

# Ethereum Investment Case Study

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## Overview

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Ethereum, the second largest cryptocurrency by market capitalization, is a decentralized proof-of-stake (PoS) layer 1 (L1) blockchain. Developers worldwide build decentralized and permissionless software such as decentralized applications (dApps) and smart contracts on top of Ethereum. Ethereum has a variety of use cases, including decentralized finance (DeFi), non-fungible tokens (NFTs), decentralized identities (DIDs), cross-border payment solutions, and more. Ethereum's native token, Ether (ETH), is used to pay transaction (gas) fees and to secure the network through staking.

## Market Update

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Ethereum spot ETFs were approved by the US Securities and Exchange Commission (SEC) on May 23, 2024, following the passage of Bitcoin spot ETFs in January 2024. Spot Ethereum ETFs will directly hold ETH and will be set up as grantor trusts. As of June 18th, 2024, the SEC has approved rule change proposals by stock exchanges (Form 19b-4) for eight ETFs including the 21Shares Core Ethereum ETF. The ETFs could begin trading by the end of Summer 2024, according to SEC Chair Gary Gensler, and are just waiting for the SEC to approve the security-specific registrations (Form S-1).

Due to the anticipated trading of Ethereum ETFs and the growing popularity of staking, the number of ETH on exchanges has hit a nearly 9-year low. As of June 18th, 2024, data from Glassnode showed that only 10.19% of all ETH was held by centralized exchanges [Appendix Figure 1] and 27.2% of ETH's total supply was staked. This data suggests that investors are bullish on the price of ETH because they are either storing or staking their ETH, expecting it to appreciate in the future.

## Ethereum Valuation

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Ethereum is a digital economy that attracts ~25M monthly active users, has an ~18% market share, and generates a steady revenue stream captured by stakers. Ethereum is comparable to a traditional app store like Apple's App Store or Google Play where developers build dApps and customers pay to use them. Ethereum generates revenue by selling its blockspace to end users. Blockspace is a certain amount of data stored in each block of a blockchain, and users pay gas fees to have their transactions included in the block.

Ethereum can be categorized as all three super asset classes, and my model focuses on the capital asset valuation methodology. Since Ethereum has cash flow, its valuation process can be comparable to any other capital asset.

To find Ethereum's intrinsic valuation, I used a DCF model [Appendix Figure 2] and projected 10-year Revenue, Cost of Revenue (the share of fees that go to miners), Gross Profit, Expenses (staking rewards given to validators), and Cash Flow:

- I project a high Revenue and Gross Profit growth period for the first five years of the model based on historical growth, institutional adoption (spot Ether ETFs), network upgrades, and expanding use cases. For the last 5 years, I project reduced Revenue and Gross Profit growth rates to reflect market saturation and increased competition.
- I project the Cost of Revenue to remain steady based on historical growth and slowly taper off as Ethereum matures.
- I project the Expenses growth to turn positive for the majority of the model as the total ETH staked percentage continues to climb. For the last 3 years of the model, I predict 0% Expenses growth as the number of stakers plateau.

I calculated the discount rate of 14.3% using the CAPM approach with a risk-free rate from the US 10-year treasury yield, a beta of comparable high-growth tech stocks like NVIDIA, and a historical market return from the S&P 500 average returns. I calculated the 3% terminal growth rate using the US economy's average growth rate of 3%.

Using the calculated discount rate of 14.3%, the terminal growth rate of 3%, and project cash flow, the **intrinsic valuation of 1 ETH is \$2,802**, an ~18% decrease from ETH's current price of \$3,408. In a bull case, with a higher terminal growth rate of 4% and a lower discount rate of 12%, the value of 1 ETH is \$4,294. In a bear case, with a lower terminal growth rate of 2% and a higher discount rate of 16%, the value of 1 ETH is \$2,165.

