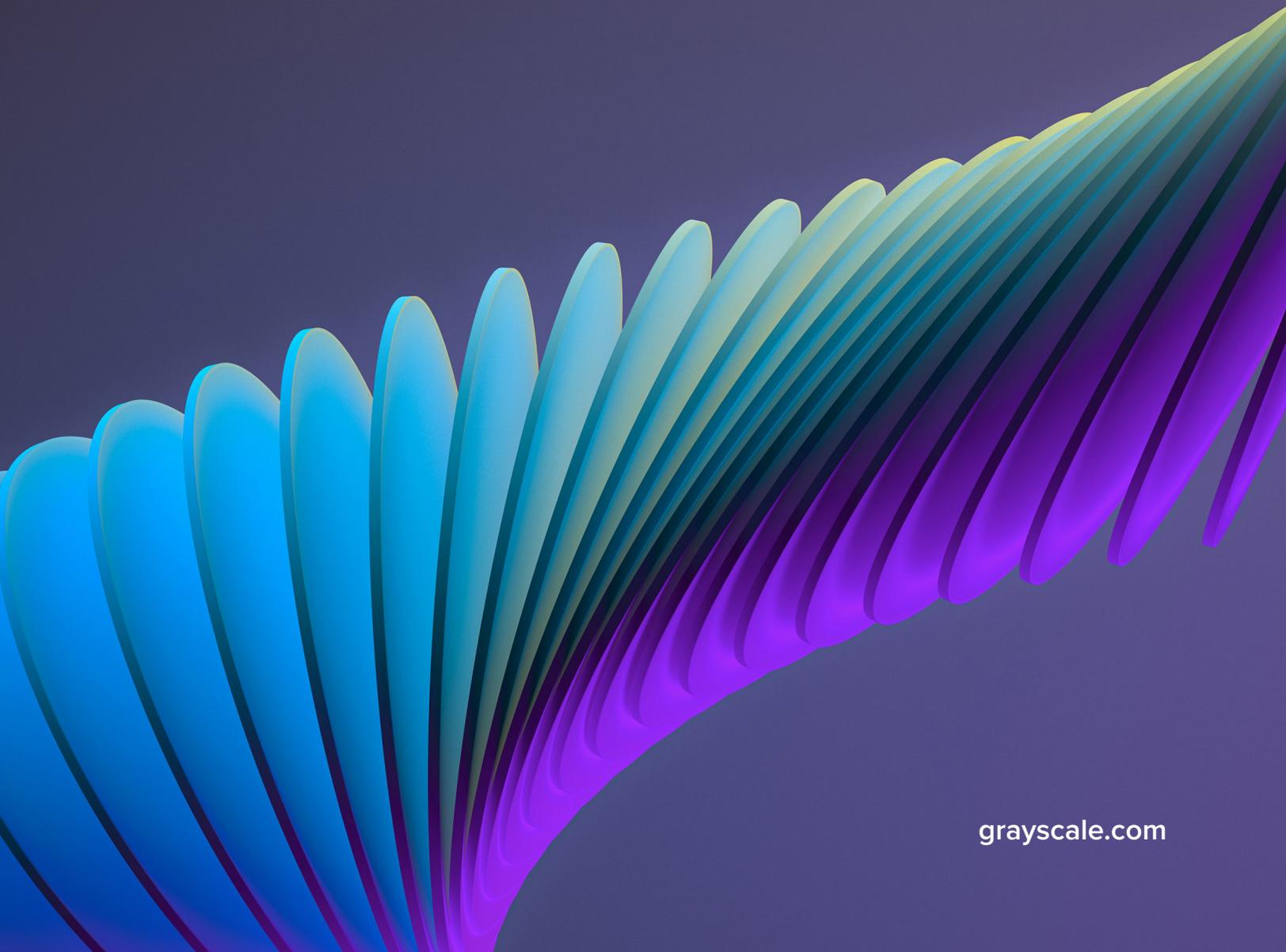


DECENTRALIZED FINANCE (DeFi)

*Internet Banking
Beyond Borders*





DECENTRALIZED FINANCE (DeFi)

By David Grider, Head of Research & Matt Maximo, Research Analyst

Decentralized Finance (DeFi) is an emerging crypto innovation that goes beyond banking and beyond borders to create a new internet-native global financial ecosystem. DeFi has started to reshape global finance and e-commerce, yet the asset category remains mysterious to many investors. Our first [Grayscale DeFi Primer](#) offered an overview of DeFi, discussed use cases, and examined the native tokens of several well-known protocols. In this DeFi report, we will take a deeper dive into the financial system powering the Web 3.0 crypto cloud economy.

- **Web 3.0 cloud economies:** The internet continues to evolve. Crypto assets are a new investment frontier sitting at the intersection of the internet and emerging markets. Past innovations such as internet connectivity, cloud intelligence, global mobility, and fintech finance have combined with crypto's trust and compute layers to form internet-native crypto cloud economies. DeFi applications are a new layer of the tech stack representing ownership of the financial networks powering this internet paradigm shift called Web 3.0.
- **Next phase of crypto growth:** Internet-native crypto cloud economies have evolved in waves. Digital Money, Cloud Economy Platforms, and Financial Ecosystems have been the most notable phases thus far. Bitcoin's blockchain enabled trusted value exchange; Ethereum's computer enabled legal agreements for digital businesses; and DeFi's open APIs enabled a global banking ecosystem. Each has offered a building block towards a more robust internet-native global society. Historically, as the crypto economy expands, the most recent wave has seen the most rapid growth, with DeFi following this trend.
- **Innovating across banking:** DeFi lending competes with bank deposit and savings accounts by letting users freely store funds and access higher interest rates. DeFi exchanges make trading as simple as sending an email across the web, connecting liquidity networks like SMTP connects email providers, and have the potential to turn centralized exchanges into "email front-ends" to a unified capital markets system. DeFi robo-advisor return automation strategies are driving capital markets efficiencies that weren't possible before DeFi's open banking data APIs. DeFi enables anyone to provide these services to anyone else with an internet connection anywhere across the globe.

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- **Disrupting the financial sector:** DeFi's market cap has risen to ~\$90 billion in two years. DeFi assets are now valued at over 2.6% of the \$4.2 trillion market cap of the S&P 500 Financial Services Sector. Yet, at only ~1.6% of the \$8 trillion global banking industry, DeFi is still in its early innings.
- **DeFi adoption & opportunity:** DeFi users have grown ~6x year-to-date to 3.5 million and will soon approach the scale of leading banks if this rate of growth can continue. Total value locked in DeFi exceeds \$170 billion, which would be ~1% of all U.S. commercial bank deposits, or make DeFi the 18th largest U.S. bank by assets. From these assets, DeFi is on pace to generate ~\$5 billion in annual revenue. The global financial system generates \$5.5 trillion in revenue by servicing ~\$300 trillion in assets, while a single U.S. digital wallet user could be worth ~\$20,000, leaving a large opportunity for DeFi.
- **Risks to the DeFi ecosystem:** Regulatory uncertainty is one key risk to DeFi. Crypto and DeFi are seeking to form an emerging market cloud economy, but these global organizations must still engage in international relations or risk foreign sanctions. Additional risks to DeFi include the potential for hacks or bugs, still maturing tech, crypto price volatility, and unproven economic or governance models for some tokens.

Crypto creates an internet owned by its users and DeFi empowers those users to own a piece of that financial ecosystem. DeFi is the third wave of crypto cloud economy growth and the next wave of fintech innovation. The internet expanded access to information and DeFi has the power to do the same for banking. DeFi seeks to transform the way people establish trust on the internet and provide 33 million U.S. underbanked households, 1.7 billion underbanked adults globally, and 4.6 billion internet users a new banking alternative.





