Influence of Perceived Adoption of Tokenized Derivatives on Market Liquidity, Pricing Efficiency

Sri Handini
Universitas Dr. Soetomo; Surabaya, Indonesia
E-Mail: Sri.handini@unitomo.ac.id

Garry Brumadyadisty
Universitas Islam Syekh Yusuf; Tanggerang, Indonesia
E-Mail: garrybrumadyadisty@gmail.com

Susanto Soekiman
Universitas Dr. Soetomo; Surabaya, Indonesia
E-Mail: jfx.susanto@unitomo.ac.id

Denpharanto Agung Krisprimandoyo
Universitas Ciputra; Surabaya, Indonesia
E-Mail: agungkris@ciputra.com

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ABSTRACT

The emergence of tokenized derivatives marks a significant innovation in decentralized finance (DeFi), offering potential improvements in market liquidity and pricing efficiency through blockchain-enabled mechanisms. As financial markets evolve with the integration of smart contracts and distributed ledgers, understanding how user perceptions influence market dynamics becomes increasingly critical. This study aims to examine the effect of perceived adoption of tokenized derivatives on market liquidity and pricing efficiency, while assessing the mediating role of liquidity in this relationship. Grounded in the Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), and Market Microstructure Theory (MMT), the research utilizes Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze data from 150 fintech professionals based in Surabaya. The analysis reveals that perceived adoption significantly enhances both liquidity and pricing efficiency, with liquidity serving as a key mediating variable. These findings underscore the importance of behavioral constructs in shaping decentralized market outcomes and provide strategic insights for regulators, fintech developers, and policymakers aiming to accelerate adoption and improve market functionality in the DeFi landscape through perception-driven approaches.

Keywords*: Behavioral Finance, Decentralized Finance, Market Liquidity, Financial Innovation, Perceived Adoption, Pricing Efficiency, Tokenized Derivatives.*

ABSTRAK

Kemunculan derivatif tokenisasi menandai inovasi signifikan dalam keuangan terdesentralisasi (DeFi), yang menawarkan potensi peningkatan likuiditas pasar dan efisiensi harga melalui mekanisme berbasis blockchain. Seiring pasar keuangan berkembang dengan integrasi kontrak pintar dan buku besar terdistribusi, pemahaman tentang bagaimana persepsi pengguna memengaruhi dinamika pasar menjadi semakin penting. Penelitian ini bertujuan untuk mengkaji pengaruh persepsi adopsi derivatif tokenisasi terhadap likuiditas pasar dan efisiensi harga, sekaligus mengkaji peran mediasi likuiditas dalam hubungan ini. Berdasarkan Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), dan Market Microstructure Theory (MMT), penelitian ini menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM)

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untuk menganalisis data dari 150 profesional fintech yang berbasis di Surabaya. Analisis ini mengungkapkan bahwa persepsi adopsi secara signifikan meningkatkan likuiditas dan efisiensi harga, dengan likuiditas sebagai variabel mediasi utama. Temuan ini menggarisbawahi pentingnya konstruksi perilaku dalam membentuk hasil pasar yang terdesentralisasi dan memberikan wawasan strategis bagi regulator, pengembang fintech, dan pembuat kebijakan yang bertujuan untuk mempercepat adopsi dan meningkatkan fungsionalitas pasar dalam lanskap DeFi melalui pendekatan yang didorong oleh persepsi.

Kata kunci: *Keuangan Perilaku, Keuangan Terdesentralisasi, Likuiditas Pasar, Inovasi Keuangan, Adopsi yang Dirasakan, Efisiensi Penetapan Harga, Derivatif Tokenisasi*

INTRODUCTION

The economic outlook must improve to enhance community prosperity (Arrafiqi & Arifin, 2024). Amid global challenges, world economic growth in 2024 is projected at around 3% (Munte et al., 2025). The integration of tokenized financial instruments marks significant progress in Decentralized Finance (JudiJanto et al., 2023), supported by technological advances that ease digital interaction (Susanto et al., 2024). Tokenization converts traditional assets into blockchain-based tokens, enhancing liquidity, accessibility, and settlement efficiency (Purusottama et al., 2022). Tokenized derivatives via smart contracts increase transparency and reduce costs, enabling fractional ownership to expand participation and liquidity (Sufa et al., 2019; Goghie, 2024; Oktaviani, 2024). Liquidity improves pricing and reduces arbitrage, yet volatility, regulatory uncertainty, and uneven adoption remain challenges (Adisa et al., 2024; Zhao, 2024).

