

Trust, Governance, and Risk in Financial Intermediation - A Comparative Analysis of Decentralized and Centralized Finance

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Abstract - Decentralized finance has disrupted the lending process by transferring the intermediary role from institutionally-led balance sheets into a public ledger framework of smart contracts, pooled liquidity, and tokenized governance. The relevance of such a change in the lending paradigm is more of a question of different trust mechanisms, where the solvency of actors can be maintained through the imposition of collateral and automated processing [1][3]. A qualitative comparison is made below through a literature-constrained synthesis of five sources on DeFi architecture, flash loan exploits, lending protocol structure, decentralized governance flaws, and extractable value [1]-[5]. The two protocols of Aave and Compound have been selected for being representative DeFi lending cases, as per the allowed literature that points them out to be the top loanable funds protocols, having liquidity pools and variable rates [1][3]. This comparison is made against CeFi as an institution-driven reference point rather than other DeFi lending protocols owing to the asymmetry of the evidence base. Three conclusions are drawn. Second, the risk architecture of DeFi lending is structurally different from other financial institutions in that flash loans, dependence on oracle feeds, smart contract weakness, composable nature, extractable value, and governance capture are not mere flaws in DeFi but inherent aspects of open and highly coupled financial systems [2][4][5]. Third, governance in DeFi is an additional security mechanism, as the governance of protocol control, parameters and responses to emergencies rests on the robustness of token-based decision-making mechanisms [4]. Thus, DeFi does not serve simply as a substitute for centralized lending, but rather as a rival institutional framework that can maintain itself if the efficiency brought about by automation can be accompanied by adequate governance and risk containment [1]-[5].

Index Terms - DeFi lending, CeFi benchmarking, risk architecture, decentralized governance, lending protocols,

systemic fragility.

I. INTRODUCTION

Financial intermediation has traditionally relied on the use of centralized organizations that assess borrowers, distribute liquidity, take on operational risks, and handle stress via discretion. In this setup, trust is invested in institutions, legal enforcement and supervision. DeFi proposes a different principle in that financial coordination can be carried out using public blockchains and smart contracts rather than an intermediary [1].

The significance of DeFi as an object of analysis can be found precisely in the reallocation of trust. In CeFi, lending is maintained through organization-level decision-making, risk management processes, and governance systems which are able to restructure, delay, or even absorb stress. In DeFi, lending is supported by rule-based commitments, collateral levels, price data, and incentives to liquidate. This is not merely an issue of technological advance, it is about the changing nature of granting credit, securing liquidity, failing, and exercising control.

There is a substantial body of work analyzing DeFi protocols, their architectures, attack vectors, governance models, and lending mechanisms in significant detail [1]-[5]. However, there is less integration of these different aspects into one coherent comparison of the DeFi and CeFi world in relation to lending mechanisms, risk management, and governance as interdependent elements. There is a lack of analysis rather than descriptive information.

The theory developed here is based on the claim that DeFi works differently from CeFi as it substitutes organizational discretion for collateral-based reasoning, public execution of transactions, and composable protocols. This produces efficiency and transparency, but also fragility in a form distinct from the one we find in CeFi [1]-[5]. Governance takes on great significance in this comparison since, in DeFi, governance is no longer only about process control; it is part of the protocol's security architecture and thus its risk architecture [4].

Research contribution. In light of such a scattered body of evidence, the current paper makes three interrelated contributions. First, it puts together lending mechanisms, governance structures, and risk architecture into one comparative approach, considering them not separately but together as interrelated elements of the intermediation model [1]–[5]. It describes the different ways in which the bases for lending – trust, accountability, solvency protection, and systemic resilience – are established in DeFi and CeFi, revealing the structural vulnerability associated with every one of these advantages [1], [3], [4]. Second, it ties together the scattered literature on the issue, where architecture, exploitability, lending mechanism, governance instability, and extractive possibilities are each analyzed independently but not synthesized into a meaningful institutional comparison [1]–[5].

II. BACKGROUND: DEFI LENDING AS A DISTINCT INTERMEDIATION MODEL

DeFi lending protocols structure credit via smart contracts that manage reserve pools, collateral, borrowing capabilities, and liquidation rules [1], [3]. It lies in the essence of the critical difference between institutionally facilitated loans and decentralized finance lending, in that the protocol does not consider the identity, income, or enforceability of the loan; only the on-chain sufficiency of collateral [3].