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DeFi Thesis

New Internet Stack: Web 3.0 Cloud Economies

The internet continues to evolve as the technology stack expands. DeFi applications represent one of the newest layers of the stack. As new advancements built on innovations that came before, they have unlocked new use cases, driven massive value creation, and led to future layers of the stack. Several of the key advancements that have led to the innovation of crypto and then DeFi have originated from:

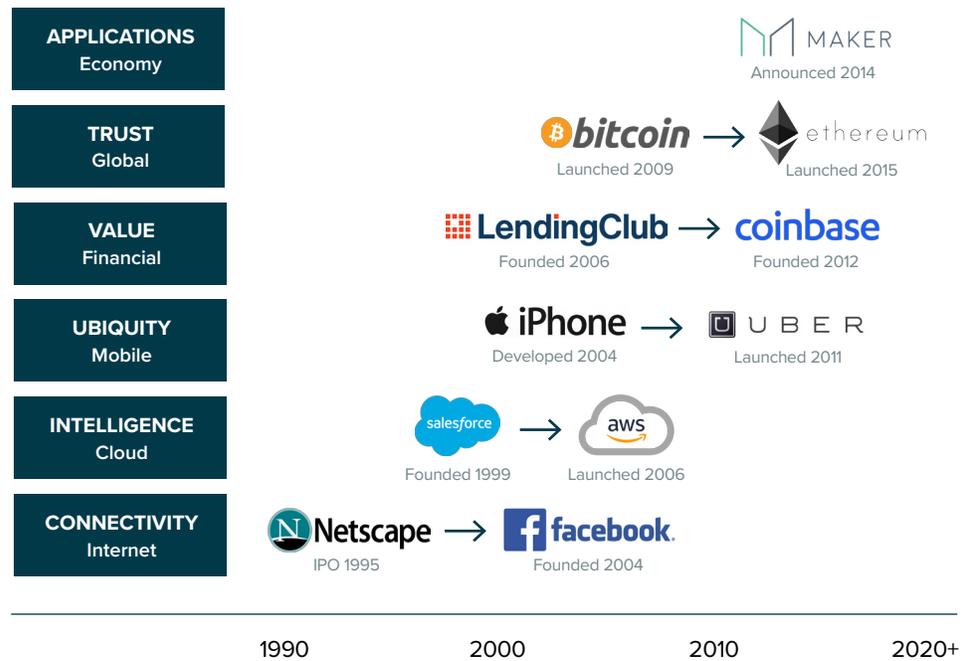
- **Connectivity:** Netscape connected us online; Facebook organized the globe into online communities; and crypto allowed those communities to form unique governance systems.
- **Intelligence:** Salesforce created powerful software automation tools, AWS made cloud applications powerful enough to run an economy, and crypto turned cloud software into cloud economies.
- **Mobile:** iPhones gave us internet access everywhere, Uber connected a network of mini computers that could take us nearly anywhere, and crypto turned independent PCs into a globally unified computer accessible to everyone.
- **Financial:** Lending Club gave us a responsible intermediary for lending unknown peers money over the internet, Coinbase acted as a familiar gateway to anonymously created internet money, and crypto made once strange P2P online payments a trusted concept.
- **Global:** Bitcoin created a global monetary system accessible to anyone, Ethereum transitioned cryptocurrencies to cloud economies, and crypto economies are reshaping global e-commerce.
- **Economy:** MakerDAO gave us a natively digital system for global risk sharing, DeFi apps created a financial ecosystem, and crypto continues financing the next wave of tech innovations.

These technology stack advancements have combined to create the crypto economy we know today. Crypto offers a new investment frontier sitting at the intersection of the internet and emerging markets. These crypto cloud economies continue to see rapid growth by exporting internet goods and services to traditional economies across the globe. DeFi represents ownership of the financial networks powering this internet paradigm shift called Web 3.0.

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FIGURE 1: THE NEW INTERNET STACK¹



DeFi: Next Phase Of Crypto Market Growth

Crypto economies have evolved in phases of growth that have allowed increasingly complex internet-native communities to form. Digital Money, Economy Platforms, and Financial Ecosystems have been the three most pronounced phases of crypto maturity thus far. Similar to the [Web 1.0](#) and [Web 2.0](#) phases of the internet, each new phase of crypto Web 3.0 was built on and enhanced the prior stages:

- **Phase 1: Digital Money:** Cryptocurrencies like Bitcoin, Litecoin, and ZCash formed the most basic pillar of any functioning society: a trusted system for value exchange using blockchain.
- **Phase 2: Economy Platforms:** Computing networks like Ethereum, Cardano, and Solana developed the infrastructure to incorporate and operate digital businesses: a system for internet-native legal agreements using smart contracts.
- **Phase 3: Financial Ecosystems:** Decentralized finance protocols like MakerDAO, Yearn Finance, and Uniswap formed the building blocks for sophisticated, integrated, and efficient global capital markets: a system for open and composable banking APIs.

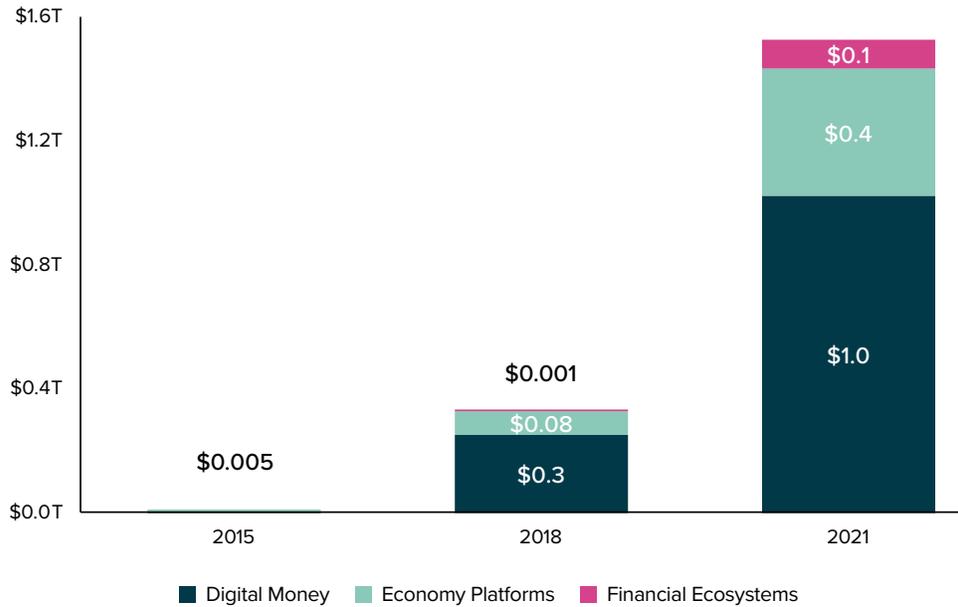
1. Grayscale, Bain Capital Ventures Inspired





As new innovations emerge, they benefit those that came before, and combine to accelerate growth of the crypto economy. DeFi is the latest wave of progress in the crypto universe.

FIGURE 2: **DIGITAL MONEY, ECONOMY PLATFORMS & FINANCIAL ECOSYSTEMS VALUE²**



DeFi: Fintech 2.0

DeFi is an ecosystem of internet-native banking services enabled by software applications that run on crypto cloud economy platforms like Ethereum. DeFi applications, often termed dApps (Decentralized Applications) due to their global nature, make financial services available to anyone with an internet connection anywhere across the globe. DeFi dApps leverage open-source software protocols governed by crypto network users to disintermediate many services offered by traditional finance companies. DeFi has only recently emerged, but the sector has rapidly matured to facilitate several foundational banking services, including stablecoins, lending & borrowing, exchanges, derivatives, data, asset management, and others.

2. Grayscale, Coinmetrics: Data only included Coinmetrics supported assets within the following category groupings: Digital Money (currency, privacy & remittance), Cloud Economy Platforms (Platforms), Financial Ecosystems (DeFi). Market caps are average yearly value. Data for 2021 as of 9/23/21.



FIGURE 3: TRADITIONAL, CRYPTO & DECENTRALIZED FINANCE SERVICE PROVIDERS³

	Decentralized	Centralized (Crypto)	Centralized (Traditional Finance)
Stablecoins	 MAKER	 tether	
Lending & Borrowing	 Compound	 BlockFi	 ROCKET Mortgage by Quicken Loans
Exchanges	 UNISWAP	 coinbase	 Robinhood
Derivatives	 SYNTHETIX	 Deribit	 CME Group
Data	 Chainlink	 COINMETRICS	 Bloomberg
Asset Management	 Yearn.Finance	 GRAYSCALE	 BlackRock

Explosive Value Creation Across DeFi Sectors

Since MakerDAO was launched in 2015, many other DeFi applications have continued to emerge across banking sectors. After several years of technology iterations, 2020 became the year that DeFi found product-market-fit and really took off. DeFi saw the value of leading protocols rise from under \$1 billion to near \$90 billion today.

