IS4302
Blockchain and Distributed Ledger Technology

Lecture 10
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National University of Singapore

Overview

- **FTX's business model**
  - Derivatives
  - Derivatives Trading on Crypto

- **FTX's collapse**

FTX Origin Story

- **FTX is a cryptocurrency exchange platform headquartered in the Bahamas but incorporated in Antigua and Barbuda. The platform was founded by Sam Bankman-Fried (SBF) in 2019.**
- **While studying at MIT, Bankman-Fried stumbled upon the philosophy of effective altruism.**
- **He decided to devote his life to earning money for the express purpose of giving it away to those in need.**
- **He started trading Bitcoin and earning arbitrage profit between American and Japanese exchanges.**

FTX Origin Story

- **This income was then used to found Alameda Research, a quantitative trading firm moving as much as $25 million in Bitcoin daily.**
- **At that time, crypto trading were mostly designed for inexperienced retail traders, most only allowed the buying and selling of cryptocurrencies.**
- **That leads to the launching of FTX in June 2019, a platform now known for offering more sophisticated derivative products including futures, options, and tokenized stocks that track the value of real shares in companies such as Tesla and BioNTech.**

Derivatives

- **Derivatives are financial contracts, set between two or more parties, that derive their value from an underlying asset, group of assets, or benchmark.**

- **Prices for derivatives derive from fluctuations in the underlying asset.**

- **Derivatives are usually leveraged instruments, which increases their potential risks and rewards.**

Futures

- **A futures contract, or simply futures, is an agreement between two parties for the purchase and delivery of an asset at an agreed-upon price at a future date.**
- **E.g., Company A buys a futures contract for oil at a price of $60 per barrel that expires 6 months later. The company does this because it needs oil 6 months later and is concerned that the price will rise before the company needs to buy.**
- **Buying an oil futures contract hedges the company's risk because the seller is obligated to deliver oil to Company A for $60 per barrel once the contract expires**

Futures

- **The seller could be an oil company concerned about falling oil prices that wanted to eliminate that risk by selling this option.**

- **The seller could also be a speculator believing that the oil price will be lower than $60 per barrel 6 months later.**

Options

- **An options contract is similar to a futures contract in that it is an agreement between two parties to buy or sell an asset at a predetermined future date for a specific price.**

- **The key difference between options and futures is that with an option, the buyer is not obliged to exercise their agreement to buy or sell.**

- **Options may be used to hedge or speculate on the price of the underlying asset.**

Options

- **Imagine you owns 100 shares of a stock worth $50 per share. You believe the stock's value will rise in the future.**

- **However, you are concerned about potential risks and decides to hedge your position with an option.**

- **You could buy a put option that gives you the right to sell 100 shares of the underlying stock for $50 per share at a specific date.**

- **Assume the option costs you $200.**

Options

- **If the stock falls in value to $40 per share, you lose $200 instead of 100*($50-$40)=$1000 from this investment.**
- **If the stock goes up in value, you will not execute the option, and earn $200 less.**
- **The seller, again, could be also hedging, or speculating.**
- **The seller needs to provide collaterals to make sure the option can be executed if needed.**

Derivatives

- **Derivatives can be used to either mitigate risk (hedging) or assume risk with the expectation of commensurate reward (speculation).**
  - Risk of commodities, exchange rate, interest rate,…

- **Derivatives can move risk (and the accompanying rewards) from the risk-averse to the risk seekers.**

- **A derivative trade may not be zero-sum in terms of utility, but is zero-sum in terms of money.**

Derivatives Trading on Crypto

- **Can serve for hedging and speculation**
  - currently mainly speculation

- **Extremely risky**
  - cryptos are already risky

- **Collateral evaluation is more challenging**
  - Oracle for asset price needed
  - High corelation between asset price

- **https://help.crypto.com/en/articles/4894452-getting-started-with-derivatives-trading**

FTX's source of revenue

- **Most revenue is derived from trading fees, with the company utilizing a tiered structure as follows:**
  - Tier 1 – 0.020% maker fee and 0.070% taker fee.
  - Tier 2 (30-day volume over $2 million USD) – 0.015% maker fee and 0.060% taker fee.
  - Tier 3 (30-day volume over $5 million) – 0.010% maker fee and 0.055% taker fee.
  - …

FTX's source of revenue

- **Loans: For its most sophisticated traders that meet certain criteria, FTX will extend a line of credit.**
  - The company collects interest on these loans, with the interest rate likely to be dependent upon the prior trading performance of the entity and how much collateral they can access.
- **NFT fees**
  - FTX NFTs is an NFT marketplace launched in September 2021 and built on the Solana blockchain.
  - Here, the company makes money by charging a 5% fee to both the buyer and the seller on each trade or sale.

