

Case Report

The Rise and Fall of FTX

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The abrupt downfall of Futures Exchange (FTX) has sent shockwaves throughout the cryptocurrency industry. In this case report, we delve into the causes and consequences of the crisis at the FTX exchange, examining the precarious relationship with Alameda that sowed the seeds of danger. The extensive lending of money to Alameda, using FTX's own token as collateral, gave rise to a death spiral, a destructive interplay between FTX's assets and liabilities. While the repercussions of the event extended to other crypto related entities, the fallout was predominantly contained within the crypto sector. We conclude with a discussion on the future regulatory landscape and its implications for the industry.

Key words: CeFi, Cryptocurrency, FinTech, Regulation, Run.

INTRODUCTION

In this case report, we dissect the rise and precipitous fall of Futures Exchange (FTX), a leading cryptocurrency derivatives exchange. The narrative centers around its genesis in 2019, spearheaded by Sam Bankman-Fried and Gary Wang, its rapid ascent within the crypto exchange landscape, and the subsequent unraveling of its operations following a series of unsettling revelations and a run on the exchange. The study meticulously charts FTX's journey, drawing on a series of pivotal events and decisions that culminated in the exchange's voluntary initiation of Chapter 11 proceedings, and the consequential ripple effects that reverberated through the crypto industry.

To offer a comprehensive understanding of the multifaceted issues surrounding the fall of FTX, the study delves into the causes and consequences of the collapse. It scrutinizes the unsound fundamentals of FTX, the mechanics of a classical bank run, and the interplay between FTX's assets and liabilities. In its aftermath, the case study analyzes the spill-over effects that disrupted the cryptocurrency market, affecting individual cryptocurrencies, other crypto exchanges, and crypto-related companies. The study concludes with an outlook on the expected regulatory changes in the wake of FTX's collapse. Through the lens of FTX, this case study offers insightful lessons for navigating the uncharted waters of the

crypto industry, especially concerning the current practice of Centralized Finance (CeFi) and the problem of vertical integration.

CASE PRESENTATION

Rise of FTX

FTX, short for "Futures Exchange," is a cryptocurrency derivatives exchange founded in May 2019 by Sam Bankman-Fried and Gary Wang (<https://www.reuters.com/article/fintech-crypto-ftx-idUSL1N333000>). Prior to establishing FTX, Bankman-Fried founded Alameda Research, a highly profitable crypto trading firm, in September 2017. From its inception, FTX garnered significant attention from investors, thanks to its founder's impressive entrepreneurial track record, academic background, and work experience. FTX attracted top-tier venture capital investors, high net worth individuals, and strategic partners. In November 2019, Changpeng Zhao (CZ) of Binance acquired a 20% stake in FTX. By 2022, FTX had risen to become the third-largest crypto exchange, offering an extensive array of products such as its native currency FTT, major cryptocurrencies, and derivative products. Alameda Research has maintained a crucial relationship with FTX since its beginning, primarily serving as a market maker.

Run on the exchange

On November 2nd, CoinDesk published a report on a leaked

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balance sheet (Figure 1), indicating that Alameda Research, Sam Bankman-Fried's crypto trading firm, heavily relied on FTX's native token, FTT. This revelation led to a series of events, with Binance CEO Changpeng Zhao announcing on November 6th the firm's intention to liquidate its FTT holdings due to unspecified "recent revelations." In response, Bankman-Fried reassured the public on November 7th that "FTX is fine. Assets are fine."

However, by November 8th, FTX had experienced approximately \$6 billion in withdrawals within the previous 72 hours, as reported by Reuters. Binance also unveiled plans to acquire FTX on the same day, but it backed away from a nonbinding agreement to bail out FTX by November 9th. Consequently, on November 10th, FTX suspended onboarding new clients and withdrawals until further notice. Bankman-Fried informed staff that he was seeking capital, having held talks with Justin Sun, founder of the crypto token Tron. Reuters reported that Bankman-Fried aimed to assemble a rescue package worth up to \$9.4 billion for FTX.