Therefore, overcollateralization serves as a replacement for the discretionary underwriting process rather than an additional consideration of design [3]. Instead of using documentation, legal actions, and repayment capabilities, the processes that a centralized institution uses, none of that is available at the DeFi transaction level. Solvency needs to be achieved *ex ante* via a sufficient amount of collateral to protect the reserve from any possible negative price dynamics. Openness to access can only be achieved via restricting the grounds for making a loan.

Similarly, interest rate formation operates on the same principle of automation of risk assessment. Loanable-funds protocols such as Aave and Compound regulate the cost of loans depending on pool utilization, increasing its cost as the reserve is depleted [3]. The protocol internalizes stress via pricing without waiting for managerial action; however, such efficiency implies inherent fragility.

Two additional dependencies round out the picture. Price oracles provide a connection between off-chain market data and on-chain enforcement of solvency, since lending mechanisms are unable to track external prices [2], [5]. Composability enables lending mechanisms to connect with exchanges, liquidators, collateral wrappers, and governance modules as components, reducing the costs of innovation but creating a highly interdependent ecosystem where failures spread across protocols, rather than remaining limited within a single organization's boundaries [1], [2], [5]. DeFi lending can therefore be viewed as a rules-based coordination system designed for execution rather than context-based decision making [1], [3].

III. PARTICIPATION AND INSTITUTIONAL SIGNIFICANCE

The literature does not support the more grandiose claims regarding user demographics or adoption. What it does demonstrate is that the participants who are the most significant in terms of institutional relevance are those who influence lending, governance, and risk contagion [1]–[5].

Borrowers and liquidity providers constitute the underlying credit structure, as lending pools require reserved supplies of funds and borrowing demands that are backed by collateral [3]. Liquidators, arbitrageurs, and other parties leveraging flash loans and extractable value are similarly important, insofar as they determine the process of distress resolution under stress [2], [5]. Not only do tokenholders and governance participants vote, but they can also adjust collateral parameters, protocol rules, and the response strategies to newly discovered weaknesses [4]. Further, developers and integrators enrich the system through embedding lending primitives in broader composable systems [1]. Thus, the relevance of DeFi does not lie in whether it substitutes the credit channels used by conventional finance; its relevance lies in its integration of lending, trading, and governance in one programmable setting—what makes a comparison with CeFi relevant [1]–[5].

IV. CRITICAL LITERATURE REVIEW

While the five allowed sources offer excellent coverage of the mechanisms of DeFi, they do not compare DeFi and CeFi. Their contribution consists in providing materials for a structured analysis of the themes of this paper.

Werner et al. [1] provide the most comprehensive account of the architectural aspect of DeFi. Finding: lending protocols must be understood in connection with their dependency on collateral, exchanges, and other composable financial primitives. Limitation: although the authors map the architecture of DeFi well, they do not explore the governance of lending nor the ability of DeFi to absorb stress through comparative analysis. Relevance: it is the cornerstone of the compossibility and architecture themes.

Of these studies, Qin et al. [2] give the best description of flash-loan exploitability and strategic deployment of atomic capital. Key finding: the risk in DeFi can arise instantly due to its transaction speed while the limitations in capital that usually constrain the attacker's abilities do not apply in this case. Limitation: lending design and institutional governance aspects are not the core of their study. Relevance: it provides theoretical foundation for flash-loan and smart contract features of the risk structure.

Gudgeon et al. [3] give a comprehensive overview of loanable-funds protocols, making them essential when discussing Aave, Compound, overcollateralization, rate utilization, and liquidity optimization. Key finding: lending is a result of the pool utilization rather than individual borrower's discretion. Limitation: CeFi is only mentioned tangentially as a background rather than discussed as a comparative benchmark. Relevance: it gives basis for the lending mechanism analysis and the fragility loop.

Dotan et al. [4] move the discussion away from the protocol and toward governance risks. Key finding: decentralized governance does not equal robustness merely due to openness

and use of tokens – there are issues of concentration, capture, and lack of proper participation to deal with. Limitation: the discussion focuses on governance vulnerability in DeFi rather than on the comparison of decentralized and board governance. Relevance: it allows considering governance as a security layer. Bartoletti et al. [5] further expand the study into market microstructure through analyzing extractable value of automated markets. Key finding: liquidations and collateral disposals take place in the trading environment defined by transaction order and strategic extractability. Limitation: the analysis does not have focus on lending protocols. Relevance: it illustrates the dynamics of propagation of the liquidations to the market stress.

