



# All the Things We Cannot See: The Challenge and Opportunity of Investing in DeFi

## BITWISE RESEARCH



**Matt Hougan**  
Chief Investment Officer  
matt@bitwiseinvestments.com  
@Matt\_Hougan



**David Lawant**  
Director of Research  
david@bitwiseinvestments.com  
@dlawant



**Juan de Leon**  
Crypto Analyst – Equities  
@singularity7x



**Ryan Rasmussen**  
Crypto Analyst – DeFi  
@RasterlyRock



**Gayatri Choudhury**  
Quantitative  
Research Associate

## IN THIS ISSUE, WE DISCUSS:

- >> Why the DeFi skeptics are right about DeFi's current limitations ... and what they're missing about its opportunities.
- >> DeFi's entirely new and disruptive capabilities ... and why it's hard to see where they might lead.
- >> How to think about investing in early-stage technologies when the most important breakthroughs are often only visible in hindsight.



Today, my colleagues Ryan Rasmussen, David Lawant, and I are publishing a new white paper on the rapidly growing decentralized finance (or "DeFi") market. <sup>1</sup> The paper is a labor of love, representing months of work, and I highly recommend it. It covers what DeFi is, how it works, what its applications are, and where the market is going.

### **Read it here.**

The best part of the paper is how it examines two ways to value DeFi, using both bottom-up and top-down perspectives.

The TL/DR? We're very early.

As the paper notes, the entire market cap of DeFi applications is less than 1% of the market cap of the traditional financial services industry. If DeFi follows the pattern of other disruptive technologies — think fintech vs. payments, or Amazon vs. Sears — the space could grow 100x in the coming decade.

Pretty exciting stuff.

## **BUT WITH ALL ITS LIMITATIONS ... COULD DEFI REALLY DISRUPT TRADITIONAL FINANCE?**

DeFi skeptics — and there are plenty out there — will look at the current state of the DeFi market and laugh at the idea of it disrupting the traditional financial ecosystem.

DeFi can't even do some of the most basic things banks do today, they'll say. How could it possibly disrupt all of finance?

<sup>1</sup> For the record: Ryan and David did 95% of the work on the white paper. I'm riding shotgun to their brilliance here.



*If DeFi follows the pattern of other disruptive technologies, it could grow 100x in the coming decade.*

I get it.

Right now, DeFi is deeply limited. Consider one of the largest applications, Aave.

Aave is referred to as a “borrowing and lending protocol.” If you want to borrow, say, \$500,000 of Ethereum, you can post another crypto asset like bitcoin as collateral and borrow against that.

In many ways, the service is pretty amazing. For one, it’s virtually instantaneous: You can sign up and get a loan within minutes. It’s also peer-to-peer: You borrow from a pool of other users, not a bank. And the fact that all this can happen without any company, employees, CEOs, or overhead is incredible.

But...

The current applications are few. For example, Aave only offers fully or over-collateralized loans: You can’t put down \$200,000 and borrow \$1 million, as you might if you were buying a house. Moreover, it only works with digital assets: You can’t post your house as collateral and take out a home equity line of credit.

These are big flaws. While the collateralized loan market is big — much of the hedge fund space operates on collateralized loans — most “normal people” have never taken out a collateralized loan, and almost everyone predominantly operates in real-world assets.

If DeFi can’t touch these paradigms, how big can it be?



*One challenge with investing in early-stage disruptive technologies is that often the most important breakthroughs are obvious only in hindsight.*

## THE THINGS WE CANNOT SEE: THE CHALLENGE OF INVESTING IN DISRUPTIVE TECH

Here, history can be instructive. One challenge with investing in early-stage disruptive technologies is that often the most important breakthroughs are obvious only in hindsight.

As a reminder of how true this is, I encourage you to watch [\*this famous 1995 interview\*](#) with former Late Show TV host David Letterman and Microsoft founder Bill Gates on the topic of the internet.

The two-minute segment starts with Letterman asking Gates about a recent “breakthrough”: the ability to stream a baseball game online.

Letterman scoffs. *Does the word ‘radio’ ring a bell?*

The audience loves it, guffawing at this silly new technology.

But then, at the end of the interview, almost as a throw-away Gates hints at the real innovation: that Letterman can go online and communicate with other users who share his “unusual hobbies.”

