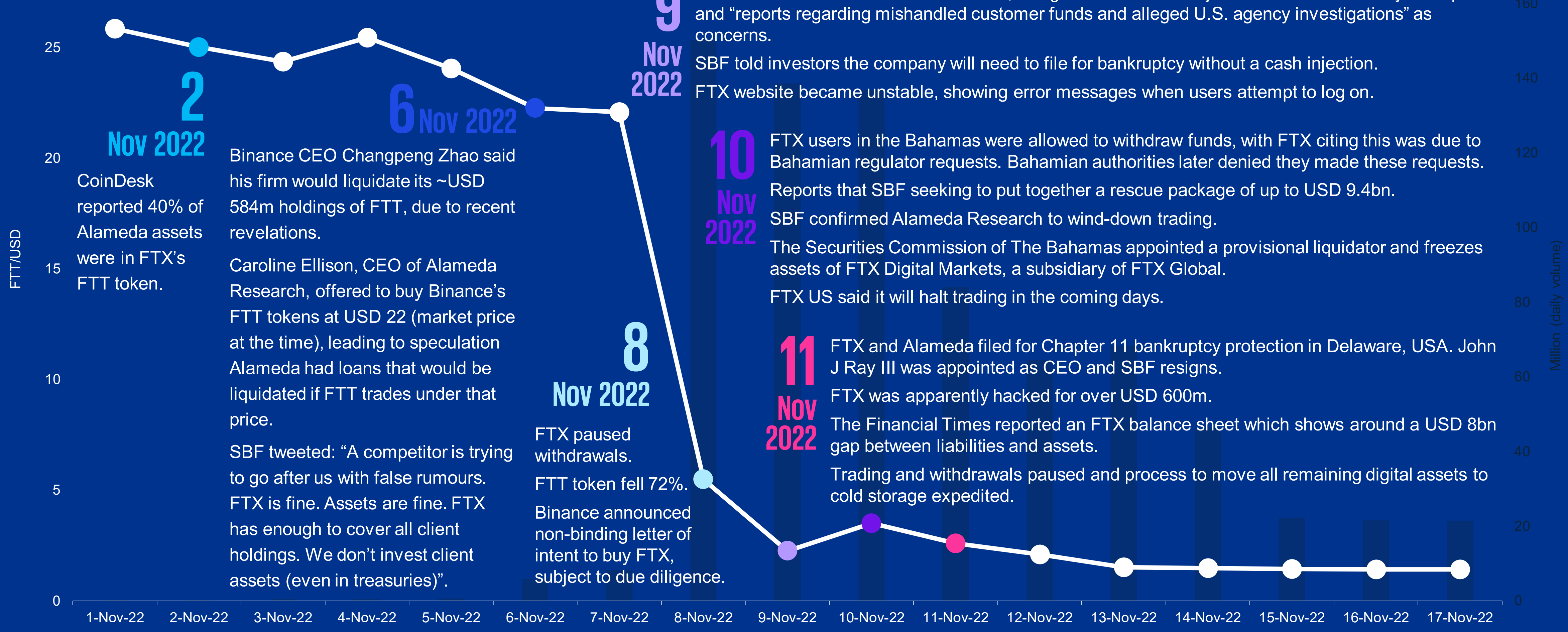
Mar/Jul
Terra USD (UST), an algorithmic stablecoin de-pegged from the USD, with subsequent market crash in cryptocurrencies resulting in the collapse of Three Arrows Capital (a crypto fund) and Voyager Digital (a crypto lender).

Jul
SBF/FTX offered bailouts to struggling crypto platforms including: Voyager Digital, Celsius and BlockFi.

Aug
Sam Trabucco stepped down as co-CEO of Alameda citing work-life-balance and other priorities. Caroline Ellison continues as sole CEO.

The fall

FTT/USD in November 2022



2 Nov 2022

CoinDesk reported 40% of Alameda assets were in FTX's FTT token.

6 Nov 2022

Binance CEO Changpeng Zhao said his firm would liquidate its ~USD 584m holdings of FTT, due to recent revelations.

Caroline Ellison, CEO of Alameda Research, offered to buy Binance's FTT tokens at USD 22 (market price at the time), leading to speculation Alameda had loans that would be liquidated if FTT trades under that price.

SBF tweeted: "A competitor is trying to go after us with false rumours. FTX is fine. Assets are fine. FTX has enough to cover all client holdings. We don't invest client assets (even in treasuries)".

8 Nov 2022

FTX paused withdrawals.

FTT token fell 72%.

Binance announced non-binding letter of intent to buy FTX, subject to due diligence.