On November 11th, FTX, its US unit, Alameda Research, and nearly 130 other affiliates initiated voluntary Chapter 11 proceedings in the United States. Subsequently, Bankman-Fried resigned as CEO. The following day, Reuters reported that at least \$1 billion of customer funds had vanished from FTX. FTX also stated that it had detected unauthorized transactions, with block-chain analytics firms estimating outflows between \$473-659 million in "suspicious circumstances." On November 13th, the Bahamas securities regulator launched a probe into the collapse of FTX, and by November 14th, U.S. prosecutors in New York were also investigating FTX's downfall. Sam Bankman-Fried was arrested in the Bahamas on December 12th.

On December 13, 2022, the SEC filed a formal complaint against Sam Bankman-Fried, accusing him of misappropriating funds, concealing crucial information from investors and customers, and withdrawing money for personal use. These events surfaced after the CoinDesk report revealed that a significant portion of Alameda's assets consisted of FTTs and that FTX used FTT as collateral on their leaked balance sheet. This situation led to a conflict of interest between the two firms,

as previously suggested by a Bloomberg article.

RESULTS

Causes and consequences

Several factors have contributed to the collapse of FTX:

- 1. Unsound fundamentals:** FTX's financials may have already been in trouble, particularly after lending money to Alameda Research to cover its losses. According to the bankruptcy filings, FTX lacked a robust internal control system and failed to adequately track funds.
- 2. Lack of regulation and monitoring on the vertical integration of centralized crypto exchanges:** because of the nascent nature of the cryptocurrency market, many centralized crypto exchanges serve multiple roles, including custodian, brokerage, lender, and exchange for trading cryptocurrencies. As pointed out as early as 2019, the unregulated vertical integration allows centralized exchanges to manipulate transaction volumes and conduct activities traditionally deemed illegal in other asset markets (Cong et al., 2022).
- 3. Classical bank run mechanism:** Even if FTX's balance sheet remained sound, the exchange could still face a crisis if everyone believed it was in trouble. As long as FTX lacked sufficient liquidity, it was vulnerable to collapse. The coordination of market participants' belief becomes especially important in new markets under high uncertainty (Diamond et al., 1983).
- 4. Interaction between assets and liabilities:** A significant portion of FTX's assets and collateral consisted of its native token, FTT (Figure 1). A decline in the value of FTT would adversely impact the value of its assets. As more customers withdrew their funds, FTX's financial health deteriorated, causing further declines in the FTT price and a subsequent decrease in FTX's asset value (Levine, 2022).

The collapse of FTX has contagion effect to the crypto

Liabilities		Assets		Less liquid	5,449,513,085	15,415,519,517	Illiquid	3,232,059,943	3,223,752,915
Ticker	Liability	Liquid	Deliverable now	Before this week	FTT	Deliverable	Before this week	Deliverable	Before
Layer Zero	-45,000,000	HOOD	472,291,833	579,183,274	SRM	2,187,876,172	5,430,110,335	GOA	1,150,000,000
EUR	-114,536,254	USD in Ledger Prime	200,000,000	200,000,000	SOL	981,902,267	2,245,516,953	Anthropic	500,000,000
Genesis	-200,000,000	USDB	73,223,641	73,223,641	MAPS	616,372,827	865,376,279	PYTH	63,766,000
BlockFi	-215,000,000	DAI	28,491,686	28,464,601	Locked USDT	500,000,000	500,000,000	TWTR	43,293,943
USDT	-796,482,404	DCOT	28,384,450	32,522,098	OWY	54,008,094	100,105,976	TRUMPLOSE	7,394,877
ETH	-671,542,668	PAXG	23,767,062	23,244,430	STB	-45,511,034	66,499,913		
BTC	-1,412,738,406	JPY	21,758,186	21,978,251	ETHE	53,155,549	64,420,529		
USD	-5,135,280,129	TUSD	15,991,381	16,034,265	FIDA	36,492,962	62,127,831		
Other	-268,462,711	EURT	12,117,879	11,847,808	MSOL	26,527,697	60,394,582		
		BRZ	9,049,093	8,708,731	ASD	33,946,248	49,967,401		
		BRL	7,017,295	6,753,417	BITW	26,527,697	31,939,957		
		WXPRT	6,987,896	9,298,681	Others	17,860,159	29,105,657		
		PAX	1,000,714	1,002,277	GBTC	3,304,945	4,387,143		
					APT	312,092,943	267,602		