Research gap. In total, there are four gaps in the sources. There is no holistic approach connecting lending design, governance and fragility; the sources cover DeFi mechanics better than CeFi responses, resulting in evidentiary asymmetry that needs to be addressed explicitly; governance is often considered separately from financial risk although in protocol-based system they cannot be separated [4]; and finally, the sources discuss a lot of vulnerabilities on the component level but not much about the institutional trade-off between transparency and stability. The addressing of these gaps is the goal of the chosen comparative framework [1]–[5].

V. INSTITUTIONAL TECHNOLOGIES AND THEIR OUTCOMES

The role of the underlying technology here matters only insofar as it impacts behavior and institutional control.

Smart contracts translate lending regulations into executable constraints [1], [3]. What they offer is deterministic enforcement—uniform application of collateral requirements, borrowing caps, and liquidation conditions. The trade-off of such constraints is in rigidity—the ability to suspend operations, renegotiate terms, or interpret them differently is limited to CeFi.

Oracles bridge off-chain price discovery and on-chain solvency calculations [2], [5]. The institutional effect of that process lies in the imbalance between automated execution and contested information—a faulty oracle is more than just a mistaken signal for a decision-maker; it triggers wrong liquidations throughout the whole lending system.

Pooled liquidity substitutes bilateral or balance-sheet-based intermediation with pooling of reserves [3]. This improves both access to liquidity and uniform pricing, but leaves a single point of stress at utilization and collateral levels. Pools are the source of both efficiency and contagion.

Composability speeds up innovation through the possibility of protocol reuse of existing infrastructure [1], but leads to a tighter connection between protocols [1], [2], [5] and makes localized risks harder to contain.

Governance through DAOs expands the control over a protocol outside of its developers, but the scholarly literature proves the openness does not equate sustainable governance [4]. Governance itself becomes a dependent variable, as crucial parameters and interventions during emergencies might rely on a voting mechanism that can be captured.

VI. METHODOLOGY

The study employs a qualitative comparative methodology based on literature-constrained synthesis and conceptual benchmarking. The purpose is not the econometric estimation, but the comparison of two intermediation systems on a set of characteristics common for both and recurring in all of the five sources [1]–[5].

An institutional comparison approach, based on three primary dimensions associated with the topic of the research—lending mechanisms, risk architecture and governance—is used. Secondary dimensions—liquidity rationale, transparency, accessibility and stress responses—are included only if relevant to the primary topics [1]–[5].

Two loanable-funds protocols—Aave and Compound—are chosen because of the treatment of them in the literature as examples of such lending system, which relies on pools of liquidity, overcollateralization of borrowers and utilization-driven rates [1], [3]. They serve as analytically valid cases of DeFi's predominant lending scheme.

CeFi is considered a benchmark model instead of a matched empirical sample, which is justified by the very nature of sources. Five sources give enough information about DeFi, while there is no data about named centralized financial institutions at all. Thus, CeFi is described via generic institution-specific features, which allow for comparison without any unsupported claims: discretionary underwriting, attributed governance, legal enforceability, liquidity management, and private internal controls.

Limitations regarding quantitative claims are inherent to the methodology. There are no sources that could be used for making claims about market share, number of users, default rates, comparative profitability and performance of the institutions.

The synthesis of information from sources will be done in two steps. In the first step, the core mechanism of each source is identified: architecture and composability [1], capacity for attack with flash-loans [2], loanable funds and its pricing [3], vulnerability of the governance [4], and ability to extract value [5].

In the second step, these mechanisms are classified into comparative categories: credit allocation logic, solvency enforcement, accountability, contagion speed and stress tolerance.

VII. COMPARATIVE FRAMEWORK

Table I summarizes the broader DeFi–CeFi comparison before the focused Aave–Compound comparison in Table II.