FTX's source of revenue

- **Investments**
  - FTX has made several investments in other related start-ups.
  - In many cases, FTX sells the investment at a later date for a profit. In the interim, it collects valuable user data that guides its expansion or product development strategies.
- **Interchange and payment fees**
  - Like many neobanks and related organizations, FTX makes money on interchange fees.
  - These fees are paid by the merchant to FTX whenever a customer uses its branded debit card to make a purchase.
  - Note that FTX has to share this fee with the card issuer Visa.

FTX’s business model

- **Derivative trading makes sense**
  - Although the social consequence is unclear
  - There is a significant market for it
  - Potentially, the nature of smart contracts can make derivatives more complicated compared to traditional financial markets.
- **Other revenue sources are also reasonable.**
- **No surprise FTX was very successful, a sign of which was its ad on the super bowl: https://www.youtube.com/watch?v=hWMnbJJpeZc**
- **It’s not the business model’s problem**

Overview

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- **FTX's collapse**

The main players

- **Sam Bankman-Fried (SBF): The son of two Stanford law professors, Bankman-Fried founded the trading firm Alameda Research in 2017, a few years after graduating from MIT. In 2019, he co-founded FTX, which rode a bull market for crypto to an $18 billion valuation in July 2021, securing investments from the likes of Softbank.**
- **He had an outsized presence on Capitol Hill as the second largest donor to Democratic politicians in recent years, testifying before Congress about crypto and even putting forth his own suggested draft of potential regulations for the industry just last year.**

The main players

- **Alameda Research: The trading firm was started in 2017 by SBF and Tara Mac Aulay, who was running the Center for Effective Altruism at the time.**
- **The firm saw early success arbitraging the price of bitcoin between different markets. As it grew, it ventured into other sorts of trades and made dozens of investments into crypto projects. That includes a sizable influence in Solana, a blockchain created by an ex-Qualcomm engineer to compete with Ethereum.**
- **The relationship between Alameda and FTX had been a popular subject of speculation before beginning to leak late last year.**

The main players

- **Binance/CZ: Founded by Changpeng Zhao (CZ), Binance is the world's largest cryptocurrency exchange by a significant amount following the collapse of FTX.**
- **CZ was an early investor in FTX, but the relationship reportedly soon soured, and his stake in the company was sold back in 2021.**
- **CZ's familiarity with FTX and SBF played a pivotal role in triggering the current debacle.**

The timeline

- **May to July 2022: A series of crypto collapses, led by Terra-Luna, trigger a wave of bankruptcies among crypto lenders like Celsius, BlockFi and Voyager.**

- **FTX moves to bail out BlockFi with the option to buy the New Jersey-based company and to acquire the assets of Voyager. The investments appear to cement FTX as one of the strongest players in a disordered crypto universe.**

The timeline

- **Nov. 2, 2022: Leaked financials from Alameda Research show that the suspected cozy relationship between the trading firm and FTX is even closer than many thought, with a large amount of the trading firm's assets held in the FTX native token FTT.**

- **Essentially, billions of Alameda's value can be traced to a cryptocurrency that sister company FTX creates. Each FTT token was worth around $25.50 at the time.**

The timeline

- **Nov. 6: CZ announces Binance will sell off its substantial holdings of FTT.**

- **Fifteen minutes later, Ellison (CEO of Alameda Research) responds that Alameda would like to buy the tokens from Binance at $22 each.**

- **The price of the token begins to fluctuate almost immediately, dropping up to 10% and dipping below $22 for periods the same day.**

Binance/CZ's tweets

CZ 🔶 Binance
@cz_binance

As part of Binance's exit from FTX equity last year, Binance received roughly $2.1 billion USD equivalent in cash (BUSD and FTT). Due to recent revelations that have came to light, we have decided to liquidate any remaining FTT on our books. 1/4

11:47 PM · Nov 6, 2022

4,786 Retweets **3,058** Quotes **23.4K** Likes **784** Bookmarks

Binance/CZ’s tweets

CZ 🔶 Binance @cz_binance · Nov 6, 2022

Replying to @cz_binance

We will try to do so in a way that minimizes market impact. Due to market conditions and limited liquidity, we expect this will take a few months to complete. 2/4

1 604 4,623

CZ 🔶 Binance @cz_binance · Nov 6, 2022

Binance always encourages collaboration between industry players. Regarding any speculation as to whether this is a move against a competitor, it is not. Our industry is in it’s nascency and every time a project publicly fails it hurts every user and every platform. 3/4

3 494 5,660

CZ 🔶 Binance @cz_binance · Nov 6, 2022

We typically hold tokens for the long term. And we have held on to this token for this long. We stay transparent with our actions. 4/4