*You mean the troubled loner chat room,* says Letterman, laughing with his audience.

Letterman and the audience couldn’t see the big thing Gates recognized. The internet wasn’t a bad alternative to radio; it was a new way for people to connect. Facebook, Twitter, LinkedIn, TikTok, Instagram ... they all sprung out of that new capability.



*The internet wasn’t a bad alternative to radio; it was a new way for people to connect.*





*In retrospect, native applications — those that come into being only through a new technology — can seem obvious, but in their early stages they can be difficult to imagine.*

Chris Dixon, a partner at venture capital firm a16z, describes our tendency to think about new technologies through the lens of old applications as “skeuomorphic.” It’s a word borrowed from graphic design, which describes the tendency to design digital items that look like items in the physical world (e.g., the “files” on your computer desktop). Heavily used by **Steve Jobs** at Apple, it’s a great way to onramp users into the digital realm. But it also has limitations; you can only see what’s new in terms of what has always been.

The opposite of skeuomorphic applications are “native” applications — those that come into being only through a new technology. To grasp this, consider the difference between a website that lets you read an article (something you could have done with an older technology like a newspaper), and a website that allows you both to consume and create content in real time (think Twitter or Facebook). In retrospect, native applications can seem obvious, but in their early stages they can be difficult to imagine. (If you could imagine them, you’d likely start a company or a venture fund and catapult yourself to billionaire status.)

But native applications often scale and succeed much faster than skeuomorphic ones. Billions of people connect through Facebook today, but internet baseball radio never really took off.



*A platform like Aave can process loans worth hundreds of millions of dollars without any installed overhead: no company, no employees, no CEOs, etc.*

### THE KEY TO SUCCESS IN DISRUPTIVE TECH INVESTING

So as an investor, what do you do with this?

The answer is not to be scared by the limitations. Instead, you need to focus on the new capabilities a technology provides. Are they powerful? Do they open new possibilities in the market? Do they have early traction with a dedicated audience?

The good news is that, viewed from this perspective, DeFi thrives. Because while it can’t do everything traditional banks do today, it can do a lot of things they can’t.

A few examples:

- 1. **Automation:** DeFi benefits from the automation that the digital world allows. A platform like Aave can process loans worth hundreds of millions of dollars without any installed overhead: no company, no employees, no CEOs, etc.

This can make DeFi protocols cheaper than traditional finance, and it opens up a whole range of new activities. It doesn’t make any sense for your bank to process a direct loan for \$10 or \$100 — the paperwork burden is too high — but in a DeFi protocol in the near future, that will be easy. Microfinance, servicing smaller accounts, cheaper payday loans, and so forth ... it’s fun to imagine where this could lead.

- 2. **Two-Sided Markets:** *As I recently wrote in my column on Forbes.com*, an often overlooked element of DeFi is that it creates a two-sided market. While most people focus on the fact that you can borrow \$1 million from Aave, it’s arguably more interesting that you can also lend \$1 million through Aave and earn interest.

Many of the most disruptive companies of the last decade have been those that create two-sided markets — Airbnb with housing, Uber with taxis, etc. It’s exciting to imagine what the two-sided nature of DeFi protocols might create. DeFi is bringing this concept to finance by replacing the old model of exchange order books with a two-sided market that connects traders with market makers.



*Many of the most disruptive companies of the last decade have been those that create two-sided markets ... DeFi is bringing this concept to finance.*





*Composability should lead to an exponentially growing array of financial applications, as permissionless innovation and protocol stacking enable ideas we've never seen before.*

**3. Instantaneous Settlement, Noncustodial Collateral, and Conditional Execution:** This trio of new capabilities are among the most powerful new features DeFi introduces. Because they are digitally native, DeFi protocols have much faster collateral claiming and much lower collateral risk than real-world protocols. In addition, contracts can be arranged with conditional execution — i.e., loans that are only processed in certain circumstances.

This not only makes traditional collateralized loans more efficient but enables new ideas like “flash loans.” Flash loans are a new DeFi-specific financial service that allow you to instantaneously borrow money from one source, trade on another platform, and return the borrowed money in a single transaction. These loans can be programmed in new ways to tackle things like arbitrage trading, and they can be set so that they only execute when they are profitable, removing the need for capital-intensive collateral.