This model assumes that in the next 10 years, Ethereum will maintain its large market share, continue the high growth of users and transactions, and eventually become a mature and stable project.

## Risks

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Investing in ETH has 2 major risks, regulatory and competition:

### 1. Regulatory Risk

- On June 18th, 2024, The SEC closed its investigation into Consensus, alleging that sales of ETH are securities transactions. Despite this move, several regulatory risks still loom over Ethereum:

- The SEC might still classify Ethereum as a security, imposing strict regulatory requirements that would affect its trading. The SEC's historically conflicting views add to this uncertainty.
- The U.S. lacks a unified regulatory framework for cryptocurrencies, leading to a gray area between the SEC and CFTC on Ethereum's classification. This gray area creates the potential for inconsistent enforcement and legal challenges.
- Ethereum's shift to proof-of-stake raises questions about its regulatory status, as staking rewards could make it more like a security.

## 2. Competition

- Alternative Smart Contract Platforms
  - Solana and Binance offer faster transactions and lower fees, potentially drawing developers and users away from Ethereum.
- Layer 2 Solutions and Sidechains
  - Solutions like Arbitrum and Optimism improve Ethereum's efficiency but also compete by offering faster and cheaper transactions, which could lead to less revenue for Ethereum.
- Interoperability Projects
  - Cosmos and Polkadot create interconnected blockchains, challenging Ethereum's dominance by offering cross-chain solutions that allow users and digital assets to transcend traditional blockchain silos.

## Ethereum: The Next Internet

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Ethereum will become the foundational layer of the internet. In the next 10-20 years, almost all internet applications, media, finance, and websites will leverage blockchain technology. Ethereum will be at the forefront.

Similar to how social media transformed the internet by adding a social dimension to information sharing (Web1 to Web2), Ethereum adds a decentralized, accessible, public, and fully transparent layer (Web2 to Web3). Ethereum will shift control from centralized institutions to individuals. Unlike Web2, where data and services are controlled by a few large corporations, Web3 is a more equitable ecosystem. Ethereum allows anyone with internet access to participate in the network. This inclusivity can empower underserved populations by providing them access to financial services and other digital resources. Besides accessibility, Ethereum utilizes a public ledger, providing transparency and traceability for all transactions. Ethereum will fundamentally transform the digital landscape, creating a more open and autonomous internet.

## Institutional Explanation

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I would explain to an institutional investor that Ethereum is the second-largest cryptocurrency and has been around since 2015, making it one of the most established and influential projects in the ecosystem. I would further explain that Ethereum's essential feature is its smart contract functionality. Unlike Bitcoin, which primarily functions as digital gold, Ethereum primarily functions as a global app store with dApps built on smart contracts. Ethereum is a digital economy that attracts ~25M monthly active users and generates steady cash flow. Finally, I would make sure the institutional investor understood key terms, such as "smart contracts", "dApps", and "Ether".

Ethereum is a valuable addition to an investment portfolio based on its diversification benefits, positive impact on risk-adjusted returns, and significant growth potential.

- **Diversification:** ETH has a low correlation to traditional asset classes. For example, ETH's current 90-day rolling average daily return correlation with the S&P 500 is 0.23 [Appendix Figure 3]. Since ETH and traditional asset classes' price changes are not closely related, a portfolio that includes ETH has reduced risk through increased diversification.
- **Risk-adjusted Returns:** Researchers found that as the allocation of Ethereum increases in a 60/40 portfolio (up to 3%), the Sharpe ratio improves with minimal impact on drawdown. These findings indicate a favorable risk-return tradeoff.
- **Growth:** The potential for growth in the crypto sector is substantial, especially over the next decade. Ethereum, at the forefront of Web3 innovation, is well-positioned to capitalize on potential 50%-100% year-over-year growth [Appendix Figure 2].