Hidden, poorly internally labeled "fi" -8,000,000,000

Withdrawals on Sunday 5,000,000,000

There were many things I wish I could do differently than I did, but the largest are represented by these two things: the poorly labeled internal bank-related account, and the size of customer withdrawals during a run on the bank

	Liabilities	Liquid	Less Liquid	Illiquid	Liabilities+Liquid without fiat@	Total	Actual leverage	Perceived leverage	short term deliverability vs demand	Acute Fear
Today's prices	-8,859,042,572	899,859,124	5,449,513,085	3,232,059,943	40,816,552	722,389,579	12.02x	3.60x	Normal	0.20x
October's prices	-8,859,042,572	1,012,262,574	15,415,519,517	3,223,752,915	153,220,002	10,792,492,434	1.73x	4.05x	Acute Fear	0.23x
Before Sunday	Today's prices	-13,859,042,572	5,899,859,124	5,449,513,085	3,232,059,943	40,816,552	722,389,579	12.02x	23.60x	0.85x
\$5b of withdrawals	October's prices	-13,859,042,572	6,012,262,574	15,415,519,517	3,223,752,915	153,220,002	10,792,492,434	1.73x	24.05x	0.87x

Figure 1. Balance Sheet of FTX **Note:** all of these are rough values, and could be slightly off; there is also obviously a chance of typos etc. They also change a bit over time as trades happen (Natan et al., 2022).

currencies and other crypto exchanges. The prices of crypto currencies dropped immediately. Bitcoin sank to its lowest price in two years. The cryptocurrencies, including Bitcoin and Ethereum, had a large drop in prices. The price of Solana, to which Bankman-Fried has close connections, declined substantially. Share prices for publicly traded cryptocurrency companies declined, e.g., Coinbase. Moreover, crypto exchanges other than FTX also saw big withdrawals, especially for smaller exchanges.

DISCUSSION

The collapse of FTX had a spillover effect on other crypto-related companies, with events unfolding in chronological order. On November 14th, BlockFi, a cryptocurrency lender, disclosed its “significant exposure” to FTX. The company subsequently filed for Chapter 11 bankruptcy protection on November 28th. On November 16th, another cryptocurrency lender, Genesis, a subsidiary of Digital Currency Group, halted withdrawals. This development led Gemini, an exchange owned by the Winklevoss twins, to cease allowing redemptions for clients using a service provided through a partnership with Genesis. Meanwhile, Grayscale, another subsidiary of Digital Currency Group, experienced a decline in the value of its flagship offering, the publicly traded Grayscale Bitcoin

Trust. The trust’s value decreased by 20% over the two weeks preceding November 17th, and as of November 14th, Grayscale Bitcoin Trust was trading at a discounted price, 42% below the value of its Bitcoin holdings.

Nevertheless, unlike the banking crisis (esp. Great Finance Crisis in 2008), the contagion is limited to crypto industry and does not spillover to the real economy per se, due to the limited exposure of the real economy to the crypto and crypto industry (Gorton et al., 2023).

Regulation outlook

Figure 2 summarizes the current regulation landscape on crypto in major countries. In the United States, the regulatory landscape surrounding cryptocurrency and crypto assets is multifaceted yet segmented, with various federal agencies maintaining jurisdiction over different aspects of the industry. The Securities and Exchange Commission (SEC) regards cryptocurrencies as securities, thus subjecting them to securities laws and regulations. Concurrently, the Commodity Futures Trading Commission (CFTC) classifies “bitcoin and other virtual currencies” as commodities, overseeing the trading of cryptocurrency derivatives accordingly (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0593>).