Table I. Comparative structure of defi and cefi lending

Dimension	DeFi	CeFi	Comparative implication
Lending mechanism	Pool-based, smart-contract execution, collateral-driven borrowing [1], [3]	Institution-mediated allocation and discretionary underwriting	DeFi standardizes access through code; CeFi broadens contextual judgment
Liquidity logic	Utilization-sensitive pricing and pool-state adjustment [3]	Managed liquidity through organizational control	DeFi prices stress visibly; CeFi can buffer stress less transparently
Solvency protection	Overcollateralization and automated liquidation [3]	Legal recourse, underwriting, managed collections	DeFi protects pools ex ante; CeFi can extend credit beyond existing collateral
Transparency	Public rules and on-chain execution [1]	Limited public visibility into internal decisions	DeFi improves observability but exposes strategic opportunities
Risk architecture	Oracle dependence, composability, code exploitability, flash-loan surfaces [1], [2], [5]	Centralized process, balance-sheet, and governance risk	Both carry risk, but DeFi's is more programmable and tightly coupled
Governance model	DAO and token-weighted voting vulnerable to capture and low participation [4]	Board-led, managerially attributed oversight	DeFi may broaden formal participation while weakening stable accountability
Stress response	Immediate liquidation and market-linked enforcement [2], [3], [5]	Delay, restructuring, or discretionary intervention	DeFi restores solvency faster but with greater procyclicality

VIII. LENDING MECHANISM ANALYSIS

In comparison with CeFi lending, DeFi lending mechanism is based on the principles of credit allocation differently. Specifically, while in CeFi the institution allocates credit on the grounds of borrower's identity and his capability to repay it, in DeFi the protocol evaluates the level of sufficiency of the provided collateral, not the borrower [3]. Aave and Compound are typical examples when a supply pool is created, and lending is performed against the posted collateral, and interest rates depend on the level of utilization of reserves [1], [3].

Such mechanism leads to the crucial trade-off. Namely, in DeFi procedures become neutral, because they are controlled by clear rules instead of discretion. However, the definition of the access becomes narrowed, because borrower should provide more collateral than he is going to borrow [3]. It means that in order to overcome the discretionary barrier, the system increases the collateral barrier.

In CeFi system the procedure works differently. Centralized lender could allocate the funds based on identity of borrower, his capability to fulfill the contract and possibility of paying back the debt [1], [3]. It increases the range of economically significant relationships in such systems.

This difference is reflected even in how the systems work under the conditions of distress. Thus, DeFi protocols perform liquidation to guarantee the solvency because there is no mechanism of renegotiation available [3]. However, CeFi system could delay or change the terms of deal because of the existence of negotiation space. Such a feature makes the system less procyclical, but also makes the problems harder to be detected. Thus, the question is not which system performs lending and which doesn't, but the lending on different terms of trust: verifiable sufficiency of the collateral or institutionally defined judgement.

IX. AAVE AND COMPOUND: FOCUSED PROTOCOL COMPARISON

Although the permitted literature does not support exhaustive protocol-by-protocol ranking, it does support a disciplined comparison of Aave and Compound as representative DeFi lending models [1], [3].

Table II. Aave vs. Compound in the permitted literature

Parameter	Aave	Compound	Analytical significance
Lending structure	Pool-based, shared reserves [1], [3]	Pool-based, shared reserves [1], [3]	Both exemplify the dominant DeFi loanable-funds model
Interest-rate logic	Utilization-sensitive rate formation [3]	Utilization-sensitive rate formation [3]	Liquidity pricing tied to pool stress, not borrower identity
Collateral requirements	Overcollateralized borrowing [3]	Overcollateralized borrowing [3]	Solvency depends on ex ante collateral buffers
Governance approach	Token-mediated decision structures within DeFi architecture [1], [4]	Token-mediated decision structures within DeFi architecture [1], [4]	Parameter changes are governance-dependent security matters
Risk characteristics	Oracle reliance, liquidation dynamics, composability, governance vulnerability [1], [2], [4], [5]	Oracle reliance, liquidation dynamics, composability, governance vulnerability [1], [2], [4], [5]	Risk is structural to protocol design, not unique to one platform

According to the literature the systems are similar enough for comparative analysis at master's level. They both perform lending based on the overcollateralization of pools, and the utilization-based pricing of lending products [3]. The value of these systems is not in the differences between them, but in the way they illustrate the DeFi lending model. It means that in this case, the comparison should be made not between Aave and Compound, but between Aave/Compound-style lending and institutionally mediated lending.

X. RISK ARCHITECTURE ANALYSIS

The architecture of the risk in DeFi is that of efficiency itself. This is arguably the single most significant architectural distinction of DeFi versus CeFi.