9 Nov 2022

Binance terminated their interest in FTX, citing "the issues are beyond our control or ability to help" and "reports regarding mishandled customer funds and alleged U.S. agency investigations" as concerns.

SBF told investors the company will need to file for bankruptcy without a cash injection.

FTX website became unstable, showing error messages when users attempt to log on.

10 Nov 2022

FTX users in the Bahamas were allowed to withdraw funds, with FTX citing this was due to Bahamian regulator requests. Bahamian authorities later denied they made these requests.

Reports that SBF seeking to put together a rescue package of up to USD 9.4bn.

SBF confirmed Alameda Research to wind-down trading.

The Securities Commission of The Bahamas appointed a provisional liquidator and freezes assets of FTX Digital Markets, a subsidiary of FTX Global.

FTX US said it will halt trading in the coming days.

11 Nov 2022

FTX and Alameda filed for Chapter 11 bankruptcy protection in Delaware, USA. John J Ray III was appointed as CEO and SBF resigns.

FTX was apparently hacked for over USD 600m.

The Financial Times reported an FTX balance sheet which shows around a USD 8bn gap between liabilities and assets.

Trading and withdrawals paused and process to move all remaining digital assets to cold storage expedited.

Sources: Coindesk, Financial Times, Reuters, Bloomberg, Messari Research

What went wrong? (1/2)

> While the exact sequence of events leading up to the collapse of FTX and Alameda is unknown, the sheer size of the asset gap – USD 10bn – narrows the possibilities to either blatant misappropriation of funds, significant absorbed liquidation losses, or some combination of both."
>
> Messari Research

Commingling of company and customer funds

FTX appears to have lent billions of dollars in customer funds to Alameda Research.

Commingling customer funds with counterparties and trading them without consent is illegal according to US securities law and violates FTX's terms of service.

Conflicts of interest

The collapse of Tera/Luna and UST in May 2021, is likely to have led to trading losses for Alameda either due to its role as backstop to FTX's Liquidation Engine or due to losses on investments impacted by the market collapse.

As majority owner of both FTX and Alameda, and given the central role Alameda played in FTX's competitiveness – it would have been in SBF's interest to use customer funds to bail-out Alameda.

Use of native tokens as collateral

FTX's native FTT token was used as collateral by Alameda for leveraged trading.

FTT's value was dependent on FTX being a going concern.

When the price of FTT fell below USD 22, Alameda's loans were liquidated as they could not repay their debts.

Token concentration and valuation

In addition to making venture investments in private companies, balance sheet disclosures show FTX had a high concentration of holdings (reported value USD 5.4bn) in low float, high fully diluted value (FDV) tokens – including FTT and Serum where the fair value in a liquidation scenario is significantly below the reported value.

Sources: Financial Times, Messari Research

What went wrong? (2/2)

"I have over 40 years of legal and restructuring experience. I have been the Chief Restructuring Offices or Chief Executive Officer in several of the largest corporate failures in history… Never in my career have I seen such a complete failure of corporate controls and such a complete absence of trustworthy financial information as occurred here."

John J. Ray III, Chief Restructuring Officer to FTX and Alameda

Absence of corporate governance

No 3rd party investors had seats on FTX's board.

Concentration of control in "…a very small group of inexperienced, unsophisticated and potentially compromised individuals," Ray said.

Lack of records

Inadequate financial reporting systems infrastructure and corporate controls resulted in unavailability of trustworthy financial information

Incomplete records of payments, employees hired and assets purchased, etc.

FTX is reported to have no accounting function or CFO.

Limited diligence by 3rd party investors

Given recent disclosures regarding the absence of corporate controls and financial information it appears prominent investors acquired holdings in FTX with limited due diligence.

Well known private equity, venture capital, pension and sovereign wealth funds have publicly disclosed they have now written-off these investments.

Lack of risk management policies and framework

FTX and Alameda lacked robust asset-liability and liquidity risk management policies.

Putting customer deposits into illiquid investments and using those investments as collateral resulted in high leverage which appears to have been misunderstood by SBF.

Source: Declaration of John J Ray III in support of Chapter 11 petitions ("the Declaration"), 17 November 2022

Considerations for stakeholders (1/2)

	Corporate governance, compliance and risk management	Other
Regulators	• Active monitoring and review of licenced Centralised Crypto Finance ("CeFi") operators. • Review of regulations, oversight framework and licencing regime in light of FTX failings.	• Recruitment of blockchain subject matter experts to enable proactive monitoring of market developments and risks, including contagion events from FTX. • Crypto's cross sector and cross border nature limits the effectiveness of uncoordinated national approaches. Work with other regulatory authorities to develop a risk-based global regulatory framework and standards for CeFi.