**4. Composability:** A final and perhaps most exciting new superpower of DeFi is “composability,” or what people call “money Legos.” Because all DeFi projects are open source, new DeFi protocols can be built on top of other DeFi protocols without asking. Have an idea for how to improve on Aave? You can start building tomorrow. This model is a big part of why the internet was so successful.

Contrast that with the traditional financial system, where if you wanted to build on JPMorgan’s tech stack you would face months or years of negotiating a partnership arrangement. Composability should lead to an exponentially growing array of financial applications, as permissionless innovation and protocol stacking enable ideas we’ve never seen before.



*The key is having the ability to see what lies ahead in a fresh light.*

I don’t pretend to have a crystal ball or to know exactly where this market is heading. My guess is the future financial industry built on DeFi will be as different from the traditional financial services industry as Amazon is from Sears. You’ll recognize the contours, but the user experience will be different.

The same Chris Dixon mentioned above stated this over 10 years ago: ***The next big thing will start out looking like a toy.*** This is how almost all disruptive innovations, going as far back as the telephone, started. I don’t see any reason why it would be any different with DeFi.

As an investor, that’s somewhat uncomfortable, but it’s also very exciting. As my colleagues and I explain in our white paper, the DeFi market is already formidable, with hundreds of billions of dollars invested in dozens of exciting projects that are based on a fundamentally new way to create and use financial services. The key is having the ability to see what lies ahead in a fresh light.

When you do that for DeFi, something starts to become clear: The future is bright.



.....

### ABOUT BITWISE

Based in San Francisco, Bitwise is one of the largest and fastest-growing crypto asset managers. As of November 15, 2021, Bitwise managed over \$1.7 billion across an expanding suite of investment solutions. The firm is known for managing the world’s largest crypto index fund (OTCQX: BITW) and pioneering products spanning bitcoin, ethereum, DeFi, and crypto-focused equity indexes. Bitwise focuses on partnering with financial advisors and investment professionals to provide quality education and research. The team at Bitwise combines expertise in technology with decades of experience in traditional asset management and indexing, coming from firms including BlackRock, Blackstone, Facebook and Google, as well as the U.S. Attorney’s Office. Bitwise is backed by leading institutional investors and asset management executives and has been profiled in Institutional Investor, CNBC, Barron’s, Bloomberg, and The Wall Street Journal. For more about Bitwise, visit [www.bitwiseinvestments.com](http://www.bitwiseinvestments.com).

### ABOUT MATT HOUGAN

Matt Hougan is one of the world’s leading experts on crypto, ETFs, and financial technology. He is the Chief Investment Officer for Bitwise Asset Management, the world’s largest provider of cryptocurrency index funds. He was previously CEO of ETF.com and Inside ETFs, where he helped build the world’s first ETF data and analytics system, the leading ETF media site, and the world’s largest ETF conference. Matt is co-author of two publications for the CFA Institute Research Foundation: “A Comprehensive Guide to Exchange-Traded Funds” and “Crypto assets: The Guide to Bitcoin, Blockchain and Cryptocurrencies for Professional Investors.” He is a crypto columnist for Forbes, a three-time member of the Barron’s ETF Roundtable, a member of ETFdb’s ETF Hall of Fame, and the eighth person to receive a Lifetime Achievement Award from ETF.com for contributions to the ETF industry.

Nothing contained herein is intended to predict the performance of any investment. There can be no assurance that actual outcomes will match the assumptions or that actual returns will match any expected returns. Prior to making any investment decision in respect of any Fund, each investor must undertake its own independent examination and investigation of the Fund, including the merits and risks involved in an investment, and must base its investment decision, including a determination whether it would be a suitable investment for the investor, on such examination and investigation and must not rely on the Manager or the Fund in making such investment decisions. Prospective investors must not construe the contents of this material as legal, tax, investment, or other advice. This material represents an assessment of the market environment at a specific time and is not intended to be a forecast of future events, or a guarantee of future results. This information should not be relied upon by the reader as research or investment advice regarding any Fund or any security in particular. Past performance is no guarantee of future results.



#### STAY IN THE KNOW

Scan the code using your phone camera to sign up for our research reports, monthly advisor letter, market commentary and more delivered to your inbox.

[bitwiseinvestments.com/subscribe](http://bitwiseinvestments.com/subscribe)