In the rapidly evolving digital finance landscape, market perceptions particularly regarding awareness, institutional participation, and standardization are critical to the adoption of tokenized derivatives, as emphasized by behavioral finance and innovation diffusion theories (Nguyen & Wang, 2023; Owoeye, 2023). Understanding how these perceptions influence integration into existing market structures, and how market liquidity mediates their impact on pricing efficiency, is essential (Lo & Medda, 2020; Juan et al., 2023; Shi, 2023; Korah et al., 2023). However, despite rising interest in tokenized derivatives, empirical studies linking perceived adoption to market performance remain limited (Henseler et al., 2015; George & Al-Ansari, 2023). Most research focuses on technical and regulatory aspects, overlooking the practical impact of stakeholder perceptions, particularly those of institutional investors and market professionals, on liquidity and efficiency outcomes (Al-Tawil, 2022; Kayani, 2023). This gap is significant, as perceived adoption may shape investment behaviors ahead of full market integration.

This study responds to this gap by examining how market professionals' perceptions of tokenized derivatives' adoption affect two critical market dimensions: liquidity and pricing efficiency. By employing the Technology Acceptance Model (TAM), Market Microstructure Theory (MMT), and Innovation Diffusion Theory (IDT), the research constructs a comprehensive framework that links user perception, liquidity dynamics, and price behavior (Hu et al., 2020; Wang & Xu, 2024; Keller, 2024; Riyanto et al., 2024).

The adoption of tokenized derivatives is best examined through the integration of TAM, MMT, and IDT. TAM highlights the influence of perceived usefulness and ease of use on adoption, particularly in relation to transparency and blockchain operability (Sharma, 2020; Córcoles et al., 2021; Amaaz et al., 2024; Nyaboga & Muathe, 2024). MMT emphasizes the role of liquidity in pricing efficiency, which is particularly relevant to decentralized markets, while IDT focuses on how compatibility and standardization drive innovation diffusion (Namahoot & Boonchieng, 2023; Ölçen et al., 2024). However, most empirical studies simplify adoption or rely on macro-level data, overlooking behavioral factors and rarely applying MMT to tokenized assets using SEM (Cahill et al., 2019; Jalan et al., 2021; Zhang & Wong, 2022; George & Al-Ansari, 2023).

Despite increasing interest in tokenized derivatives, empirical research linking perceived adoption to market performance remains scarce. Existing studies predominantly focus on technical and regulatory aspects, with limited attention to how stakeholder perceptions, especially those of institutional investors and market professionals, affect liquidity and pricing efficiency (Al-Tawil, 2022; Kayani, 2023). This gap is critical, as perceived adoption can influence investment behavior before full market integration. Addressing this, the present study examines how market professionals' perceptions of tokenized derivatives' adoption affect liquidity and pricing efficiency, incorporating the mediating role of liquidity. By integrating the Technology Acceptance Model (TAM), Market Microstructure Theory (MMT), and Innovation Diffusion Theory (IDT), the research offers a behavioral and market-oriented perspective often overlooked in prior work (Hu et al., 2020; Wang & Xu, 2024; Keller, 2024; Riyanto et al., 2024).

This research aims to assess how market professionals' perceived adoption of tokenized derivatives influences market liquidity and, in turn, pricing efficiency. It further investigates the mediating role of liquidity in this relationship. The study operationalizes constructs using validated Likert-scale indicators and applies Partial Least Squares Structural Equation Modeling (PLS-SEM) for hypothesis testing and model validation. The analysis is based on data from market actors within Surabaya's fintech and blockchain ecosystems, an emerging yet strategically relevant financial innovation hub.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