CeFi operators	• Implement appropriate governance arrangements which factors segregation of duties, appropriate board composition, internal audit, etc.
	• Ensure appropriate policies and procedures are in place to segregate customer funds and company funds and that this is regularly monitored.
	• Effective cash management processes are also essential to ensure visibility and control over operational funds.
	• Review risk management framework in light of the issues leading to FTX's collapse (e.g. market risk, custody risk, technology/cyber risk, reputational risk, credit risk, etc).
	• Strengthen and enforce security protocols.
		• Consider approaches to give investors and customers confidence that these controls are robust, this may include:
		  ◦ on-chain proof of assets and liabilities
		  ◦ external audits by reputable firms
		  ◦ being licenced by reputable authorities
		• Don't use native assets as collateral.
		• Set up insurance fund/insurance to protect customer deposits in the event of loss.

Considerations for stakeholders (2/2)

	Corporate governance, compliance and risk management	Other

CeFi users	• Where assets are held with third parties consider if these operators:
	  • are licenced by an established regulatory authority
	  • provide proof of reserves and liabilities
	  • are audited by a reputable firm
	  • have deposit protection or an insurance fund mechanism
	• Consider diversification in custody arrangements to minimise counterparty exposure.
		• Consider cold-storage / self custody depending on level of sophistication and understanding.
		• Actively monitor market risk including contemplating the extent of possible contagion across: centralised crypto funds, CeFi, Decentralised Finance (“DeFi”) platforms and underlying crypto protocols.

CeFi investors	• Conduct comprehensive diligence on CeFi platforms where amounts invested are material, which contemplates matters such as their risk management framework and related party arrangements. • For existing portfolio companies consider conducting formal risk assessments to identify any deficiencies in their risk management framework, cyber security, management reporting, and/or vulnerabilities to bank style runs. • Attain a level of control at board level to ensure appropriate governance procedures are undertaken and decisions are made with suitable due process. Representative is most likely not required unless you have >50% holdings.	• Ensure blockchain subject matter experts are engaged to assist in due diligence. • Have sufficient warranty and legal protection terms in share purchase agreements. • Review crypto asset allocation framework / investment thesis in light of changed market dynamics and the probability of significantly increased levels of regulation across the crypto industry.

How KPMG can help – reviews of CeFi operators

Regulatory and Compliance

- Licensing services with applicable regulators in areas such as VATP/VASP, and STO issuance and assessments.
- Advice on compliance with key regulatory requirements including client asset custody and segregation, prevention of market manipulation, and token due diligence.
- Design and/or review internal regulatory reporting and compliance processes and controls.

Corporate Governance

- Design and/or review governance structures and frameworks on an enterprise-wide scale.
- Design effective three lines of defense structure with clear authorities and effective segregation of duties.
- Review and assess business activities for potential conflicts of interests, including fraud mitigation, and controls to prevent misuse of customer funds.

Risk Frameworks

- Design and/or review policies, procedures and controls, in areas including but not limited to operations, finance, risk management, legal and compliance.
- Contingency planning, recovery planning, and resolution planning services.

Risk Modelling

- Design and/or review risk models in areas of liquidity risk, interest rate risk, market risk, credit risk.
- Design and/or review stress and scenario tests.
- Risk modelling resource and capability assessment.
- Model governance and control assessment.

Due Diligence

- Pre- and post-investment Integrated Due Diligence services (capturing financial, technology, regulatory compliance, risk management, tax, forensics, HR and so on).
- On-chain validation of ownership and control of crypto assets

Balance Sheet Management

- Balance sheet review and optimization services.
- Hedging and insurance program effectiveness review.
- Collateral review and optimization services.

Internal Audit

- Assessment of level of adherence of BAU activities to policies, procedures, and industry best practices.
- Assessment of control implementation status and effectiveness.

Cyber Security

- Assessment of technology risk and security controls with reference to regulatory requirements, common security threats and industry best practices.
- Technical security review covering application security controls, configuration review, vulnerability assessment, penetration test and source code review.

Restructuring & insolvency implications of FTX's collapse (1/2)

Events over the last few weeks have shown just how quickly crypto-related businesses can fail. Management and investors therefore need to be aware of the various risks mentioned elsewhere in this document, but should also be able to identify warning signs that may indicate more serious issues are in play, and how to mitigate the risks indicated by these red flags.

