BERA-gOHM Thesis and more

September 21, 2023

1 Introduction

This article will discuss investment opportunities for Berachain (ticker: $BERA), an up and coming EVM-compatible L1 built on the Cosmos SDK, and Olympus (tickers: $OHM, $gOHM), describing itself as a community-owned, decentralized and censorship-resistant reserve currency.

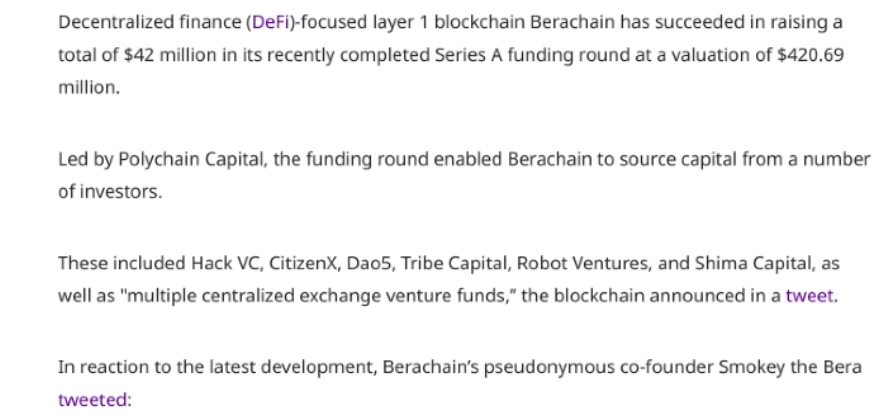
Berachain and Olympus are considered together due to $gOHM being a possible investment vehicle for the $BERA token, but also due to the fact that both communities are shown to be tied one to another, more or less.

It should also be noted that the Olympus community is currently trying to heavily capitalize on their Berachain investment via intensive social media interaction.

We will keep the analysis concise for the sake of brevity.

2 Analysis

Berachain has last been reported to have a valuation of $420.69MM.



Decentralized finance (DeFi)-focused layer 1 blockchain Berachain has succeeded in raising a total of $42 million in its recently completed Series A funding round at a valuation of $420.69 million.

Led by Polychain Capital, the funding round enabled Berachain to source capital from a number of investors.

These included Hack VC, CitizenX, Dao5, Tribe Capital, Robot Ventures, and Shima Capital, as well as "multiple centralized exchange venture funds," the blockchain announced in a tweet.

In reaction to the latest development, Berachain's pseudonymous co-founder Smokey the Bera tweeted:

Figure 1: April 21 2023

Olympus has acquired with OIP-87 1% of the total $BERA supply at a valuation of $50MM.

Proposal

Proposed Terms Seed Round Participation Olympus is to deploy **$500k in OHM** distributed to the BeraChain Foundation in 5 installments, paid out at the first of each month beginning April 1st, 2022, and concluding on August 1st, 2022. In exchange, Olympus will receive the market equivalent of **$500k (1% of the initial token supply)** in the native fee token during the Token Generation Event (TGE). These tokens are subject to a three-year vesting period, with an unlock cliff at six months. Vesting of tokens begins at the signing of the genesis block.

Figure 2: The passed OIP-87 investment

Olympus $BERA is subject to a 3 year vesting period with a 6 month cliff according to the following Tweet made by an Olympus community member.

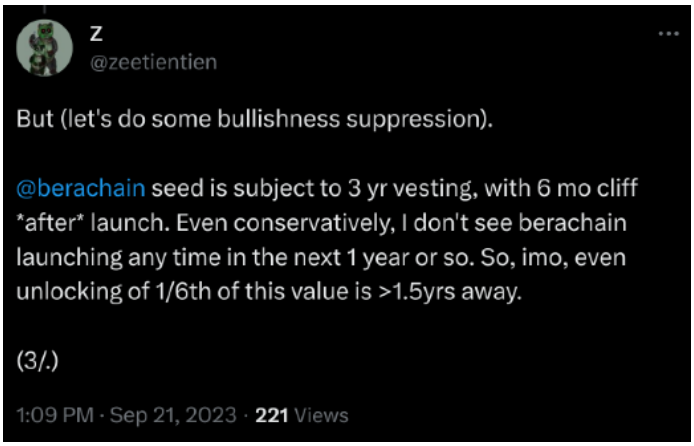


Figure 3: Olympus $BERA is subject to a vesting period

Olympus is also in the process of modifying Cooler Loan[1] and RBS[2] parameters with OIP-149.