		Legal status and regulation of digital assets	Regulation of cryptocurrency exchanges
Americas	The Bahamas	<ul style="list-style-type: none"> The Government does not recognize cryptocurrencies or digital assets as legal tender. Digital assets are regulated by the Securities Commission of the Bahamas (SCB) under the Digital Assets and Registered Exchanges Act (DARE). 	<ul style="list-style-type: none"> Exchanges, classified as “digital asset businesses”, are also regulated under DARE. DARE stipulates who may participate in the digital assets space. Exchanges must have appropriate internal controls and a risk framework in place, meet a minimum level of capital, strictly adhere to anti-money laundering and counter-terrorist financing (AML/CFT) laws, and maintain appropriate record-keeping measures of clients’ information and digital asset holdings.
	Canada	<ul style="list-style-type: none"> Cryptocurrencies are not considered legal tender. Cryptocurrencies are primarily regulated under provincial- and territorial-level securities laws. In August 2017, the Canadian Securities Administrators (CSA) issued a notice on the applicability of securities laws to cryptocurrencies. The Canada Revenue Agency (CRA) taxes cryptocurrencies. 	<ul style="list-style-type: none"> All cryptocurrency exchanges are required to register with the Financial Transactions and Reports Analysis Centre of Canada (FinTRAC). Crypto exchanges are regulated in the same way as money services businesses. Pursuant to a 2019 amendment to the Proceeds of Crime (Money Laundering) and Terrorist Financing Act (PCMLTFA), they are subject to the same due diligence and reporting requirements. All financial institutions and money services businesses are required to keep a record of all cross-border crypto transactions under the Virtual Currency Travel Rule.
	LatAm	<ul style="list-style-type: none"> Stances toward cryptocurrency run the gamut across Latin America. Cryptocurrencies are banned in Bolivia, while bitcoin is considered legal tender in El Salvador. Across the rest of the region, cryptocurrencies are primarily considered assets, and in some places subject to capital gains and income tax. 	<ul style="list-style-type: none"> Cryptocurrency exchange regulations vary by country, and many countries have yet to formally regulate crypto exchanges. Mexico regulates exchanges through the Law to Regulate Financial Technology Institutions (LRITF), which imposes registration and reporting requirements.
	United States	<ul style="list-style-type: none"> The Financial Crimes Enforcement Network (FinCEN) doesn’t consider crypto legal tender. The Internal Revenue Service (IRS) has issued tax guidance on cryptocurrencies based on their status as “a digital representation of value that functions as a medium of exchange, a unit of account, and/or a store of value”. The Securities and Exchange Commission (SEC) considers cryptocurrencies to be securities, meaning that securities laws should apply. The Commodity Futures Trading Commission (CFTC) considers “bitcoin and other virtual currencies” to be commodities and regulates the trading of cryptocurrency derivatives. 	<ul style="list-style-type: none"> Cryptocurrency exchanges (which FinCEN considers “money transmitters”) are legal and fall under the regulatory scope of the Bank Secrecy Act (BSA), which means that cryptocurrency exchange service providers must register with FinCEN, implement an AML/CFT program, maintain appropriate records, and submit reports to the authorities. FinCEN also requires that exchanges comply with the Travel Rule, gathering and sharing information about the originators and beneficiaries of all cryptocurrency transactions over a certain monetary threshold.
Europe	EU	<ul style="list-style-type: none"> The EU’s 5th Anti-Money Laundering Directive (5AMLD) was the first to bring cryptocurrency providers under regulatory supervision, stating that all member states must document the identities and addresses of all digital asset owners; the 6th Anti-Money Laundering Directive (6AMLD) toughened those regulations. In Oct 2022, the European Council approved the Markets in Crypto Assets (MiCA) law, a comprehensive set of rules for crypto assets that focuses on money laundering, consumer protection, accountability, and environmental impact (the law has yet to be approved by the European Parliament and will not cover crypto assets regulated under existing regulations). 	<ul style="list-style-type: none"> Cryptocurrency exchanges are currently not regulated at the EU level, although exchanges must comply with EU AML laws under 5AMLD and 6AMLD. In certain member states, exchanges must register with the respective national authorities (the Financial Supervisory Authority in Germany, the Ministry of Finance in Italy, etc.) If and when MiCA is passed into law, it will subject crypto exchanges to consumer protection, transparency, and governance standards, and hold exchanges responsible for the loss of customer assets due to fraud, cyberattack, or negligence.