Key takeaways for company management

- First and foremost, management, especially directors, must understand the duties that they owe to the legal entities over which they preside. These duties will vary jurisdiction by jurisdiction, but typically require management to adhere to a number of principles relating to sound financial stewardship of the legal entity for the benefit of the company as a whole. The concepts of balance sheet and cash flow insolvency apply irrespective of industry and legal jurisdiction. Management must also be aware that transactions processed in the days leading up to an insolvency event might be retrospectively challenged if the business is subsequently found to have been insolvent at the relevant time.
- Understanding of your liquid asset position in the event of customer withdrawals, whether this is in the form of crypto assets or cash that could be used to facilitate customer withdrawals. Knowledge of this position, and the additional capital required to cover a rapid increase in withdrawals is essential.
- The same applies to your operating cash position. Visibility and control over cash is critical when the economic situation darkens. This includes knowledge over key cash flow drivers, how much cash the business has and where it is, and an overview of facilities, headroom and sources of potential additional funding. Regular stress testing of the cash position should be undertaken in times of volatility.
- Given the relative infancy of regulations and the variance of the regulatory environment for crypto businesses across different markets, it is essential that management remain on top of developments in the regulatory position in the markets in which they operate.

Restructuring & insolvency implications of FTX's collapse (2/2)

Key takeaways for investors

- As part of your pre-investment due diligence, some knowledge of what would occur in the event of stress, distress or insolvency at the investee entity is key. The cross-border nature of the insolvencies that we have seen in the crypto industry to date, in which different courts are asserting jurisdiction over different entities within the same group, only increases the level of complication in what can be a very technical area. Appropriate legal advice, relevant contingency planning, and an understanding of what an investor's potential areas of real monetary recourse may be in the event of insolvency should all be factored in.
- In the event that Board seats are taken by investors, these should not be perceived simply as a tool to oversee an investment. Such positions carry a duty to the investee company as a whole (not just to the investor that director was nominated by), and directors will need to be aware of their responsibilities, as well as the need to be seen to be actively discharging those duties.
- A detailed legal review of the contracts under which crypto assets are held (either as a client or custodian) is a vital risk mitigation step. This would include an understanding of the governing law under which investments and or deposits will be treated in the event of an insolvency, and the likelihood of a investor / claimant having a proprietary or unsecured claim against a failed counter-party.

How can KPMG help?

If your business, an investee company or indeed a counter-party holding your crypto assets might potentially be in some form of stress or distress, KPMG's Restructuring professionals have the capability and experience, working alongside our crypto industry specialists, to perform detailed business reviews and options analyses to facilitate informed decision making in these fast moving situations.

Contacts

Barnaby Robson
Partner, Deal Advisory, Hong Kong
KPMG China
T: +852 2826 7151
E: barnaby.robson@kpmg.com

Patrick Cowley
Global Head of Restructuring
KPMG International
T: +852 2140 2836
E: patrick.cowley@kpmg.com

Paul McSheaffrey
Financial Services, Hong Kong
KPMG China
T: +852 6354 2237
E: paul.mcsheaffrey@kpmg.com

Tom Jenkins
Head of Financial Risk Management
KPMG China
T: +852 2143 8570
E: tom.jenkins@kpmg.com

Nigel Hobler
Partner, Tax, Hong Kong
KPMG China
T: +852 2978 8266
E: nigel.hobler@kpmg.com

Jianing Song
Head of Advisory, Hong Kong
KPMG China
T: +852 2978 8101
E: jianing.n.song@kpmg.com

Chad Olsen
Head of Forensic Services, Hong Kong
KPMG China
T: +852 3927 5576
E: chad.olsen@kpmg.com

Matthew Sung
Partner, Financial Services, Hong Kong
KPMG China
T: +852 3927 3008
E: matthew.sung@kpmg.com

Lanis Lam
Partner, Technology Consulting, Hong Kong
KPMG China
T: +852 3143 8803
E: lanis.lam@kpmg.com

Henry Shek
Partner, Technology Consulting, Hong Kong
KPMG China
T: +852 2143 8799
E: henry.shek@kpmg.com

Robert Zhan
Director, Financial Risk Management, Hong Kong
KPMG China
T: +852 2685 7305
E: robert.zhan@kpmg.com

Christopher Ball
Director, Deal Advisory, Hong Kong
KPMG China
T: +852 2140 2835
E: christopher.ball@kpmg.com

Jordan Sanders
Associate Director, Deal Advisory, Hong Kong
KPMG China
T: +852 2913 2552
E: jordan.sanders@kpmg.com