DeFi value creation has varied across sectors, with decentralized exchanges and lending platforms capturing the lion's share of growth thus far, while other segments of the space continue developing as the technology matures.

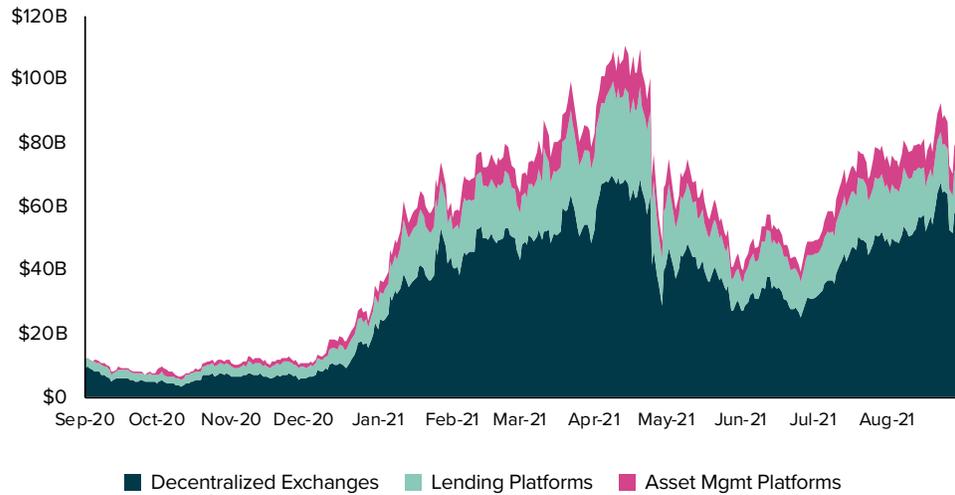
³ Grayscale





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FIGURE 4: MARKET CAP OF SELECT LEADING DEFI PROJECTS BY SECTOR⁴

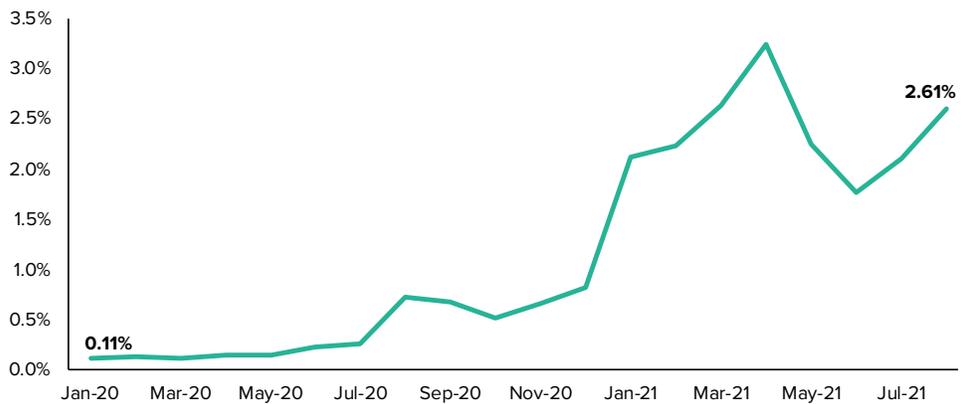


DeFi > 2.5% S&P 500 Financial Sector Market Cap

DeFi is quickly reaching a point of critical mass where the nascent ecosystem of protocols may be starting to seriously compete with incumbent financial services firms. The market cap of leading DeFi assets is now over 2.5% of the \$4.2 trillion market cap of the S&P 500 Financial Services Sector.

More impressive is the speed at which DeFi has grown its market share. In relative terms, DeFi has risen by ~25x from ~0.10% to ~2.5% of the U.S. Financial Sector in a little under two years.

FIGURE 5: DEFI MARKET CAP AS % OF S&P 500 FINANCIAL SERVICES MARKET CAP⁵



4. Grayscale, Token Terminal: Top 10 assets in each sector (9/30/20 - 9/24/21)
 5. Grayscale, Bloomberg, Coinmetrics (8/31/21)





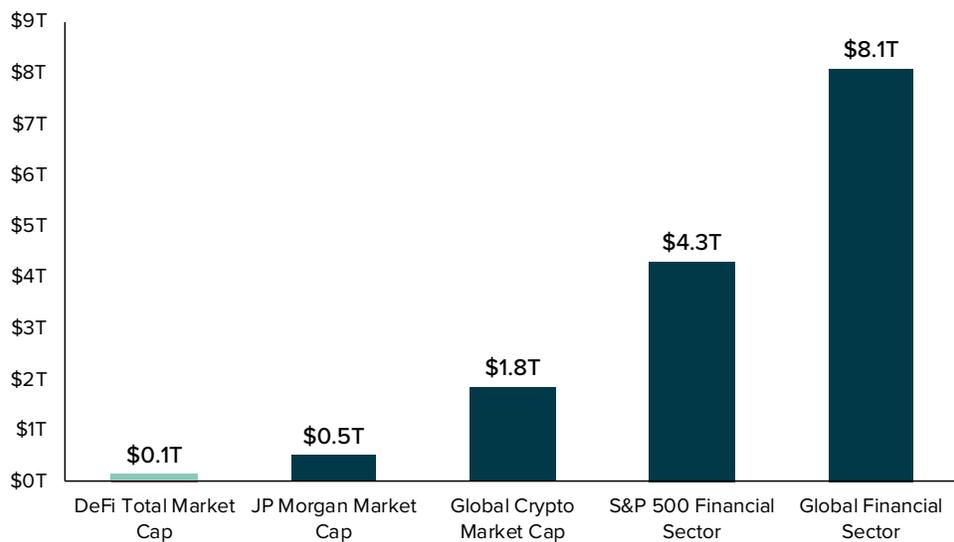
Early Innings: \$8T Global Financial Sector TAM

The DeFi ecosystem is still in its early innings compared to the Total Addressable Market (TAM) opportunity. The total DeFi market cap is still only ~1.6% of the \$8 trillion market value of the global financial services industry. Meanwhile, the market cap of JP Morgan alone is nearly 5x the size of the entire DeFi ecosystem.

DeFi has the potential to grow by both absorbing share from the legacy financial industry and by growing share as a proportion of the nearly \$2 trillion value of the crypto economy.

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FIGURE 6: MARKET CAP OF SELECT FINANCIAL SERVICES ASSETS & MARKETS⁶



6. Grayscale, DeFi Market: CoinMarketCap (9/29/21). JP Morgan: Bloomberg (10/6/21). Crypto Total: CoinMarketCap (9/29/21). S&P 500 Financial Sector: Bloomberg (8/31/21). Global Finance Sector: MSCI World Financials Index (9/30/21).



