

What Is Terra?

Terra is a stablecoin built by Terraform Labs, a Seoul, South Korea based company that was founded in 2018 by Daniel Shin and Do Kwon, originally backed by crypto investors such as Hashed, Polychain, 1kx and Passport Capital.

Terra is a standalone Tendermint based blockchain that supports a number of pegged stablecoins, the largest of which is TerraKRW. Terra usage is increasing as a result of the company's Chai payment app, which has grown to become a top 5 'Finance' category app in Korea. Thanks to Chai, Terra now has over 2.1m users, with 65k daily actives, and 265k weekly actives, and is on pace for \$3.2bn in annual transaction volume. The Chai app is becoming increasingly popular with South Korean merchants, as it affords them faster settlement, and lowers their transaction costs by as much as 50%, and 40% on average.

Since its founding, the vision for Terra was to become a blockchain for financial application, and in recent months this vision is finally coming to fruition with the launch of Anchor, a savings app giving users easy access to yields from Proof of Stake protocols, and Mirror, a synthetic assets protocol.

Terra & Luna Mechanics

How does the peg work?

In the Terra system, Luna is the reserve currency that is staked in order to be eligible to be a block producer, and thus receive a portion of network fees generated from Terra transactions.

The supply of both Terra and Luna is free-floating, while the price of each Terra currency is meant to be pegged to its fiat counter-part. The mechanism that keeps the peg is as follows:

When the price of 1 TerraKRW < 1 KRW, anyone can send 1 TerraKRW to Terra's smart contracts, the system will then mint 1 KRW worth of Luna, and send it to the user.

When the price of 1 TerraKRW > 1 KRW, anyone can send 1 KRW's worth of Luna to Terra's smart contracts, and receive 1 TerraKRW. A portion (currently 50%) of Luna collected by the smart contract is burned which contracts supply, and the remainder is held by Terra's governance contracts to fund on-chain subsidies and grants, which reduces the size of the float.

Thus when Terra currencies trade below the peg, the mechanism is designed to contract the supply of that currency, and to do so, it expands the supply of Luna. When Terra currencies trade above the peg, the mechanism expands the supply of Terra, and contracts the supply of Luna.

Importantly, what this means is that increasing demand to mint Terra stablecoins will lead to Luna supply contractions, which should be supportive of Luna price.

Terra Fees & Luna Rewards

When users transact with Terra, a portion of their transaction is paid to the network as a fee. This is a dynamic fee that is adjusted based on the state of the network and the peg, and ranges from 10 to 100 bps, and currently stands at 60 bps. These fees are also known as the 'Tax Rewards'.

These Terra fees are meant to be earned by Luna, but can only be earned by Luna that is currently staked or delegated to a validator node.

Terra's protocol has been designed in such a way where it intends to create some measure of predictability to these fees, as fees ultimately are what drives the demand to stake Luna, and Luna stakers are what secures the network.

The protocol defines 'unit rewards' as the total sum of rewards to Luna for a given period, divided by the total supply of Luna. Without any modifications the reward rate, or the supply of Luna, unit rewards would move in the same direction as the Terra economy (i.e. total Terra activity). Since the protocol wants to create predictability, it will act make changes to two components of unit rewards; fees and the Luna burn.

When unit rewards are increasing, the protocol will decrease fees and the Luna burn. When unit rewards are decreasing, the protocol will increase fees and the Luna burn. These adjustments are made programmatically on a weekly basis.

The formulas are as follows:

$$f_{t+1} = (1 + g) \cdot \frac{R_{t-1}}{R_t} \cdot f_t$$

$$b_{t+1} = (1 + g) \cdot \frac{R_{t-1}}{R_t} \cdot b_t$$

where f, b, and R are the reward rate, the Luna burn rate, the growth rate, and unit rewards, respectively, and g is a growth factor parametrized by network governance.

Traction

Since launching in June '19 Terra has processed more than ₩2.2tn of transactions, equivalent roughly to \$2bn. Terra is currently on pace for \$3.2bn in annual transaction volume based on the last 30 days activity. Terra's growth this year represents a CMGR of 17.6%.