Marselinus Rahendra
Associate Director, Deal Advisory, Hong Kong
KPMG China
T: +852 2143 8550
E: marselinus.rahendra@kpmg.com

Glossary

BAU	Business-as-usual
BTC	Bitcoin
CeFi	Centralised crypto finance
DeFi	Decentralised finance
ETH	Ethereum
FTT	FTX token
OTC	Over-the-counter
SBF	Sam Bankman-Fried
SPA	Sales and purchase agreement
STO	Security token offering
UST	Terra USD
VASP	Virtual asset service providers
VATP	Virtual asset trading platform

References

1 The Epic Collapse of Sam Bankman-Fried's FTX Exchange: A Crypto Markets Timeline, CoinDesk, November 2022; https://www.coindesk.com/markets/2022/11/12/the-epic-collapse-of-sam-bankman-frieds-ftx-exchange-a-crypto-markets-timeline/

2 From powerhouse to plummeting: Here's a timeline of FTX's collapse, protocol, November 2022; https://www.protocol.com/fintech/ftx-collapse-timeline

3 FTX collapse timeline: Six days that rocked the crypto industry, THE BLOCK, November 2022; https://www.theblock.co/post/186132/ftx-collapse-timeline-six-days-that-rocked-the-crypto-industry

4 FTX Crash: Timeline, Fallout and What Investors Should Know, Nerdwallet, November 2022; https://www.nerdwallet.com/article/investing/ftx-crash

5 The rise and fall of crypto exchange FTX, The Indian Express, November 2022; https://indianexpress.com/article/explained/explained-sci-tech/timeline-rise-and-fall-of-crypto-exchange-ftx-8265537/

6 Blockchain Analysis: The Collapse of Alameda and FTX, Nansen, November 2022; https://www.nansen.ai/research/blockchain-analysis-the-collapse-of-alameda-and-ftx

7 Six Commitments for Healthy Centralized Exchanges, Binance, November 2022; https://www.binance.com/en/blog/from-cz/six-commitments-for-healthy-centralized-exchanges-2882536671495731236

8 Behind FTX's fall, battling billionaires and a failed bid to save crypto, Reuters, November 2022; https://www.reuters.com/technology/exclusive-behind-ftxs-fall-battling-billionaires-failed-bid-save-crypto-2022-11-10/

9 Declaration of John J Ray III in support of Chapter 11 petition, November 2022

10 Read the New FTX CEO's Declaration to Bankruptcy Court Here, The Wall Street Journal, November 2022; https://www.wsj.com/livecoverage/stock-market-news-today-11-17-2022/card/read-the-new-ftx-ceo-s-declaration-to-bankruptcy-court-here-E2XcdxLiQ7y3yW5PPx66

11 Despite Boasting Of Big Profits, FTX And Alameda Lost $3.7 Billion Before 2022, Forbes, November 2022; https://www.forbes.com/sites/jeffkauflin/2022/11/21/ftx-and-alameda-research-lost-37-billion-before-2022-bankruptcy-filing-shows/?sh=33c509162ce0

12 With A New CEO, An Adult Has Arrived To Clean Up The FTX Mess, Forbes, November 2022; https://www.forbes.com/sites/amyfeldman/2022/11/22/with-a-new-ceo-an-adult-has-arrived-to-clean-up-the-ftx-mess/?sh=301509155bd9

13 FTX's Lack of Balance Sheet, Messari, November 2022

14 FTX balance sheet, revealed, Financial Times, November 2022; https://www.ft.com/content/0c2a55b6-d34c-4685-8a8d-3c9628f1f185

15 Timeline of Cryptocurrency Exchange FTX's Epic Collapse, TheStreet, November 2022; https://www.thestreet.com/investing/cryptocurrency/timeline-of-cryptocurrency-exchange-ftxs-epic-collapse

16 The Fall of FTX and Sam Bankman-Fried: A Timeline, CNET, November 2022; https://www.cnet.com/personal-finance/crypto/the-fall-of-ftx-and-sam-bankman-fried-a-full-timeline-of-events/

17 The fall of the FTX 'King of Crypto' Sam Bankman-Fried, BBC, November 2022; https://www.bbc.com/news/technology-63612489

18 @mrjasonchoi, Twitter, November 2022; https://twitter.com/mrjasonchoi/status/1592502785873825794

19 CZ AMA – Nov 14, Twitter, November 2022; https://twitter.com/cz_binance/status/1592173544888324098

20 @FTX_Official, Twitter, November 2022; https://twitter.com/FTX_Official

Some or all of the services described herein may not be permissible for KPMG audit clients and their affiliates or related entities.

kpmg.com/socialmedia