Solution

Paradigm Shift From TradFi To DeFi

DeFi seeks to offer a paradigm shift from the way traditional banking is delivered today across several channels:

FIGURE 7: TRADITIONAL FINANCE & DECENTRALIZED FINANCE DIFFERENCES⁷

	Traditional Finance (TradFi)	Decentralized Finance (DeFi)
Customers	Restricted to select geographies and privileged customer biases, requiring anti-discrimination laws	Non-discriminatory equal access for anyone with an internet connection
Structure	Banking offered by traditional companies or legal entities	Banking offered by open-source crypto network software protocols
Participation	Services provided by designated companies and their employees	Services provided peer-to-peer by anyone to anyone else
Ownership	System owned by public or private shareholders or government entities	System owned by public and open to anyone in the user community
Governance	Decisions made by management, industry bodies, and regulators	Decisions made by the protocol, developers, and user community
Asset Custody	Assets held by institutions or custody provider	Assets held directly by users or in non-custodial smart contracts
Unit of Account	Denominated in fiat currency	Denominated in digital asset
Transactions	Executed via intermediaries	Executed via smart contracts
Clearing	Facilitated via clearing house	Facilitated via the protocol
Settlement	3-5 business days depending on transaction times during Monday to Friday business hours	Seconds to minutes depending on blockchain with operating times 24 hours per day 365 days a year
Legal Disputes	Paper legal agreements settled by slow and expensive traditional local court systems	Digital legal agreements settled automatically by software for the cost of a typical transaction fee
Auditability	Authorized third-party audits produced on a quarterly basis	Open-source code and public ledger auditable by anyone on a block-by-block basis
Collateral	Under-to-un-collateralized in many cases with intermediaries exposing system to risks	Fully-to-over-collateralized in most cases reducing systemic risks
Risks	Vulnerable to hacks and data breaches	Vulnerable to smart contract hacks and data breaches

7. Grayscale, Race Capital Inspired





Composable Open-Banking Ecosystems

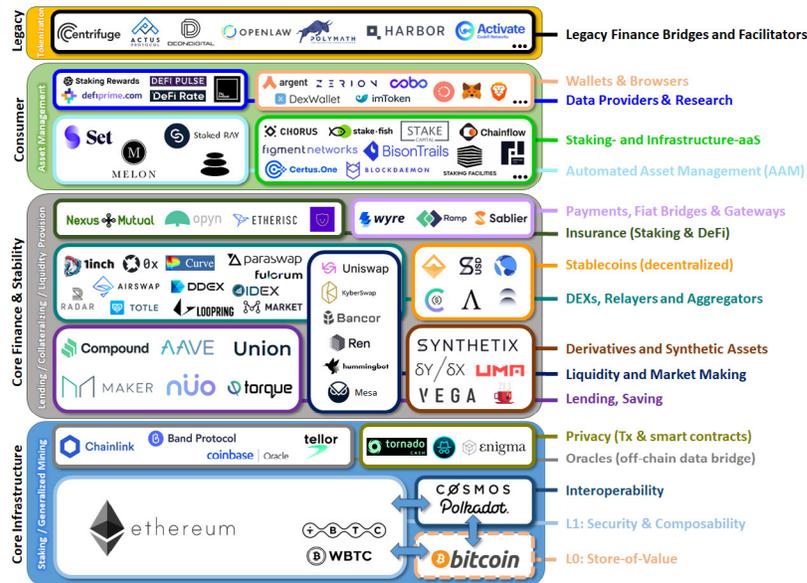
Banks have been notoriously anti-competitive and reluctant to allow customers to share their information or integrate with other financial services providers, with the aim of maintaining market share in a mature industry. However, what’s best for banks has not always been best for consumers.

These practices have led to siloed banking systems that don’t interoperate optimally with each other, inefficient sharing of consumer’s past financial data which has limited access to credit, and an environment that has slowed financial innovation. Problems like these have pushed policy makers to pass “Open Banking” legislation in places like the European Union (E.U.).

Open Banking initiatives have given rise to a wave of E.U. “challenger banks” that sprung up to compete with legacy institutions now required to offer greater access to their system APIs. Yet, these regulations haven’t gone as far as many hoped. Now, many challenger banks have turned to partnering with legacy banks instead of competing with them to improve the system for users.

DeFi protocols offer their services using permissionless, transparent, and interoperable open-source software systems. As a result, DeFi dApps can innovate on each other without any permission or risk of losing access to critical infrastructure layers, while users are free to bring their assets and data with them across the ecosystem. DeFi’s open architecture has led to a Cambrian explosion of innovation that’s unbundling financial services into “banking as an API” much like the internet and YouTube unbundled TV packages.

FIGURE 8: TRADITIONAL FINANCE & DECENTRALIZED FINANCE DIFFERENCES⁸



8. Staking Rewards





Solving High Bank Fees & Low Savings Rates

Banking’s most basic function has historically been safely holding their depositor’s funds. Yet, restrictive bank account opening processes combined with average balance requirements of nearly \$10,000 to waive the monthly service fee on an interest checking account, have made basic banking services inaccessible to many. Bitcoin solved this problem over a decade ago by allowing users to self-custody their funds for free in a digital wallet accessible to anyone anywhere.

However, banks offered consumers something Bitcoin historically could not, an interest return on savings deposits. Not only has this advantage eroded as the interest rates U.S. and global banks pay consumers on savings deposits have fallen to near zero, but DeFi also enabled crypto savers to lend their assets, including Bitcoin, in exchange for interest.

FIGURE 9: **AVERAGE MINIMUM BALANCE TO WAIVE INTEREST CHECKING ACCOUNT FEES & SAVING RATES⁹**



Decentralized Exchanges Democratize Investment Access

Investment access has been a key gateway to financial freedom for generations of American workers. The power of open and free capital market access is underscored by the nearly 2.5x increase in the number of working hours it takes to buy the S&P 500 since 2006.

The promise of fintech social trading platforms was to bring cheap and convenient financial market access to a new generation of U.S. investors. Yet, the meme stock trading frenzy proved to many that fintech firms still primarily cater to the large institutions and not their once loyal users.

9. Grayscale, [Bankrate](#), [US News](#)



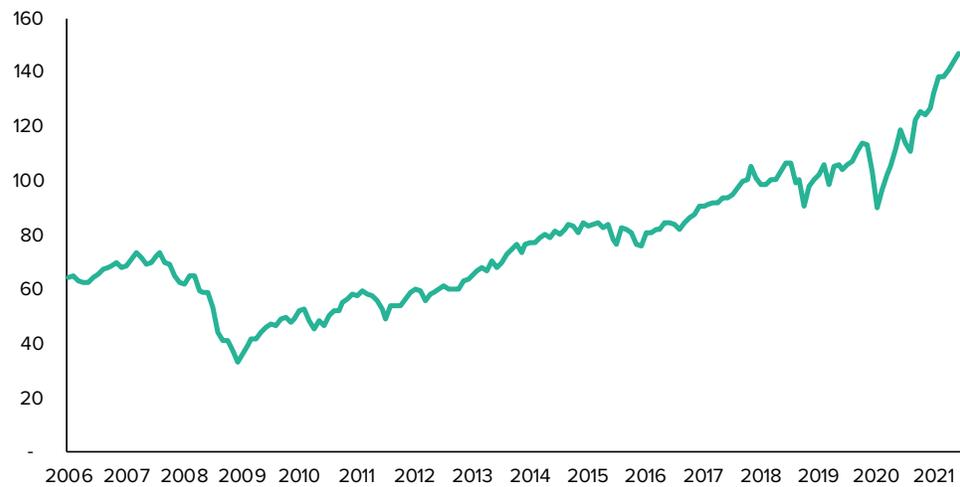


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DeFi Decentralized Exchange (DEX) services aim to solve this problem for future investors across the globe. DeFi DEXs fundamentally change the brokerage account trading experience in several key ways:

- Offers a single global unified market option for liquidity.
- Anyone can execute a trade, list an asset, and add or remove liquidity.
- Users transact directly from their wallets instead of required brokerage intermediaries who either charge high fees or sell their customers' order flow.
- Anyone, not only designated institutions, can become a market maker and earn fees on their assets by providing liquidity.
- Contracts are pre-specified and guaranteed to execute as written, removing the risk of subjective terms of service revisions by intermediaries.

FIGURE 10: WORKING HOURS TO BUY THE S&P 500 (2006 - 2021)¹⁰



DeFi User Growth Opportunity

The massive consumer base that banks have left behind underscores the opportunity for DeFi user growth. Market segments that have been either uninterested or unable to access banking that could easily shift to DeFi include:

- **Global Crypto Users:** There are over 220M global crypto users that have been under-serviced by banks for years. Unable to access credit despite the wealth creation of the crypto economy, many users have already turned to DeFi. Yet, DeFi penetration is less than 2% of these users today, leaving ample room for crypto-native user growth.