Transaction
volume

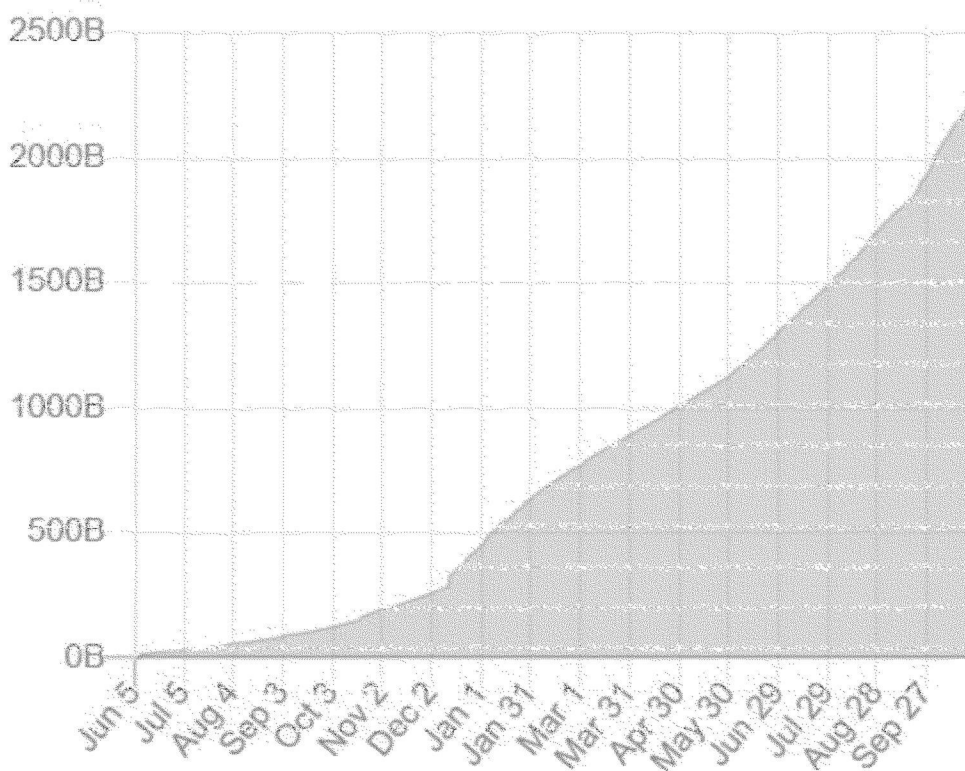
KRT



Cumulative



2,230,225,329,363 KRT

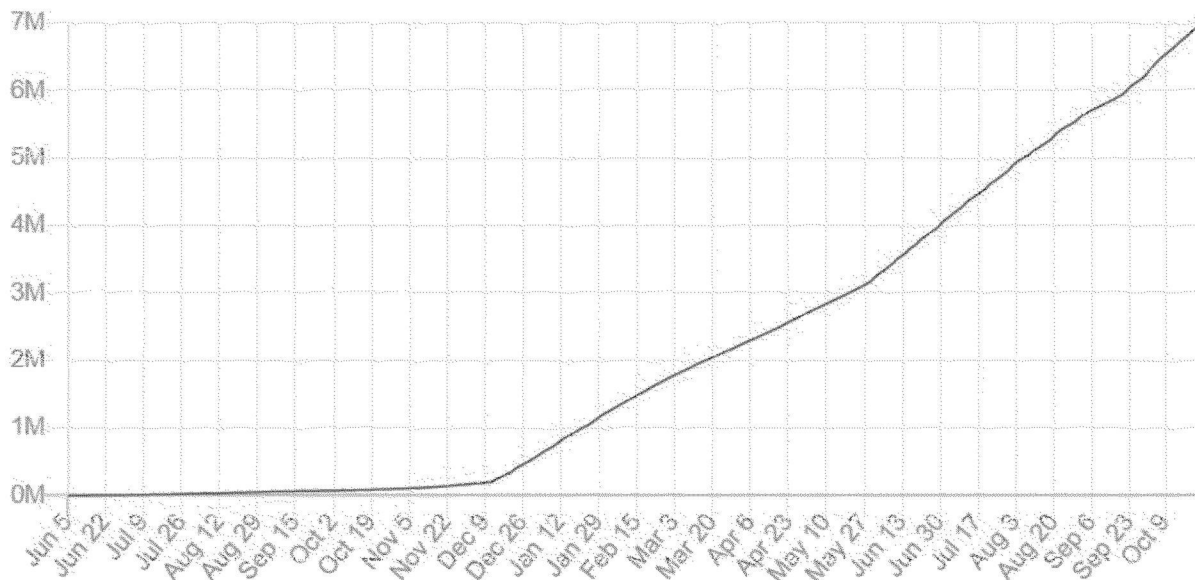


In the past 16 months since it launched, Terra users have paid \$7m in transaction fees which were earned by Luna stakers as rewards. The pace for the past 30 days translates to a \$10.5m annual run rate.