## Ethereum ETF Benefit

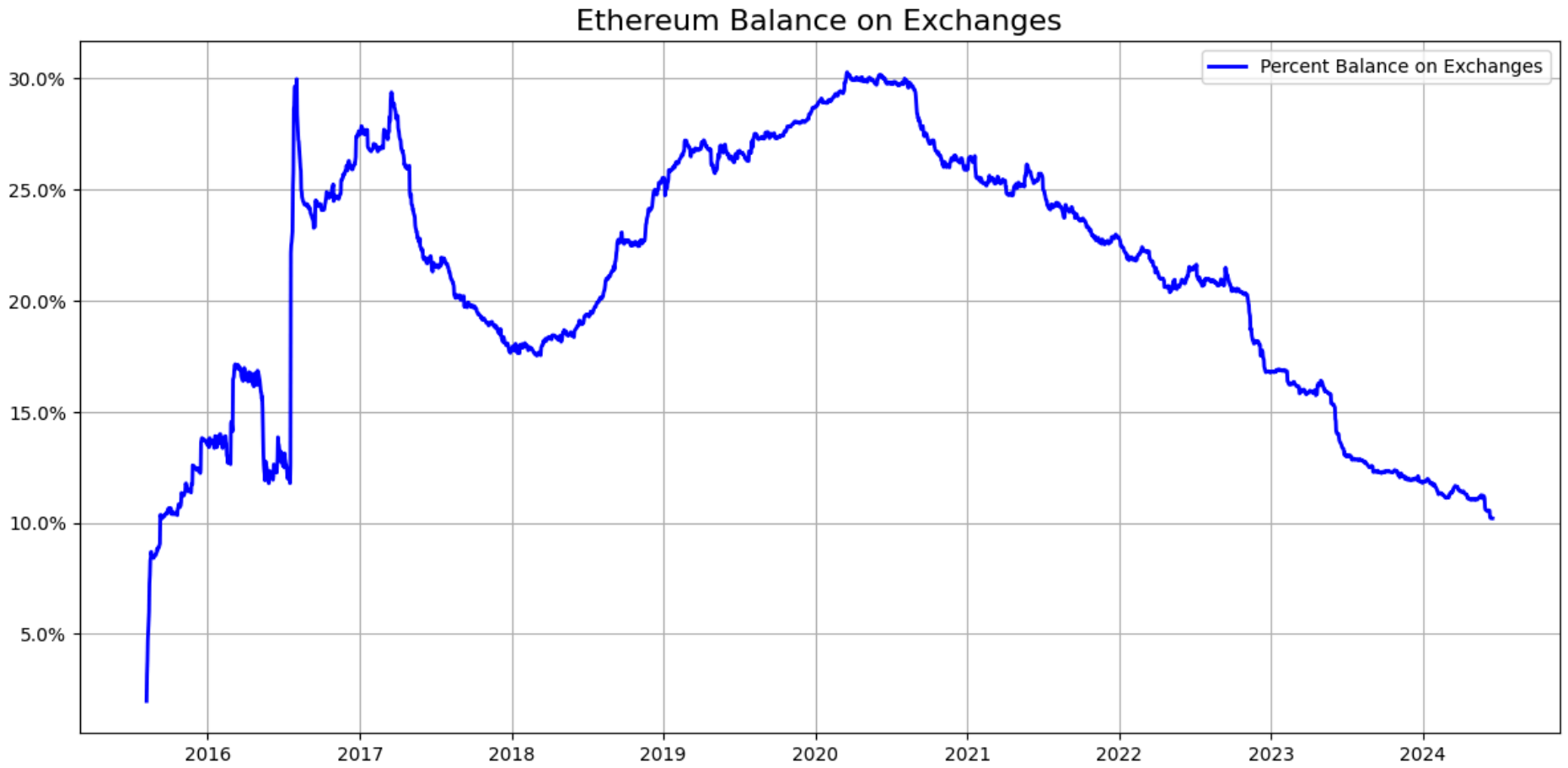
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An Ethereum investment via an ETF offers investors several advantages:

1. **Convenience:** ETH ETFs can be purchased directly through brokerage accounts, making it easy for investors to gain exposure to Ethereum without needing to navigate cryptocurrency exchanges. ETH ETFs will directly hold ETH for investors, removing the security risk of personal custody.
2. **Regulation:** ETH ETFs will be regulated by the SEC and CFTC, providing a layer of protection and oversight that can reduce the risk of fraud and market manipulation. The SIPC will also provide \$500,000 of insurance.
3. **Simplicity:** Investors do not need to understand how to (1) open a crypto wallet, (2) manage private keys, (3) purchase tokens on a crypto exchange, and (4) store tokens. The Ether ETF will handle these technical aspects, making it simpler for traditional investors to participate in the cryptocurrency market.

# Appendix

Figure 1



Data as of 18 June 2024

Source: Glassnode

Figure 2

|   | Actuals                    |  |                            | Forecast        |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
|---|----------------------------|--|----------------------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-----------------------------|---------|---------|--|--|------------|----|----|----|---------------|-----|---------|---------|---------|--|-----|---------|---------|---------|--|-----|---------|---------|---------|--|-----|---------|---------|---------|--|-----|---------|---------|---------|
|   | 1 June 2021 to 31 May 2022 | 1 June 2022 to 31 May 2023   | 1 June 2023 to 31 May 2024 | Year 1          | Year 2          | Year 3           | Year 4           | Year 5           | Year 6           | Year 7           | Year 8           | Year 9           | Year 10          |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Revenue                                   | \$10,019,507,914           | \$1,895,183,551  | \$2,780,372,023            | \$4,170,558,035 | \$6,672,892,856 | \$11,343,917,854 | \$20,419,052,138 | \$32,670,483,421 | \$49,005,725,131 | \$63,707,442,670 | \$76,448,931,204 | \$87,916,270,885 | \$96,707,897,974 |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| % growth YoY                              |                            | -81.09%  | 46.71%                     | 50%             | 60%             | 70%              | 80%              | 80%              | 60%              | 50%              | 30%              | 20%              | 15%              |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Cost of Revenue                           | \$1,820,258,547            | \$337,140,398  | \$430,913,717              | \$538,642,147   | \$673,302,683   | \$841,628,354    | \$1,030,994,734  | \$1,237,193,681  | \$1,453,702,575  | \$1,671,757,961  | \$1,838,933,757  | \$2,022,827,133  | \$2,225,109,846  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| % growth YoY                              |                            | -81.48%  | 27.81%                     | 25%             | 25%             | 25%              | 22.50%           | 20%              | 17.50%           | 15%              | 10%              | 10%              | 10%              |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Gross Profit                              | \$8,199,249,367            | \$1,558,043,153  | \$2,349,458,306            | \$3,524,187,459 | \$5,638,699,934 | \$9,585,789,888  | \$17,254,421,798 | \$27,607,074,876 | \$41,410,612,315 | \$53,833,796,009 | \$64,600,555,211 | \$77,520,666,253 | \$93,024,799,503 |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| % growth YoY                              |                            | -81.00%  | 50.80%                     | 50%             | 60%             | 70%              | 80%              | 60%              | 50%              | 30%              | 20%              | 20%              | 20%              |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Expenses                                  | \$16,703,795,183           | \$3,064,252,159  | \$2,083,813,376            | \$2,500,576,051 | \$2,875,662,459 | \$3,220,741,954  | \$3,478,401,310  | \$3,652,321,375  | \$3,761,891,017  | \$3,799,509,927  | \$3,799,509,927  | \$3,799,509,927  | \$3,799,509,927  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| % growth YoY                              |                            | -81.66%  | -32.00%                    | 20%             | 15%             | 12%              | 8%               | 5%               | 3%               | 1%               | 0%               | 0%               | 0%               |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Cash Flow                                 | (\$8,504,545,816)          | (\$1,506,209,006)  | \$265,644,930              | \$1,023,611,408 | \$2,763,037,475 | \$6,365,047,934  | \$13,776,020,488 | \$23,954,753,501 | \$37,648,721,298 | \$50,034,286,082 | \$60,801,045,284 | \$73,721,156,326 | \$89,225,289,577 |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| % growth YoY                              |                            | -82.29%  | -117.64%                   | 285.33%         | 169.93%         | 130.36%          | 116.43%          | 73.89%           | 57.17%           | 32.90%           | 21.52%           | 21.25%           | 21.03%           |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| PV of Cash Flow                           |                            |  |                            | \$895,273,895   | \$2,113,627,171 | \$4,258,572,941  | \$8,061,335,489  | \$12,260,148,364 | \$16,852,915,909 | \$19,589,048,193 | \$20,819,844,277 | \$22,078,998,688 | \$23,372,006,860 |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| <b>Model Assumptions</b>                  |                            | <b>Sensitivity Analysis</b>  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Risk Free Rate (US 10 Year Treasury Rate) | 4.22%                      | <table border="1"> <tr> <td colspan="4"><b>Terminal Growth Rate</b></td> </tr> <tr> <td></td> <td>\$2,802.52</td> <td>2%</td> <td>3%</td> <td>4%</td> </tr> <tr> <td>Discount Rate</td> <td>12%</td> <td>\$3,636</td> <td>\$3,928</td> <td>\$4,294</td> </tr> <tr> <td></td> <td>13%</td> <td>\$3,154</td> <td>\$3,375</td> <td>\$3,645</td> </tr> <tr> <td></td> <td>14%</td> <td>\$2,762</td> <td>\$2,932</td> <td>\$3,136</td> </tr> <tr> <td></td> <td>15%</td> <td>\$2,437</td> <td>\$2,570</td> <td>\$2,727</td> </tr> <tr> <td></td> <td>16%</td> <td>\$2,165</td> <td>\$2,270</td> <td>\$2,393</td> </tr> </table> |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  | <b>Terminal Growth Rate</b> |         |         |  |  | \$2,802.52 | 2% | 3% | 4% | Discount Rate | 12% | \$3,636 | \$3,928 | \$4,294 |  | 13% | \$3,154 | \$3,375 | \$3,645 |  | 14% | \$2,762 | \$2,932 | \$3,136 |  | 15% | \$2,437 | \$2,570 | \$2,727 |  | 16% | \$2,165 | \$2,270 | \$2,393 |
| <b>Terminal Growth Rate</b>               |                            |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
|   | \$2,802.52                 |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  | 2%                          | 3%      | 4%      |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Discount Rate                             | 12%                        |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  | \$3,636                     | \$3,928 | \$4,294 |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
|   | 13%                        |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  | \$3,154                     | \$3,375 | \$3,645 |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
|   | 14%                        |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  | \$2,762                     | \$2,932 | \$3,136 |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
|   | 15%                        |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  | \$2,437                     | \$2,570 | \$2,727 |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
|   | 16%                        | \$2,165  | \$2,270                    | \$2,393         |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Beta                                      | 1.75                       |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Historical Market Return (S&P 500)        | 10%                        |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Discount Rate                             | 14.3%                      |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Terminal Growth                           | 3%                         |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| <b>Results</b>                            |                            |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Terminal Value                            | \$810,781,193,329          |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| PV of Terminal Value                      | \$212,379,065,424          |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| NPV (Total PV)                            | \$342,680,837,211          |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| Total ETH Supply                          | 122,276,020                |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |
| <b>ETH Intrinsic Value</b>                | <b>\$2,802.52</b>          |  |                            |                 |                 |                  |                  |                  |                  |                  |                  |                  |                  |                             |         |         |  |  |            |    |    |    |               |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |  |     |         |         |         |

Figure 3