Perceived Adoption of Tokenized Derivatives

Tokenization of financial assets, especially derivatives, is a transformative advancement within the decentralized finance (DeFi) ecosystem. It involves converting traditional financial instruments into blockchain-based digital tokens, enabling fractional ownership and streamlined asset management (Purusottama et al., 2022). Tokenized derivatives, which are complex financial contracts embedded within distributed ledger systems, offer several strategic advantages, including reduced transaction costs, improved transparency, and expanded access for a broader range of investors (Lo & Medda, 2020; Korah et al., 2023). These benefits stem from the automated nature of smart contracts and the decentralized architecture of blockchain platforms, which eliminate the need for traditional intermediaries. Despite these technological strengths, the widespread adoption of tokenized derivatives is not solely dependent on infrastructure or system design. Instead, it hinges significantly on how market participants perceive these instruments, particularly in terms of awareness, institutional involvement, and the degree to which tokenization is viewed as standardized and trustworthy within existing financial systems.

The concept of perceived adoption refers not only to the technical usage but to the subjective understanding and willingness of market actors to engage with tokenized derivatives. Drawing from the Technology Acceptance Model (TAM), user perception particularly in terms of perceived usefulness and ease of use is a foundational antecedent of technology adoption (Amaaz et al., 2024; Nyaboga & Muathe, 2024). Additionally, the Innovation Diffusion Theory (IDT) posits that observability, relative advantage, and compatibility also significantly influence the dissemination of financial tools like tokenized derivatives across markets (Namahoot & Boonchieng, 2023). It is thus hypothesized that perceived adoption positively influences market behavior and outcomes.

H1: Perceived adoption has a significant effect on market liquidity.
H2: Perceived adoption has a significant effect on pricing efficiency.

Market Liquidity

Liquidity plays a vital role in ensuring the efficiency of financial markets and is generally defined as the ability to buy or sell assets quickly without causing significant price fluctuations (Hu et al., 2020). In the realm of tokenized derivatives, liquidity is enhanced through several mechanisms inherent to decentralized finance. These include the reduction of intermediaries, which simplifies transaction processes; the use of Decentralized Exchanges (DEXs) that enable continuous pricing and real-time trading;

and automation via smart contracts, which can significantly increase trading volumes (Alamsyah, Kusuma, & Ramadhani, 2024; Goghie, 2024). These features collectively contribute to deeper and more accessible markets for participants. Market Microstructure Theory (MMT) underpins this understanding by identifying essential components of liquidity, such as narrow bid-ask spreads, high trade volume, and rapid incorporation of information into prices, all of which contribute to overall pricing efficiency (Wang & Xu, 2024). Thus, in tokenized markets, liquidity serves as both a performance metric and a mechanism for enhancing market quality.

Liquidity is also mediated by how efficiently information is transmitted and incorporated into asset prices a mechanism that DEXs and smart contracts facilitate. However, the presence of low liquidity in thinly traded tokens can cause price slippage and mispricing, especially in markets dominated by automated market makers (Madanchian & Taherdoost, 2024). Hence, improving liquidity is not only a matter of volume but also of consistent market engagement driven by broader adoption.

H3: Market liquidity has a significant effect on pricing efficiency.

The Mediating Role of Market Liquidity

Pricing efficiency refers to how accurately and swiftly market prices reflect all available information. In tokenized markets, blockchain and smart contract infrastructure facilitate continuous trading and reduce delays in information dissemination, contributing to tighter alignment between prices and intrinsic value (George & Al-Ansari, 2023). As tokenized derivatives become more widely perceived as legitimate and standardized, improved arbitrage conditions and stronger liquidity are expected to drive pricing efficiency (Kayani, 2023; Zhao, 2024). Market Microstructure Theory (MMT) emphasizes that in efficient markets, informed traders rapidly adjust prices in response to new information, minimizing anomalies and arbitrage opportunities (Musneh et al., 2021). However, pricing outcomes in tokenized environments can be distorted by factors such as smart contract risks or unreliable oracles, particularly in illiquid or low-volume markets.

Given these complexities, market liquidity is posited to play a mediating role in the relationship between perceived adoption and pricing efficiency. Perceived adoption may increase market participation, but its direct effect on pricing efficiency is often realized through improvements in liquidity. Liquidity reflected in narrower bid-ask spreads, higher trade volumes, and faster information incorporation enables more accurate price formation (Wang & Xu, 2024). This mechanism is consistent with TAM and MMT, which suggest that technological adoption alters user behavior and transaction patterns, thereby impacting market outcomes (Cahill et al., 2019; Hair et al., 2022). By serving as a conduit, liquidity translates behavioral intent into functional efficiency, offering a critical pathway for understanding how perceived adoption shapes price dynamics in tokenized derivative markets.