	Option A Dashboard	*Option B Incl. Redacted Swap*
Liquid Treasury Value ($M)	**$183.52**	**$183.26**
OHM		
Supply Denominator (M)	16.24	16.17
Backing / OHM	$11.30	$11.33
New RBS Target Price	$12.12	$12.16
New RBS Lower Cushion (2.5%)	$11.02	$11.05
Cooler Loan LTV / OHM (5%)	**$10.73**	**$10.77**
gOHM		
Supply Denominator	60,467.25	60,186.45
Backing / gOHM	$3,034.99	$3,044.79
New RBS Target Price	$3,255.03	$3,265.54
New RBS Lower Cushion (2.5%)	$2,959.12	$2,968.67
Cooler Loan LTV / gOHM (5%)	**$2,883.24**	**$2,892.55**

Figure 4: OIP-149 proposed parameters

All of the former implies that assuming the lower bounds of Cooler Loans and RBS hold, there is a way to calculate the maximum risk free leveraged dollar investment amount based on the Berachain valuation.

[1] "Cooler Loans" are fixed-term (4 months), fixed-rate (0.5%), fixed-price DAI for gOHM loans.

Let us denote with I_0 the dollar valuation of our \$gOHM investment before leverage, I_n the value of our total \$gOHM collateral after n rounds of leverage, m_v the \$BERA valuation multiplier, meaning the multiplier of the current \$BERA valuation based on an initial \$50MM valuation, and lastly m_s, our share of the total valuation, this is based on the market cap ($m_s = I_n/MC$).

Since Cooler Loans are 95% LTV, and since we are borrowing at a fixed price, we can borrow only less than 95% LTV. But also, this means, the price itself regulates the LTV when it is above the boundary prices mentioned above. Let us denote the current market price with p_m and the lower Cooler Loan OR RBS price with p_l. Let us also denote some lower dollar amount bound B below which we will not leverage further. Then our leveraged position will satisfy:

$$LTV = 0.95 * (p_l/p_m) \tag{1}$$

After n rounds of leveraging, there should be only B funds left which may be reused for further collateral.

$$I_0 * LTV^n = B \tag{2}$$

(3), (4) are transformations:

$$LTV = \sqrt[n]{B/I_0} \tag{3}$$

$$\log_{B/I_0}(LTV) = 1/n \tag{4}$$

We receive our number of leveraging rounds:

$$n = \frac{1}{\log_{B/I_0}(LTV)} \tag{5}$$

For computing:

$$n = \lfloor \frac{ln(B/I_0)}{ln(LTV)} \rfloor \tag{6}$$

The following is a mathematical identity:

$$I_n = I_0 * \frac{LTV^{n+1} - 1}{LTV - 1} \tag{7}$$

[2]Or "Range Bound Stability", an algorithmic market making system which maintains the price of OHM within a certain range by utilizing Olympus treasury assets. Read: at the lower bound of some price interval, which we will later call p_l, RBS buys back \$OHM tokens, meaning that these tokens are at a discount if $p_{OHM} < p_l$

We should satisfy:

$$I_n * (1 - p_l/p_m) < m_v * m_s * \$50MM \tag{8}$$

(9), (10), transformations:

$$I_n < \frac{m_v * m_s * \$50MM}{1 - p_l/p_m} \tag{9}$$

$$I_0 * \frac{LTV^{n+1} - 1}{LTV - 1} < \frac{m_v * m_s * \$50MM}{1 - p_l/p_m} \tag{10}$$

Finally:

$$I_0 < \frac{m_v * m_s * \$50MM * (LTV - 1)}{(1 - p_l/p_m) * (LTV^{n+1} - 1)} \tag{11}$$

Find the largest I_0 for which above holds (n, m_v, m_s also have to be varied).

3 Example

Let us assume a max valuation of \$500MM, in other words $m_v = 10$. Currently, $MC = \$200MM$. Let us assume a lower bound as stated in Figure 4, we will assume RBS lower cushion from Option A, so $p_l = \$2,959.12$. Price as of the time of writing $p_m = \$3,094.79$. Ratio: $p_l/p_m \approx 0.956162$. Thus, $LTV = 0.908354$.

$I_0 = \$100,000$, $B = \$1000$. Thus, $n = 47$. This leads to $I_{47} = \$1,080,336$. A million borrowed! $m_s \approx 0.005402$.

Is the condition fulfilled (posting only results)? No!

$$\$100,000 < \$570,315 \tag{12}$$

Anything below $m_v = 1.7534$ breaks though.