¹⁰. Grayscale, Bloomberg, Federal Reserve

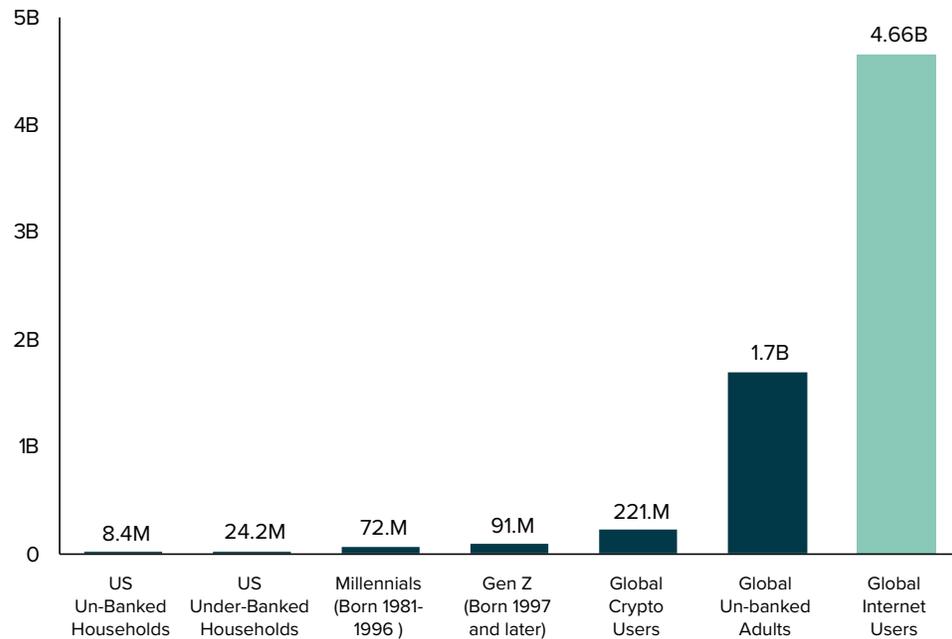




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- **U.S. Underbanked Households:** Crypto is often described as a solution for the underbanked in third world countries but not useful for consumers here in the U.S. Yet, this assessment couldn't be further from the truth. In the U.S., ~33 million households are either underbanked (24 million) or unbanked (8 million) entirely, DeFi could help these populations gain access to the global financial system.
- **U.S. Millennials & Gen Z:** U.S. millennials (72 million) and Gen-Zs (91 million) represent a combined 163 million people. These age demographics have a large share that are either unbanked (Age 15-24: 10% and Age 24-34: 9%) or underbanked (Age 15-24: 29% and Age 24-34: 23%). These younger digital-native workers who either don't trust banks or don't meet bank account requirements may gravitate to DeFi.
- **Global Underbanked Adults:** The original promise of crypto was to help the unbanked and that potential holds true today. There are over 1.7 billion unbanked or underbanked adults across the globe. With crypto and DeFi, many people in emerging markets will gain access to banking, contracts, and a legal system for the first time ever.
- **Global Internet Users:** DeFi is available to anyone with an internet connection, which currently totals 4.6 billion users globally. As the ecosystem matures, and more financial applications move to crypto protocols, this is the ultimate user base DeFi could attract.

FIGURE 11: UNDERBANKED POPULATIONS, CRYPTO USERS & INTERNET USERS¹¹



11. Grayscale, Crypto Users: [Crypto.com](https://crypto.com) July 2021, US Underbanked Households & Younger Workers: [Credit Suisse](https://www.credit-suisse.com) January 2020 report based on 2017FDIC Survey, Global Underbanked Adults: [FINDEX 2017 Report](https://www.findex.com), Global Internet Users: [Data Reportal](https://datareportal.com) 2021.



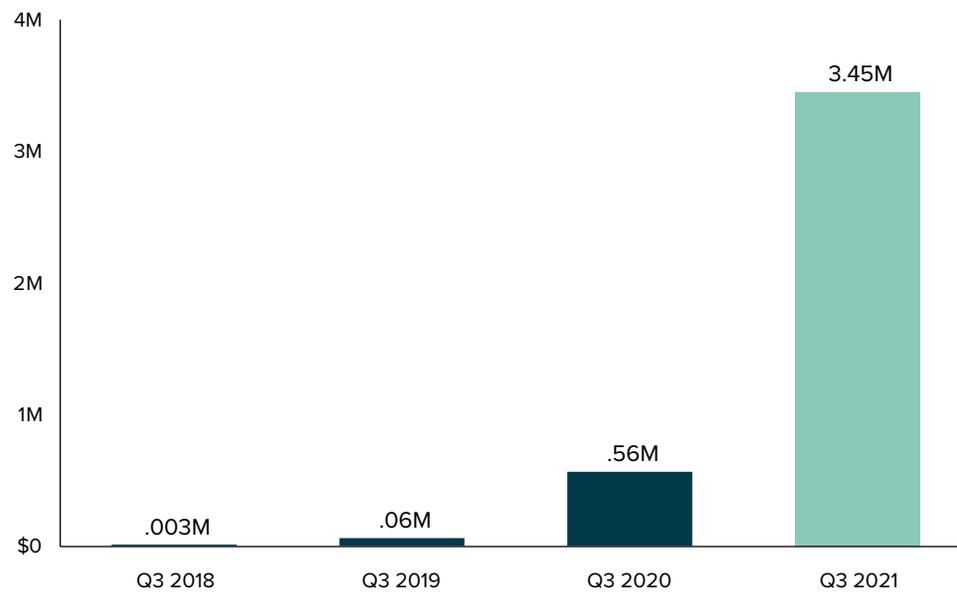


Adoption

Total DeFi Users 6x YoY Growth To 3.5M

Adoption of DeFi has grown rapidly over recent years. The total number of addresses using DeFi applications reached 3.5 million at the end of Q3 2021, representing over 6x growth from Q3 of the prior year. The rapid growth of DeFi users offers evidence that consumers are demanding a different financial services experience.

FIGURE 12: TOTAL DEFI USERS OVER TIME¹²



DeFi Protocol User Base Growth

Many popular individual DeFi protocols have seen user growth go from linear to exponential in the last year as several applications have proved out their technological viability and competitive utility.

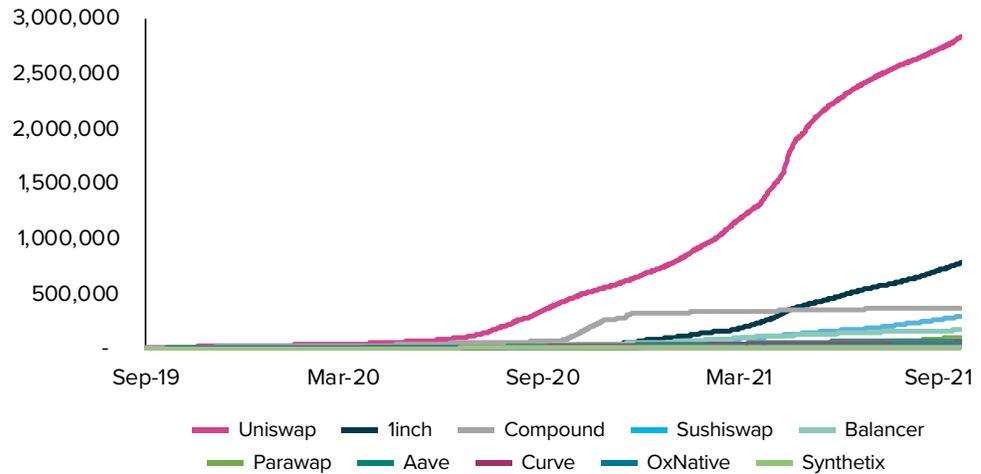
¹² Grayscale, [Dune Analytics](#)