H4: Adoption perception has a significant effect on price efficiency through market liquidity.

Figure 1 illustrates a conceptual model of the relationship among three primary variables: Perceived Adoption (X), Market Liquidity (Z), and Pricing Efficiency (Y). In this model, there are four hypothesized paths indicated by arrow lines. Path H1 depicts a direct relationship between Perceived Adoption and Pricing Efficiency. Path H2 indicates that Perceived Adoption influences Market Liquidity, while H3 indicates that Market Liquidity influences Pricing Efficiency. Additionally, path H4, marked with a dotted line, indicates that Market Liquidity acts as a mediating variable in the relationship between Perceived Adoption and Pricing Efficiency. This model reflects a theoretical approach that combines the behavioral perspective of technology adoption and market microstructure theory to explain how perceptions of tokenized derivatives adoption can influence pricing efficiency, both directly and through increased market liquidity.

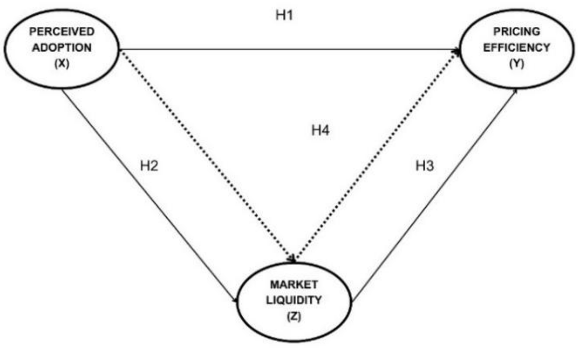

Figure 1. Diagram of Hypothesis

RESEARCH METHODS

The materials used in this study consisted of a structured, self-administered questionnaire designed to capture market professionals' perceptions concerning tokenized derivatives, market liquidity, and pricing efficiency. The instrument was constructed with 12 items mapped to three reflective constructs: Perceived Adoption (PA), Market Liquidity (ML), and Pricing Efficiency (PE), each measured by four indicators on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). These items were theoretically grounded in the Technology Acceptance Model (TAM), Market Microstructure Theory (MMT), and Innovation Diffusion Theory (IDT). The questionnaire was distributed via institutional mailing lists, professional networks, and blockchain forums. The research applied a quantitative, cross-sectional design using a positivist approach to examine cause-effect relationships. It followed a five-stage process: literature review and hypothesis formulation, instrument development and pretesting, data collection, data analysis, and interpretation of results using Partial Least Squares Structural Equation Modeling (PLS-SEM), a robust technique for analyzing complex models involving mediators and latent constructs in emerging fields like decentralized finance (Hair et al., 2019; Sarstedt et al., 2021).

The experimental design utilized non-experimental, correlational methods with purposive sampling. The unit of analysis included institutional investors, traders, analysts, blockchain strategists, and regulators from Surabaya's fintech and blockchain ecosystem. Respondents were selected based on their domain expertise in tokenized finance. Adhering to the 10-times rule of thumb for PLS-SEM, a minimum of 150 respondents was targeted to ensure adequate statistical power for models with four-indicator constructs (Hair et al., 2019). Data collection was conducted over four weeks using digital platforms, including LinkedIn, WhatsApp, and Telegram, with a screening filter in place to ensure participant relevance. A pilot test (n=20) validated item clarity and internal consistency. For analysis, SmartPLS 4.0 was employed to evaluate the measurement and structural models. Reliability was confirmed via Cronbach's alpha and composite reliability (threshold ≥ 0.70), while convergent validity was supported by AVE values ≥ 0.50. Discriminant validity was established using the Fornell-Larcker criterion and HTMT ratio (threshold < 0.90). Model fit was assessed via SRMR (< 0.08), and R^2 and Q^2 values provided evidence of predictive relevance. Path coefficients and mediation effects were tested using a 5,000-sample bootstrapping procedure, with the results presented in standardized tables and diagrams to ensure interpretability.