A. Flash-loan risk. Qin et al. demonstrate that flash loans permit participants access to substantial amounts of capital in one single atomic transaction, so long as repayment happens prior to the end of transaction [2]. The point is neither leverage nor any other kind of credit structure, but rather the elimination of time, funding and traditional collateral friction from exploit performance [2]. The potential for attack can be assembled temporarily and instantly put to work exploiting pricing, governance or protocols' assumptions [2]. In CeFi the attack potential is ordinarily constrained by funding availability, transaction timing and institutional constraints; in DeFi the atomic composability reduces these frictions into one single executable chain [2].

B. Oracle risk. The oracle risk is that resulting from on-chain lending dependent on off-chain price signals [2], [5]. While the protocol might look deterministic, its determinism relies on the input data it cannot produce [2], [5]. Enforcement is automatic, whereas information is disputable, hence the manipulation of the prices can make liquidation logic automatically correct according to wrong inputs [2], [5]. CeFi pricing errors are normally filtered through institutional review process, while DeFi oracle signals directly trigger automated changes to the protocol state without going through this filter.

C. Smart contract vulnerabilities. DeFi uses automated processes instead of case-by-case decisions, reducing operational ambiguity but increasing stakes related to design problems [1], [2]. One coding mistake or an unaddressed assumption becomes systematically critical once embedded into the protocol handling pooled liquidity and collateralized positions. Automation enhances consistency during routine operation, but can also amplify failure in stressful environment [2]. This stands distinctively different from the usual CeFi operational risks both by degree and pace.

D. Governance attacks. As shown by Dotan et al., the governance itself can become the object of an attack [4]. Since the governance decides on collateral requirements, protocol upgrades and emergencies, the capture or neglect of the mechanism undermines the reliability of risk management even if the protocol code itself is sound [4]. The governance can be centralized, but there is always the question of accountability; DeFi token-based legitimacy might co-exist with ineffective governance due to the lack thereof [4].

E. Liquidity fragility and composability. Gudgeon et al. demonstrate liquidity is responsive to utilization, whereas, according to Werner et al. and Bartoletti et al., liquidity and composability markets are connected [1], [3], [5]. Stress on liquidity manifests itself in public reserve conditions, interest rate movements, liquidation motivations, and disposal opportunities instead of being restricted by internal treasury. Composability increases fragility as the result of dependencies, which allow disruptions in one market influencing collateral value and liquidation processes in other [1], [2], [5]. The very interoperability facilitating innovation contributes to contagion.

F. Interpretation. CeFi is not free from risks and involves operational, governance, and solvency risk itself. The point is in the structure. DeFi risk is public, programmable, and coupled. CeFi risk is focused on institutions and protected by discretion. DeFi usually uncovers stress earlier and applies it immediately, and CeFi tends to hide it for a longer period, but may cushion shocks with the help of delayed action. The difference is not between risk and absence of it, but between transparency and discretion [1]–[5].

Table III. Risk architecture comparison

Risk type	DeFi	CeFi	Structural source
Flash-loan risk	Atomic, uncollateralized capital deployable within one transaction [2]	Constrained by funding access and settlement timing	Atomic composability removes time and capital friction from exploits [2]
Oracle risk	Automatic enforcement on contestable external price feeds [2], [5]	Pricing errors filtered through institutional review	Separation of automatic enforcement from data integrity [2], [5]
Smart-contract risk	Code flaws scale across pooled positions [1], [2]	Internal operational failure, less publicly exploitable	Substitution of executable code for discretionary intervention [1], [2]
Governance risk	Capture, low participation, token concentration [4]	Concentrated but attributable authority	Governance acts as a parameter-setting security layer [4]
Operational risk	Deterministic execution without contextual pause [1], [3]	Discretionary intervention and renegotiation	Rule rigidity replaces organizational judgment [1], [3]
Liquidity contagion risk	Stress transmitted via shared composable dependencies [1], [3], [5]	Mediated through balance sheets and internal reserves	Tight coupling of modular protocols [1], [3], [5]

XI. GOVERNANCE ANALYSIS

Governance is often framed as an issue of participation; in DeFi, however, governance is actually an issue of risk-management capabilities, as protocols need to make decisions regarding what kind of collateral to allow, liquidations, upgrades, emergency controls – decisions that influence how the protocol reacts to uncertainty [4].