Tax rewards ⓘ

Cumulative ▼

6,997,568 UST

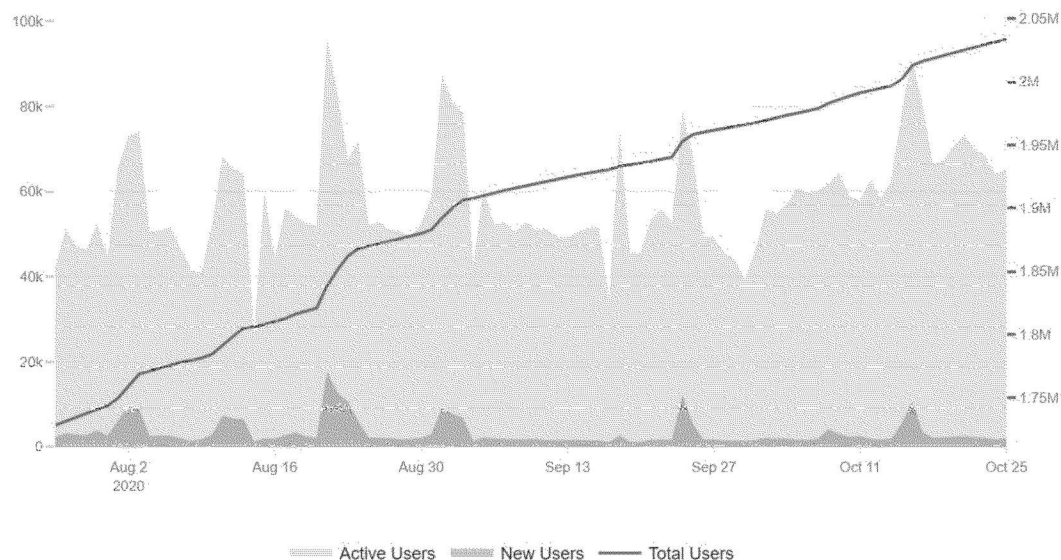


Overall, Chai has 2.03m users, as defined by unique users who have downloaded the app and created a wallet. Chai currently has ~65k daily active users (3 month range of 60-80k), 290k weekly active users (3 month range of 212-300k), and 573k monthly active users (3 month range of 550-613k).

The following charts show Chai user statistics:

CHAI Users

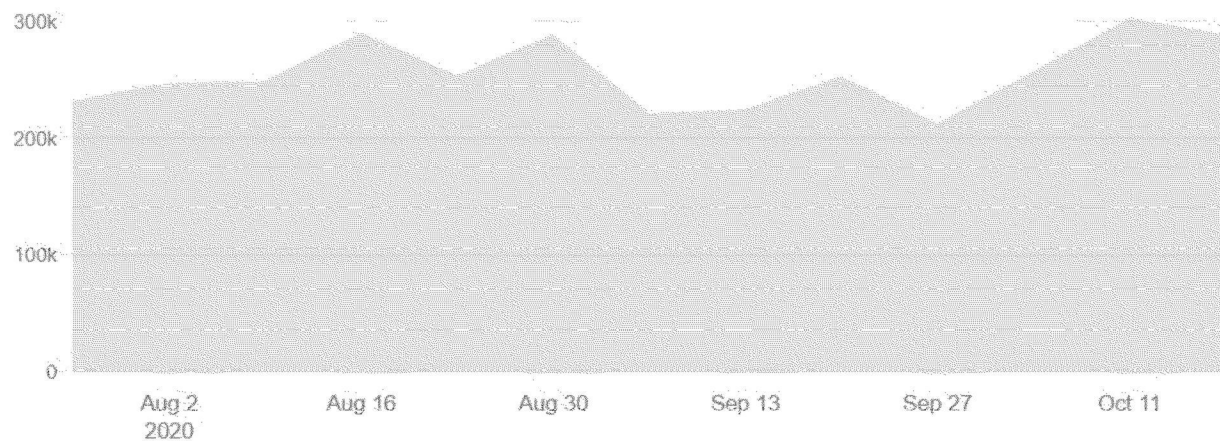
LAST 3 MONTHS



Chai total users (right), new daily users (left) and daily active users (left)

Weekly Active Users

LAST 3 MONTHS



Thesis

We believe that The next 12 to 18 months will be positive for Terra, and propose to initiate a long duration trade. As we explain below, our thesis is predicated on three points; First, we believe Terra has a perception, and problem with a lack of awareness, an issue that we can assist with. Second, we see a positive outlook from a technicals perspective, as there is no meaningful issuance of supply expected. Finally, we see positive fundamental catalysts in the form of applications built on Terra.