11 547 6,053

The timeline

- **Nov. 8: The price of FTT craters to less than $6, and CZ reveals that Binance has entered into a nonbinding agreement to purchase FTX completely. Crucially, the buyout depends on a due diligence check of FTX's financials.**

- **Nov. 9: Bloomberg reports federal agencies in the US are investigating FTX. A Binance spokesperson tells reporters: "As a result of corporate due diligence, as well as the latest news reports regarding mishandled customer funds and alleged US agency investigations, we have decided that we will not pursue the potential acquisition of FTX.com."**

The timeline

- **Nov. 10: SBF announces that Alameda Research will shut down. Regulators in the Bahamas freeze FTX assets. The entire staff of the Effective Altruism-inspired FTX Future Fund, which had committed $160 million in funds to various projects, resigns.**

- **Nov. 11: FTX, FTX.us, Alameda and dozens of subsidiaries file for bankruptcy in the US. SBF resigns as CEO and is replaced by John J. Ray III, who famously oversaw the liquidation of Enron. Late in the day, FTX is hacked and over $300 million is moved off the exchange. FTX advises users to delete its mobile app. SBF later blames an "ex-employee, or malware on an ex-employee's computer" for the theft.**

The timeline

- **Nov. 13: Reuters reports that SBF secretly moved $10 billion in funds to trading firm Alameda and between $1 billion and $2 billion in client money is unaccounted for.**

- **The Reuters’ report said that the FTX legal and finance teams also learned that SBF implemented what is described as a "backdoor" in FTX's book-keeping system, which was built using bespoke software.**

The timeline

- **They said the "backdoor" allowed SBF to execute commands that could alter the company's financial records without alerting other people, including external auditors.**

- **This set-up meant that the movement of the $10 billion in funds to Alameda did not trigger internal compliance or accounting red flags at FTX, they said.**

The timeline

- **Nov. 15: A class action lawsuit is filed in Florida against FTX and a number of celebrity "brand ambassadors," including Larry David, Tom Brady, Gisele Bundchen, Kevin O'Leary, Naomi Osaka, Shaquille O'Neal and Stephen Curry, alleging deception of consumers.**

- **Nov. 16: The US House Financial Services and Senate Banking committees announce they will hold hearings into the implosion of FTX in December. SBF tells Vox via Twitter DMs he regrets filing for bankruptcy and still hopes to raise $8 billion to make all FTX customers whole.**

The timeline

- **Nov. 17: In a bankruptcy court filing, new FTX CEO Ray says: "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. From compromised systems integrity and faulty regulatory oversight abroad, to the concentration of control in the hands of a very small group of inexperienced, unsophisticated and potentially compromised individuals, this situation is unprecedented."**

The timeline

- **Nov. 30 to Dec. 11: SBF conducts an all-out media blitz, making virtual appearances live at the New York Times' DealBook conference, on marathon Twitter Spaces, crypto podcasts and granting interviews to a wide range of outlets from major media brands to little known YouTubers. He consistently paints himself and his actions running FTX as naive at best and negligent at worst, but continues to deny allegations of deliberate wrongdoing.**

- **"Look, I screwed up. I was the CEO of FTX, that means I was responsible," he told The New York Times on Nov. 30. "We messed up big."**

The timeline

- **Dec. 12: Shortly before he is expected to travel to the US to testify before Congress, SBF is arrested in the Bahamas after the US notified that country's government that it had filed fraud charges against Bankman-Fried and would seek his extradition. SBF is denied bail and sent to the island nation's notorious Fox Hill prison.**

- **Dec. 21: Carolyn Ellison and FTX co-founder Gary Wang plead guilty to charges including wire fraud, securities fraud and commodities fraud. SBF continues to maintain his innocence.**

The timeline

- **Dec. 22: SBF is released from a Manhattan courthouse to the custody of his parents on $250 million bail.**

- **Jan. 3: Bankman-Fried returns to court in New York to plead not guilty.**

- **Feb. 23: An unsealed indictment against SBF reveals that Bankman-Fried is facing a handful of additional charges, including bank fraud and operating an unlicensed money transmitter. He now faces up to 12 counts of the various charges in a trial expected to start in October.**

My comments on the collapse of FTX

- **Could be a very straightforward financial fraud.**
- **So straightforward that it is imaginable in a traditional, highly regulated, financial institution.**
- **Regulations are necessary and now in huge demand for the crypto world.**
- **But, how?**
  - E.g., how to evaluate FTT?

Thank you!

References: https://www.cnet.com/personal-finance/crypto/the-fall-of-ftx-and-sam-bankman-fried-a-full-timeline-of-events/
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