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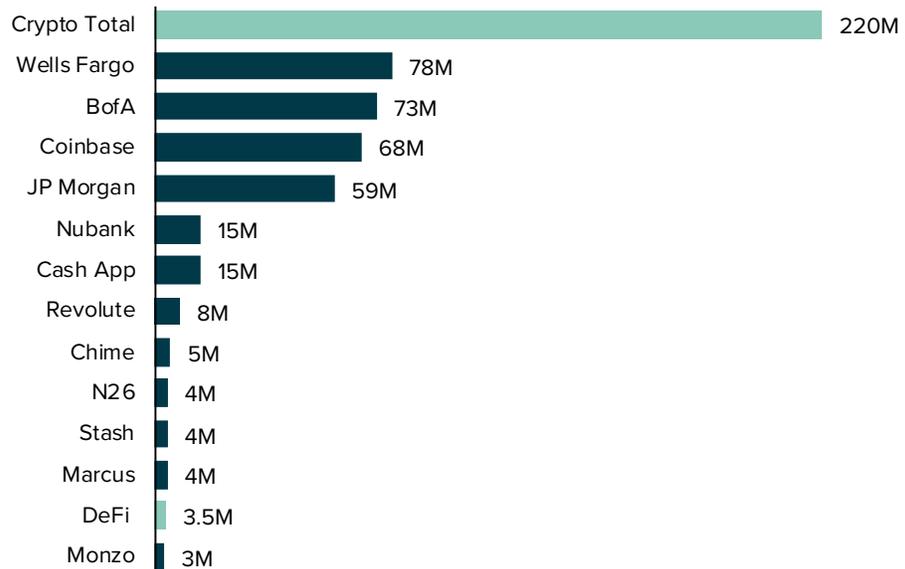
FIGURE 13: **DEFI APPLICATION USER GROWTH**¹³



DeFi Users Catching Fintech & Banking Leaders

Global crypto users have been climbing the charts against competing financial providers for nearly the past decade. DeFi users have started to climb the ranks as well over the past two years. DeFi users have reached the scale of leading fintech players and may soon approach mainstream banks if the rate of growth continues.

FIGURE 14: **NUMBER OF USERS ACROSS SELECT FINANCIAL SERVICE OFFERINGS**¹⁴



13. Grayscale, [Dune Analytics](#)
 14. Grayscale, [Credit Suisse](#), [Crypto.com](#), [CoinTelegraph](#), [Coinbase](#)

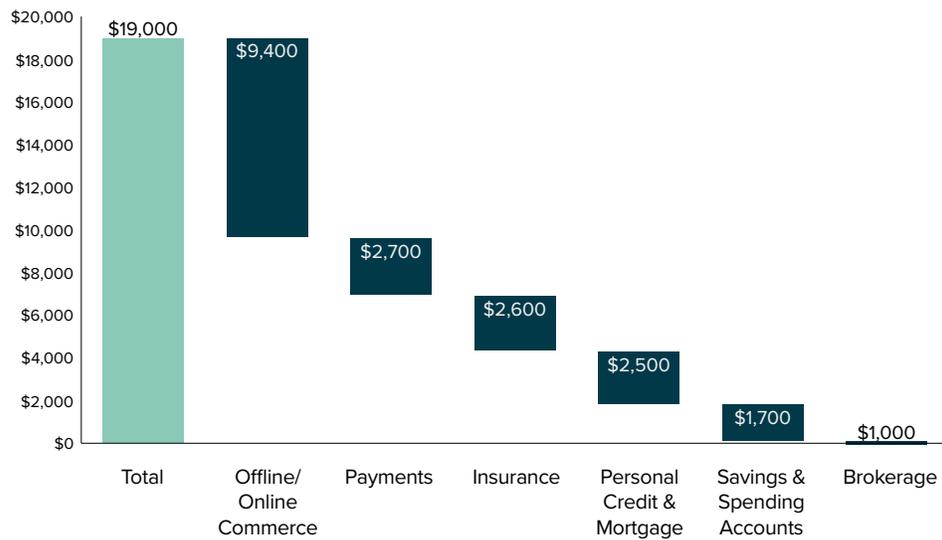


Opportunity

Digital Wallets: \$20k Value Per User Opportunity

The prize for capturing consumer digital wallet market share may potentially be enormous. At maturity, the potential value per average digital wallet customer across commercial and financial products in the U.S. is estimated to be \$19,000. This underscores the fundamental value that DeFi dApps have been accruing from their rapid user growth over recent years and the opportunity that may lie ahead.

FIGURE 15: POTENTIAL VALUE PER AVERAGE US DIGITAL WALLET CUSTOMER¹⁵



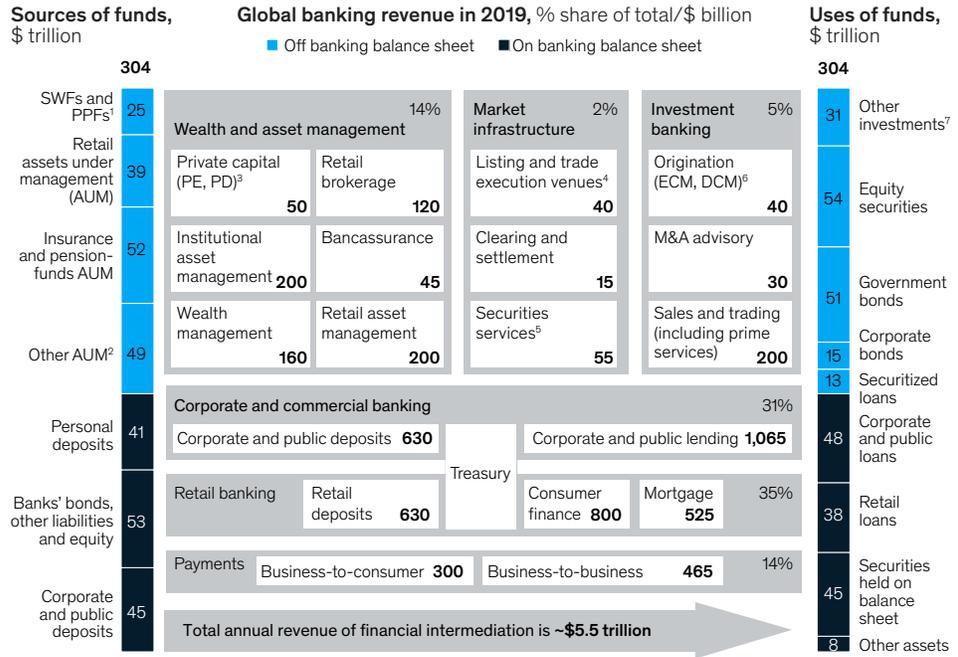
Financial Intermediation: \$300T Assets = \$5.5T Revenue

Global financial intermediation generates an estimated \$5.5 trillion in revenue across industry segments by servicing ~\$300 trillion in assets. DeFi has an opportunity to capture a greater share of this financial industry revenue pie, both as more value moves into the crypto economy and as a greater share of traditional financial assets become digitized and serviced by DeFi applications.

15. Grayscale, [ARK Invest](#)



FIGURE 16: POTENTIAL VALUE PER AVERAGE US DIGITAL WALLET CUSTOMER¹⁶



¹Sovereign-wealth funds and public-pension funds. ²Endowments and foundations, corporate investments. ³Private equity, private debt. ⁴Includes exchanges, inter-dealer brokers, and alternative venues but excludes dark pools. ⁵Custody, fund administration, corporate trust, security lending, net interest income, collateral management, and ancillary services provided by custodians. ⁶Equity capital markets, debt capital markets. ⁷Real estate, commodities, private capital investments, derivatives.