Terra has an investor awareness problem. It is one of a small number of cryptoassets that has real economic activity behind it, yet it is generally dismissed by most western crypto investors due to its early go-to-market strategy which emphasized subsidies by the protocol. Beyond that, western retail investors have very limited exposure to Terra, given that it is not available on US exchanges, and cannot be acquired on Ethereum based decentralized exchanges since it is not Ethereum based. By working with Terra on additional integrations, and by leveraging Galaxy's voice we can increase awareness of everything happening on Terra.

On the market technicals side, Luna is well positioned as all previous investors have vested their tokens. Outside of Luna supply adjustments related to maintaining the peg there is no major supply unwinding or any expected issuance for the foreseeable future.

From a fundamental point of view, Terra has a number of positive upcoming catalysts that should increase demand for Terra stablecoins, which should lead to Luna supply contractions. These catalysts are

- Mirror, a protocol for synthetic assets is launching on Terra, utilizing Terra stablecoins as the collateral used to mint synthetic assets. Once minted, the synthetics will have trading

pairs against Terra stablecoins, i.e. SyntheticXYZ/TerraUSD, SyntheticABC/TerraKRW. Mirror has recently raised a round from investors including Arrington Capital, Robot Ventures and others.

- Anchor, a savings product built by Terra. Anchor aggregates yields from a number of Proof of Stake protocols, giving users an easy way to earn a stable and predictable yield, instead of the variable yield users would gain by owning the underlying asset and staking themselves. Users can deposit fiat, or stablecoins, into Anchor, and Anchor will handle the rest, giving them fixed yields based on their deposits.

All of these lead us to have a bullish view on Terra, and expect that this long duration trade presents an attractive risk reward profile.

Necessary Assumptions

- 1) Transactions on Terra, and transaction fees, will continue to increase
- 2) The new applications built on Terra, i.e. Mirror (synthetic assets) and Anchor (staking yield products) will increase demand for Terra stablecoins
- 3) Galaxy and other Terra investors will be able to increase awareness of Terra and its ecosystem
- 4) Increased awareness will lead to increased usage

Deal Structure

We have an opportunity to purchase up to \$4m tokens from Terraform Labs at a 30% discount to the 7d average price based on Coinmarketcap. These tokens will have a 12 month vesting schedule, such that each month from the day the deal closes, we will receive 1/12 of our total allotment.

At the current price, this would translate to us purchasing Terra at ~\$0.22, implying a market cap of \$85m, and a fully diluted valuation of ~\$220m.

Return Analysis

We've used historical data about Terra to derive growth rates, reward rates, and other factors. We then used the available Terra formulas to examine the outcomes we would face under a Bull, Bear, and Base scenario, each reflecting monthly transaction volume growth of 12%, 5%, and 0.5% respectively. Terra's YTD CMGR stands at 17.6%.

We base our analysis on a purchase price of \$0.22, which translates into a fully diluted valuation of \$220m. For our Base and Bull cases we assume a Price to Sales ratio multiple (referred to as P/S ratio) of 20x which Terra has traded at in recent months. For our Bear case, we use a P/S multiple of 10x.

The two parameters we tune for our Base, Bull and Bear scenarios are the monthly growth rate on transaction volume, and the growth rate (g) in the Fee and Luna Burn rate adjustment formulas.

Base; 5% Transaction Volume CMGR, g = 5%

(Thousands \$)	Oct 2020	Jan 2021	Apr 2021	Jul 2021	Oct 2021	Jan 2022	Apr 2022
Terra Transaction Volume	\$265,000	\$306,771	\$355,125	\$411,102	\$475,902	\$550,916	\$637,754
Monthly Fees	\$877	\$1,455	\$1,322	\$2,186	\$1,996	\$3,274	\$3,008
Annualized Fee Run Rate	\$10,521	\$17,458	\$15,859	\$26,229	\$23,956	\$39,289	\$36,098
Luna P/S Ratio at Purchase Price	21x	13x	14x	8x	9x	6x	6x
Market Cap at 20x P/S	\$210,426	\$349,153	\$317,178	\$524,585	\$479,128	\$785,771	\$721,956
MOIC	1.0x	1.6x	1.4x	2.4x	2.2x	3.6x	3.3x