DAOs and token-based governance are supposed to be open, as stakeholders can directly participate in governance [4]. However, Dotan et al. prove that decentralization by form does not mean decentralization by effect: token concentration, lower turnout, coordination problems, and strategic manipulation can all undermine the claim that protocol governance is really resilient [4]. Formal inclusion does not imply reliable monitoring. This is especially true for lending protocols like Aave and Compound, as protocol governance affects solvency boundaries and evolution [1], [3], [4]. Inability to protect such boundaries through governance makes protocol security non-code-related, since governance becomes an inseparable part of control stack.

In CeFi governance operates according to a different logic. Governance concentration in CeFi restricts participation but enhances accountability. Though boards and management can be accused of opaqueness and overmanagement, at least there are clearly defined responsible parties, and in times of stress it allows quicker response than voting.

No clear winner emerges from the comparison. DeFi governance is more open in terms of process, but risks being too weak on accountability and vulnerable to capture [4]; whereas CeFi governance is more concentrated and more accountable, but loses in transparency and broader participation. From the point of view of risk management, the key problem in DeFi is that the governance of DeFi has to accomplish dual tasks of legitimacy and security, and where the two are different, the governance process is the vulnerability itself.

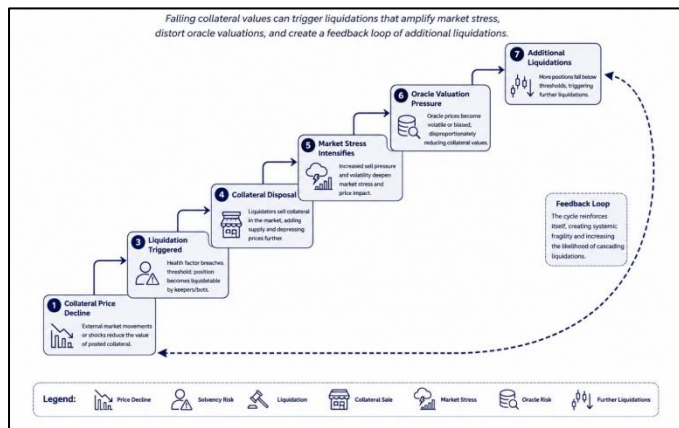
Table IV. Governance comparison

Dimension	DeFi governance	CeFi governance	Institutional implication
Decision rights	Token-weighted voting over parameters and upgrades [4]	Board-management-held authority	Breadth of formal rights vs. concentration of effective control [4]
Accountability	Diffuse and difficult to attribute [4]	Identifiable, responsible parties	DeFi widens participation while weakening attribution [4]
Participation	Often low turnout despite open access [4]	Restricted but consistently exercised	Open form does not ensure active oversight [4]
Transparency	Public proposals and on-chain records [1], [4]	Limited external visibility	DeFi gains observability; CeFi retains discretionary privacy [1], [4]
Concentration risk	Token concentration enables capture [4]	Concentration is structural but attributable [4]	Both concentrate power; only one attributes responsibility [4]
Crisis response	Dependent on voting under time pressure [4]	Coordinated discretionary intervention	DeFi may respond slower precisely when speed matters [4]

XII. SYSTEMIC FRAGILITY CHANNEL IN DEFI LENDING

The literature supports a recurrent fragility loop in which falling collateral values, liquidation incentives, market execution, and valuation pressure reinforce one another [2], [3], [5].

Figure 1. Systemic Fragility Channel in DeFi Lending



The diagram shows that DeFi deals with distress directly via interaction in the market without institutional buffers. With falling values of collateral, positions go closer to the threshold of liquidation [3]. Then liquidation becomes a process which can be executed in a strategic way and is associated with value extraction [2], [5]. Should those liquidations cause more distress or distortion of pricing input, new positions become vulnerable and initiate another cascade [2], [5]. Contagion can happen in CeFi systems as well, but through other channels – the distress may be mediated through accounting discretion, restructuring, reserves, and hierarchy of decisions.

XIII. DISCUSSION

The contrast highlights an important lesson about institutionality: While the fundamental innovation of DeFi is the digitization of lending, its true innovation lies in the restructuring of the environment of lending trusted transactions. In CeFi, trust is mediated by organizations that are opaque but can interpret, delay, and buffer; in DeFi, trust is mediated by transparent rules that perform reliably but do not have the flexibility to interpret [1], [3].