Source: SWF Institute; McKinsey Capital Markets and Investment Banking Pools; McKinsey Global Institute McKinsey Panorama Global Banking Pools; McKinsey Performance Lens Global Growth Cube



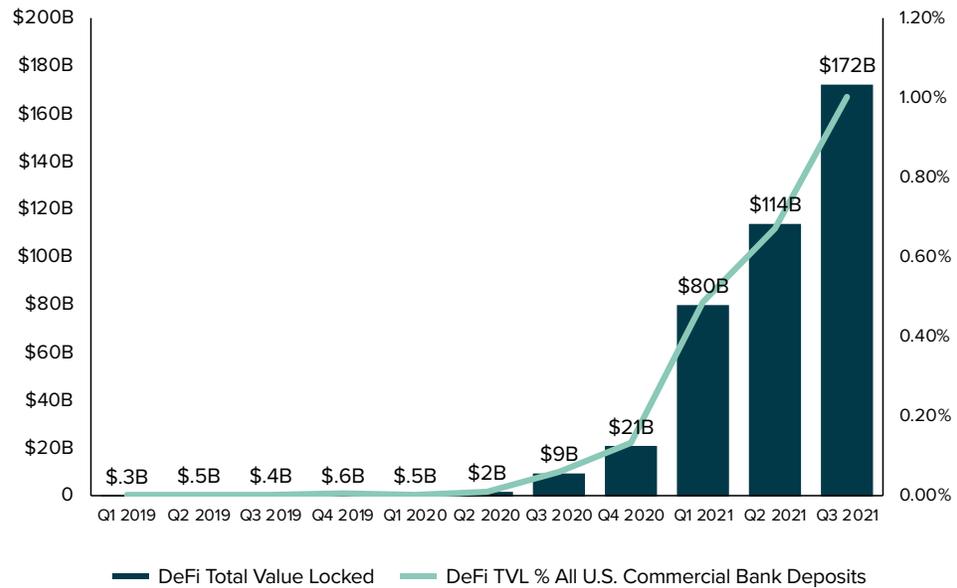


Financials

DeFi TVL 1% Of U.S. Commercial Bank Deposits

The Total Value Locked (TVL) serviced by DeFi applications has grown more than 7,700x over the last year to \$172 billion dollars as of Q3 2021. In relative terms, DeFi TVL has reached 1% of total U.S. commercial bank deposits in this short time frame. TVL is a useful metric for DeFi protocols since it measures the asset that can generate fee revenues and profits for the network and token holders.

FIGURE 17: DEFI TVL & DEFI TVL% OF ALL U.S. COMMERCIAL BANK DEPOSITS¹⁷



DeFi TVL Ranks 18th Largest U.S. Bank By Assets

Many of the largest U.S. banks have ignored the growth of crypto for years. Today, these same banks are being forced to compete with crypto DeFi ecosystems that would rank as the 18th largest U.S. bank by total assets.

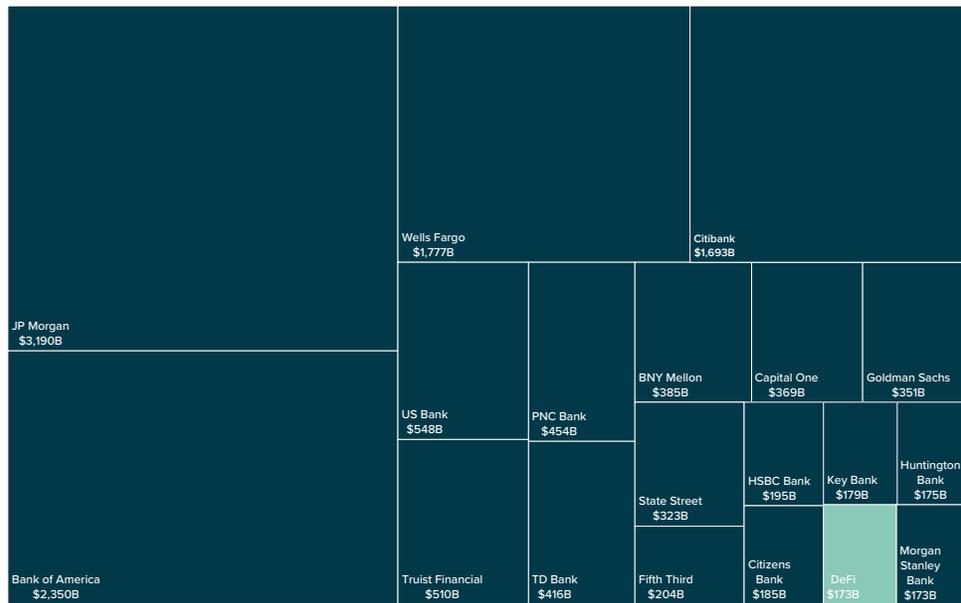
¹⁷ [DeFi Llama, Federal Reserve](#)





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FIGURE 18: U.S. COMMERCIAL BANKS BY ASSETS & DEFI TOTAL VALUE LOCKED¹⁸



DeFi Annualized Revenue: On Pace To Hit ~\$5B

Many DeFi protocols are already generating substantial network fee revenue from the financial services they provide users. During the prior six months ending 10/8/21, leading DeFi protocols generated \$2.4 billion in revenue across sectors, putting DeFi on pace to generate nearly \$5 billion of annualized revenue. Each DeFi asset has unique revenue drivers, but across sectors these may generally be a function of:

- **Exchange:** Trading volumes and transaction fee rates;
- **Lending:** Loan balances outstanding and interest rates along with loan originations and origination fees in some cases;
- **Asset Mgmt:** Assets under management by the protocol and strategy returns combined with management fees and performance fees;
- **Stablecoin:** Notional stablecoin debt balances outstanding, stability fee rates, and liquidation fees; and
- **Insurance:** Membership fees, insurance coverage costs, and investment earnings.

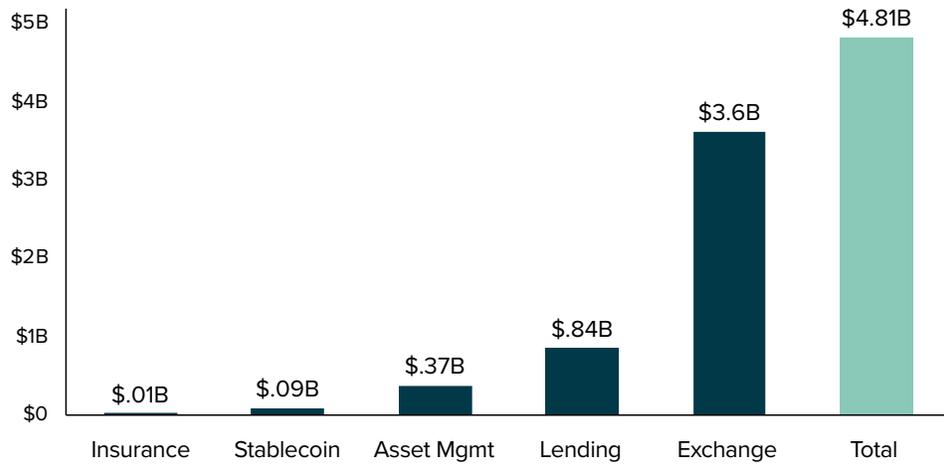
¹⁸. Grayscale, DeFi Lama, Federal Reserve





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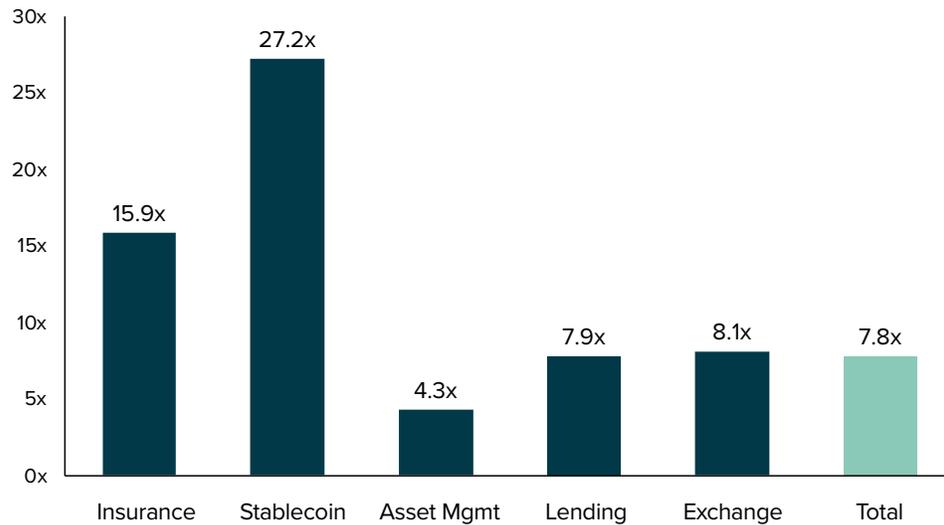
FIGURE 19: **DEFI SEMI-ANNUAL ANNUALIZED REVENUE BY SEGMENT**¹⁹



DeFi Sector Valuations: Single-Digit to Mid-Teen P/S Multiples

DeFi protocols trade at price to revenue multiples that are in line with high growth cloud stocks. Market cap (circulating supply) to forward revenue (semi-annual annualized) multiples for DeFi sectors range between 4.3x to 27.2x, with the group trading at 7.8x as a whole. This compares to the [BVP Emerging Cloud Index](#) which currently has an 8.9x bottom quartile, 20.5x top quartile, and 13.2x median forward revenue multiple.