Bull; 12% Transaction Volume CMGR, g = 10%

(Thousands \$)	Oct 2020	Jan 2021	Apr 2021	Jul 2021	Oct 2021	Jan 2022	Apr 2022
Terra Transaction Volume	\$265,000	\$372,306	\$523,063	\$734,866	\$1,032,434	\$1,450,495	\$2,037,841
Monthly Fees	\$877	\$1,655	\$1,606	\$3,027	\$2,957	\$5,546	\$5,451
Annualized Fee Run Rate	\$10,521	\$19,863	\$19,268	\$36,329	\$35,483	\$66,554	\$65,411
Luna P/S Ratio at Purchase Price	21x	11x	11x	6x	6x	3x	3x
Market Cap at 20x P/S	\$210,426	\$397,258	\$385,361	\$726,584	\$709,661	\$1,331,073	\$1,308,212
MOIC	1.0x	1.8x	1.8x	3.3x	3.2x	6.1x	5.9x

Terra - Long Duration Trade Memo
Oct 2020



Bear; -5% Transaction Volume CMGR, $g = 2\%$

(Thousands \$)	Oct 2020	Jan 2021	Apr 2021	Jul 2021	Oct 2021	Jan 2022	Apr 2022
Terra Transaction Volume	\$265,000	\$227,204	\$194,799	\$167,016	\$143,195	\$122,772	\$105,262
Monthly Fees	\$877	\$1,191	\$977	\$1,318	\$1,082	\$1,435	\$1,181
Annualized Fee Run Rate	\$10,521	\$14,291	\$11,723	\$15,811	\$12,987	\$17,223	\$14,174
Luna P/S Ratio at Purchase Price	21x	15x	19x	14x	17x	13x	16x
Market Cap at 10x P/S	\$105,213	\$142,907	\$117,226	\$158,109	\$129,868	\$172,234	\$141,745
MOIC	0.5x	0.6x	0.5x	0.7x	0.6x	0.8x	0.6x

As you can see above, our Base case expects a MOIC of 2.2x by the time our investment will be fully liquid, and a range of 2.2x-3.6x for the 18 month period.

Our Bull case expects a MOIC of 3.2x by the time our investment will be fully liquid, and a range of 3.2x-6.1x for the 18 month period.

Lastly, our bear case, which assumes continuous decreases in transaction volume and that Terra will trade at a 10x P/S multiple. The model anticipates a 40% loss by the time our investment will be fully liquid, a MOIC of 0.6x, and a range of 0.5x-0.8x for the 18 month period.

Team

Since its founding the Terra team has grown from 3, to 120, most of which are based in Seoul, South Korea. In this section we will focus on co-founders Daniel Shin and Do Kwon.

Do Kwon - Prior to co-founding Terra Do was the co-founder and CEO of Anyfi, which was a telecom startup that leveraged the widespread availability of smartphones to create meshworks anywhere smartphones are. Anyfi was sold to clients as a full stack b2b networking solution where businesses with high traffic such as malls, amusement parks and others could offer networking to their visitors without huge capex on infrastructure. Do earned his bachelors in Computer Science from Stanford.

Daniel Shin - Prior to co-founding Terra, Daniel was the founder and CEO of Ticket Monster, or TMON, a major e-commerce player in South Korea. Since founding in 2010, TMON has grown to become one of the top online retailers in the country, at times being the 2nd to 5th largest player by volume. Daniel is still acting Chairman for TMON but is not involved day to day as the company is led by CEO Lee Jin-won. During his time at TMON he co-founded Fast Track Asia, a startup accelerator, and later on co-founded The Encore Company, a startup studio for businesses that can scale out of South Korea. Daniel earned his bachelors in Economics from the Wharton School at the University of Pennsylvania.

Risks

Market Risk - As with any investment, and in particular an investment in publicly traded tokens, there is the meaningful risk that our investment underperforms due to a market downturn.

Luna Supply Expansion Risk - Continues downward deviations from the peg will lead to supply expansion for Luna, and may lead to a downward spiral in Luna price. When Terra stablecoins trade below the peg, users can send 1 Terra stablecoin to the contract, and receive 1 Luna's worth of that stablecoin. If the newly minted Luna is immediately sold, and the stablecoin remains below the peg for a prolonged period, there may be continued selling pressure on Luna, alongside an expanding supply.

Luna Liquidity Risk - The viability of the Terra stablecoin mechanism ultimately depends on there being sufficient liquidity in Luna. If users are not able to easily sell Luna received for stablecoin deposits the peg mechanism is at risk.

Regulatory Risk - The South Korean regulators have previously been more harsh with respect to local crypto projects. There is also a non-zero regulatory risk with respect to Luna.