	Switzerland	<ul style="list-style-type: none"> Cryptocurrencies are categorized as assets, and are subject to wealth tax by the Swiss Federal Tax Administration (SFTA). The Swiss Financial Market Supervisory Authority (FINMA) oversees all crypto and digital assets regulation. The town of Zug allows council services and taxes to be paid in cryptocurrency. 	<ul style="list-style-type: none"> Cryptocurrency exchanges must obtain a license from FINMA to operate. To obtain the license, firms must be authorized to conduct business in the country, set internal regulations in accordance and fully comply with the Anti-Money Laundering Act (AMLA), and establish an appropriate organizational structure.
	United Kingdom	<ul style="list-style-type: none"> The Financial Conduct Authority (FCA) currently has oversight to ensure that crypto firms have effective AML and terrorist financing procedures in place, but crypto assets themselves are generally not regulated. Security tokens (tokens with specific characteristics that provide rights and obligations akin to specified investments) are the only regulated crypto asset. The Advertising Standards Agency (ASA) regulates the promotion of crypto assets. 	<ul style="list-style-type: none"> Cryptocurrency exchanges must register with the FCA and comply with AML/CFT reporting obligations.
Asia-Pacific	Australia	<ul style="list-style-type: none"> Cryptocurrencies and digital assets are currently regulated by the Australian Securities and Investments Commission (ASIC) within the scope of its existing regulatory framework. For tax purposes, crypto assets are not considered a form of money. Crypto assets are subject to capital gains taxes. 	<ul style="list-style-type: none"> Crypto exchanges operating in the country are required by the Australian Transaction Reports and Analysis Centre (AUSTRAC) to register, identify and verify users, maintain records, and comply with AML/CFT reporting mandates. An Oct 2021 report from the Senate Select Committee has proposed a new licensing regime for crypto exchanges in an effort to better regulate the purchase and sale of crypto assets by consumers (the bill has not yet been adopted into law).
	China	<ul style="list-style-type: none"> All cryptocurrency transactions are illegal in China. 	<ul style="list-style-type: none"> Cryptocurrency exchanges and the purchase and sale of virtual currencies are currently illegal.
	India	<ul style="list-style-type: none"> Cryptocurrencies are not considered legal tender, but their status is otherwise unclear; India currently neither bars nor permits investments in the cryptocurrency market. 	<ul style="list-style-type: none"> In 2018, the RBI banned financial institutions from “dealing with or settling virtual currencies”, but in 2020 the Supreme Court lifted the ban after declaring it unconstitutional.
	Japan	<ul style="list-style-type: none"> Cryptocurrency and utility tokens are regulated as crypto assets under the Payment Services Act (PSA). Security tokens are regulated under the Financial Instruments and Exchange Act (FIEA). The FIEA also regulates crypto asset derivatives transactions. 	<ul style="list-style-type: none"> Pursuant to the PSA, exchange service providers must be registered with the Financial Services Agency (FSA), with a minimum capital requirement, satisfactory organizational structure and operational systems, and comply with AML/CFT laws and cybersecurity requirements. Crypto exchanges must ensure the safe management of information, provide sufficient information to and protect customers, and properly segregate customer funds.

Figure 2. Summary of Current Regulations on Crypto **Note:** Table doesn’t constitute an exhaustive list of all countries/regions that regulate crypto (Natan et al., 2022).

Furthermore, cryptocurrency exchanges, which the Financial Crimes Enforcement Network (FinCEN) deems “money transmitters,” fall under the purview of the Bank Secrecy Act (BSA) (<https://www.ft.com/content/0c2a55b6-d34c-4685-8a8d-3c9628f1f185>).

CONCLUSION

The European Union (EU) has been increasingly vigilant in addressing the regulatory concerns surrounding cryptocurrency and crypto assets. In September 2020, the EC published its legislative proposal for a regulation on markets in crypto assets (MiCA), which is intended to create a holistic approach to the regulation and supervision of crypto-asset activities that are not already covered by EU law. If MiCA becomes law, it will subject crypto exchanges to heightened consumer protection, transparency, and governance standards. Additionally, the law will hold exchanges accountable for the loss of customer assets due to fraud, cyberattack, or negligence, ensuring a safer and more secure environment for cryptocurrency transactions in the EU. In the aftermath of FTX collapse, the regulations on crypto industry are expected to become tighter.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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