FIGURE 20: **DEFI SEMI-ANNUAL ANNUALIZED REVENUE MULTIPLES BY SEGMENT**²⁰



19. Grayscale, Token Terminal (10/8/21): Assets Per Sector: Asset Mgmt. (LDO, YFI, CTX, INDEX), Exchange (UNI, DYDX, CRV, 11NCH, CAKE, SUSHI, SNX, BAL, PERP, DODO, JOE, MIR, ZRX, BNT, PNG, LRC, QUICK, KNC), Insurance (NXM), Lending (AAVE, COMP, CFG, LQTY, CREAM, ROOK), Stablecoin (MKR, FLX)
 20. Grayscale, Token Terminal





DeFi Protocol Token Value Capture

DeFi protocol revenue is a key input to many networks and may be one good way to look at token value given:

- The ecosystem is in its early stages and has been seeing very high revenue growth;
- DeFi projects have different economic structures and revenue offers a metric that's consistent across many protocols; and
- Revenue multiples can be compared against traditional assets outside of DeFi.

Looking beyond revenue, DeFi protocols will have varying expense structures (to which revenue is ultimately the key input) that can generally include:

- **COGS:** Revenue splits to capital or service providers;
- **Operating:** Token comp to network participants, collateral liquidation losses, and insurance claims; and
- **Other:** Allocations to the protocol governance treasury, or payments to a capital buffer loss reserve.

DeFi tokens do not have a universal economic representation, but many of the software protocols are able to deliver value to token holders via structures that incorporate:

- **Fee Dividends:** Protocols may pay fee revenues out to the token holders;
- **Token Buybacks:** Protocols may use fee revenues to retire token supply;
- **Token Dividends:** Protocols may issue new tokens to groups of holders;
- **Governance Voting:** Protocols may require tokens for governance voting; and
- **Protocol Usage:** Protocols may give users fee discounts for holding tokens.

As a result, many leading DeFi protocols have shown the ability to translate the utility they provide users into economic value for token holders.





Risks to DeFi Ecosystem

The DeFi ecosystem presents significant opportunity but also comes with a range of meaningful risks, which include:

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Regulatory: Crypto and DeFi may be forming an emerging market economy in the cloud, but these global organizations must still engage in international relations or risk the potential for foreign sanctions. DeFi's regulatory environment is still highly uncertain, and it remains to be seen how U.S. or other regulators will enact policy affecting the ecosystem. Should certain DeFi tokens be deemed securities, it would likely hamper their liquidity and harm pricing. Should certain stablecoins become more heavily regulated, they could be forced off DeFi platforms, which would harm DeFi services that rely on these fiat-backed assets as collateral. It's unclear how DeFi's open user access and data reporting model will be impacted by regulations. The incorporation of futures regulations into DeFi derivatives exchanges is still playing out. The stance regulators will take towards developers and participants on DeFi platforms is still evolving.

Hacks/Bugs: DeFi protocols have been hacked or experienced bugs that have resulted in the loss of user funds or smart contracts not executing as they were intended due to coding errors. DeFi protocols are also subject to exploit risks from poorly designed system financial parameters or governance controls that may result in lost user funds.

Tech Maturity: Crypto networks and DeFi technology are still nascent and continue to mature. There are many areas where the technology may still need to improve before DeFi can service a more sizable global financial market. Some of these areas include underlying network scalability, DeFi dApp capital efficiency, and UX/UI, among other areas.

Crypto Volatility: Crypto assets comprise a material portion of the Total Value Locked within many DeFi protocols. Crypto assets have been subject to high volatility. Negative fluctuations in the value of a DeFi protocols' crypto holdings may materially harm the dApps usage, fees revenue, governance utility, and, ultimately, token value.

Financial Models: Many DeFi projects implement the use of governance tokens affiliated with the protocol. However, it's yet to be fully seen how many of these digital assets will accrue long run sustainable value tied to the fundamental growth of the dApp.





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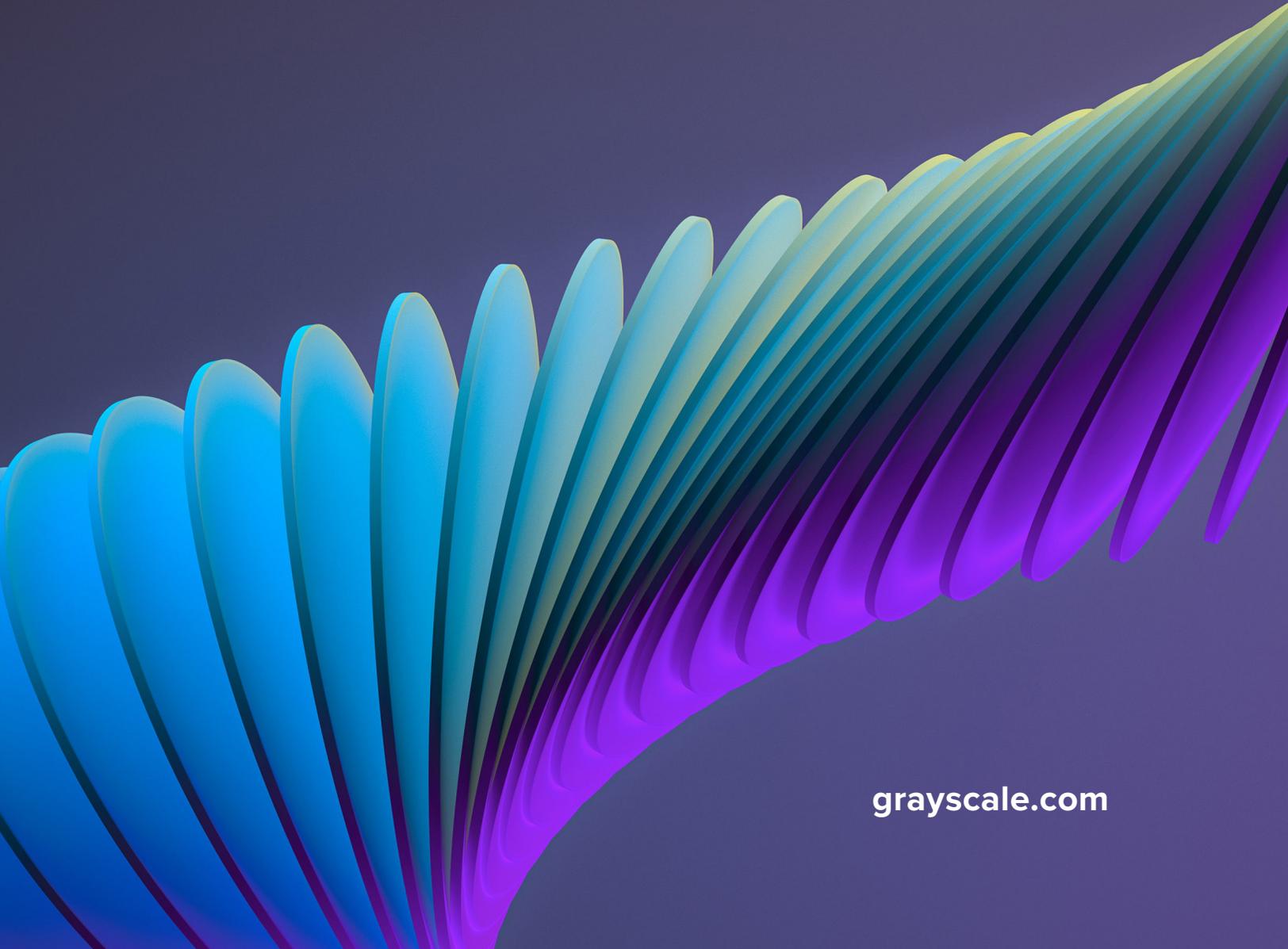
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