This is the reason behind the tight coupling of strengths and vulnerabilities of DeFi. Transparency improves auditability but also provides means for strategic manipulation within open market mechanisms [1], [2], [5]. Automation eliminates discretionary inconsistency but increases procyclical stress in the enforcement of rules upon stress emergence [3]. Composability enables innovation but at the cost of increased number of contagion paths [1], [5]. Open participation enlarges governance space but may undermine accountable enforcement [4]. The architecture does not unintentionally create these conflicts; it creates them because core efficiency is impossible without core vulnerability.

This is also the reason why the comparison with CeFi is relevant. It is not that the former has better technology but more flexible discretion that allows to manage risk through obscuring and delaying actions [4]. DeFi reverses the trade-off; it becomes more revealing and less buffering. This is what makes the long-term relevance of DeFi dependent on its institutional stability rather than capability. Literature already confirms that DeFi is capable of delivering lending, liquidity provision, and modular market interactions [1], [3]; what is still unclear is how sustainable these capabilities are in times of stress in case of

attackable governance, procyclical liquidation, and transmission of risk via tightly-coupled infrastructure [2], [4], [5].

Table V. Institutional trust framework

Dimension	DeFi	CeFi	Comparative interpretation
Trust source	Code, collateral, public execution [1], [3]	Institutions, legal enforceability, oversight	Verifiable rules vs. mediated judgment
Credit allocation logic	Collateral sufficiency, not identity [3]	Identity, contracts, repayment capacity	Neutral access vs. contextual reach
Solvency protection	Overcollateralization, automated liquidation [3]	Underwriting, recourse, managed collections	Ex ante buffers vs. discretionary recovery
Enforcement mechanism	Automatic, transaction-level [2], [3], [5]	Discretionary, negotiable	Immediacy vs. flexibility
Stress absorption	Market-linked, procyclical [2], [3], [5]	Buffered, delayed, restructurable	Fast revelation vs. managed concealment
Control structure	Token-based governance, capture-prone [4]	Concentrated, attributable authority	Broad form vs. accountable substance

XIV. FUTURE RESEARCH DIRECTIONS

A number of research directions arise naturally without the need to expand the scope of available evidence. Concentration of governance requires formal estimation since literature shows that the problem of protocol capture exists but does not show how reliably it can be measured [4]. Liquidation cascades can be modeled quantitatively to take into account the mechanism described above in qualitative terms [2], [3], [5]. Resilience measures such as safeguards, circuit breakers, and emergency governance require comparative evaluation of their effectiveness in stressful situations [4]. Finally, matching empirical analysis between DeFi and specific CeFi lenders could overcome the lack of empirical comparison with institutional CeFi lenders that is inherent to this research [1]–[5].

XV. LIMITATIONS

The deliberate limitation to just five permissible references entails the discipline of evidence but imposes three specific limitations. Firstly, the literature provides more material on the topic of DeFi than CeFi; hence, the latter can only be considered in terms of comparative institution design and not empirical evidence. Secondly, there is no quantitative component since none of the sources allow for using external statistics, numbers of users or adoption statistics, and comparative performance measures. Thirdly, Aave and Compound can certainly be used as representative examples of lending platforms in this literature but not exhaustive case studies in all forms, governance histories, and performance periods [1], [3].

XVI. CONCLUSION

Where DeFi distinguishes itself from CeFi is no longer the capability of automating lending, but the capability of designing an institution that is resilient enough for automation. DeFi has already shown that automated credit intermediation can be achieved through the use of smart contracts, liquidity pools, utilization fees, and collateral enforcement without any conventional intermediary [1], [3]. What needs to be solved yet is whether this capability can be realized in such a way that governance capture, oracle failure, exploitation attacks, and

tightly coupled contagions cannot threaten the system [2], [4], [5].

Where accountability, discretionary intervention, and stress absorption require identifiable authority, CeFi still has its advantages. Where transparency, programmability, and open execution provide institutionally valuable properties, DeFi still has its advantages. The comparison does not prove a displacement story, but a much stronger one—the main challenge for DeFi lies in building institutional resilience, not in functional design. Whether protocols can govern wisely and contain risk will be much more important for the credibility of DeFi than how efficiently it lends money [1]–[5].

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