RESULTS

Evaluation of the measurement model in Partial Least Squares Structural Equation Modeling (PLS-SEM) is essential to ensure that the indicators accurately represent their respective latent constructs. This evaluation includes convergent and discriminant validity. Convergent validity is measured using Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). Values greater than 0.70 for Cronbach's alpha and CR indicate strong internal consistency (Chin, 1998), and an AVE greater than 0.50 indicates that the construct explains more than half of the variance in its indicators. Discriminant validity, which confirms that the constructs are distinct from one another, is assessed using the Fornell-Larcker criterion - where the square root of the AVE for each construct should exceed its correlations with other constructs.

Table 1. Construct Reliability and Validity

Construct/Item	Loading	Cronbach's Alpha	CR	AVE
Perceived Adoption		0.813	0.877	0.641
Awareness of tokenized derivatives in the market	0.811			
Institutional interest	0.756			
Adoption by financial institutions	0.788			
Standardization of usage	0.845			
Market Liquidity		0.854	0.901	0.696
Narrow bid-ask spreads	0.877			
Adequate trading volume	0.788			
Ease of entry/exit	0.803			
Continuous pricing	0.865			
Pricing Efficiency		0.841	0.895	0.682
Prices reflect new info	0.907			
Few anomalies	0.866			
Arbitrage removed quickly	0.741			
Price-fundamental alignment	0.778			

The measurement model on Table 1 is evaluated using key reliability and validity metrics - factor loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE). Together, these indicators assess the internal consistency and convergent validity of the constructs within the structural equation model. All factor loadings across constructs exceed the recommended threshold of 0.70, indicating that the individual indicators are highly correlated with their respective latent variables. For example, Perceived Adoption items range from 0.756 to 0.845, while Market Liquidity shows strong item loadings ranging from 0.788 to 0.877, and Pricing Efficiency includes loadings ranging from 0.741 to 0.907. This reflects good item reliability. Cronbach's alpha values for all constructs exceed the accepted cutoff of 0.70, indicating good internal consistency reliability (Chin, 1998). Specifically, Perceived Adoption scored 0.813, Market Liquidity scored 0.854, and Pricing Efficiency scored 0.841. These scores are well above the threshold, indicating consistent responses across items within each construct. The composite reliability (CR) values for all constructs exceed the minimum requirement of 0.70, with the highest values being 0.877 for Perceived Adoption, 0.901 for Market Liquidity, and 0.895 for Pricing Efficiency. This further confirms the high internal consistency and reliability of the constructs. The average variance extracted (AVE) for each construct exceeds the benchmark of 0.50, which indicates adequate convergent validity. The AVE values are 0.641 for Perceived Adoption, 0.696 for Market Liquidity, and 0.682 for Pricing Efficiency (Hair et al., 2019). This indicates that over 64%, 69%, and 68% of the variance in the indicators is explained by their respective latent constructs, rather than by measurement error. The constructs in this study demonstrate robust reliability and convergent validity, supporting the suitability of the measurement model for further analysis in PLS-SEM. These results provide a solid basis for testing the structural relationships hypothesized in the model.

The Heterotrait-Monotrait ratio (HTMT) is a precise method for assessing discriminant validity, as it compares correlations between indicators of different constructs versus those within the same construct. HTMT values ≤ 0.85 indicate strong discriminant validity, while values ≤ 0.90 are still acceptable in social or behavioral research contexts.

Table 2. Discriminant Validity (Heterotrait-Monotrait ratio)

Variable	Perceived Adoption	Market Liquidity	Pricing Efficiency
Perceived Adoption	0.843		
Market Liquidity	0.843	0.782	
Pricing Efficiency	0.791	0.782	0.826

Based on Table 2 the result indicates a thorough assessment of the measurement model's reliability and discriminant validity. As illustrated, the results demonstrate robust internal consistency reliability. This assertion is substantiated by Cronbach's Alpha values ranging from 0.813 to 0.854, which surpass the acceptable threshold of 0.70. Furthermore, the Composite Reliability (CR) values exceed the 0.70 benchmark, and all Average Variance Extracted (AVE) values surpass the 0.50 criterion, thereby substantiating robust convergent validity. An evaluation of discriminant validity was conducted using Table 1 and the Heterotrait-Monotrait Ratio (HTMT) method. The results indicated that all values fell below the critical threshold of 0.90, as recommended by Henseler et al. (2015). Specifically, the HTMT values are 0.843 for Perceived Adoption versus Market Liquidity, 0.791 for Perceived Adoption versus Pricing Efficiency, and 0.782 for Market Liquidity versus Pricing Efficiency. These results indicate that each construct is sufficiently distinct from the others, confirming acceptable discriminant validity using HTMT.

As demonstrated in Table 3 and the path diagram, all four proposed hypotheses (H1–H4) are supported by statistically significant results. In the context of Partial Least Squares Structural Equation Modeling (PLS-SEM), path coefficients, t-statistics, and p-values function as the principal indicators for hypothesis testing.

Table 3. Relationship of variables

Hypotheses	Path coefficients	T-Statistics	P-values	Results
Market Liquidity -> Pricing Efficiency	0.453	4.147	0.000	Accepted
Perceived Adoption -> Market Liquidity	0.872	37.545	0.000	Accepted
Perceived Adoption -> Pricing Efficiency	0.455	4.076	0.000	Accepted
Perceived Adoption -> Market Liquidity -> Pricing Efficiency	0.395	4.153	0.000	Accepted

Table 3 shows that first, perceived adoption exerts a positive influence on market liquidity. This hypothesis is supported by several pieces of empirical evidence, including a path coefficient of 0.872, a very high t-statistic of 37.545, and a p-value of 0.000, which indicates statistical significance. This result exceeds the commonly accepted threshold for statistical significance ($p < 0.05$), indicating a robust and statistically significant relationship. Second, Perceived Adoption exerts a positive influence on Pricing Efficiency, a hypothesis that is corroborated by a path coefficient of 0.455, a t-statistic of 4.076, and a p-value of 0.000. These values confirm a significant and moderate direct effect. Third hypothesis tests the effect of market liquidity on pricing efficiency. The study's results indicate a significant relationship between the two variables. The study found a path coefficient of 0.453, a t-statistic of 4.147, and a p-value of 0.000. These results suggest that increased liquidity has a meaningful impact on enhanced pricing efficiency. The present study also explores the mediating role of market liquidity in the relationship between perceived adoption and pricing efficiency. The indirect path (Perceived Adoption → Market Liquidity → Pricing Efficiency) demonstrates a path coefficient of 0.395, accompanied by a t-statistic of 4.153 and a p-value of 0.000. This finding supports the hypothesis that market liquidity serves as a mechanism through which perceived adoption influences pricing efficiency.

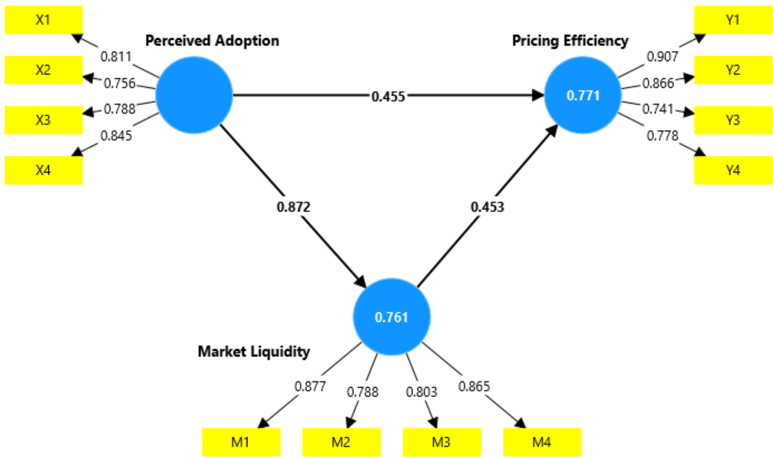

Figure 2. Path Diagram

Based on Figure 2, a path model is visible that describes the relationship between variables. Perceived Adoption appears to be the primary independent variable that has a direct influence on Pricing Efficiency with a path coefficient of 0.455. Liquidity, with a stronger path coefficient of 0.872. Market Liquidity itself then mediates this relationship by directly influencing Pricing Efficiency with a path coefficient of 0.453. The numbers inside the blue circles (0.771 for Pricing Efficiency and 0.761 for Market Liquidity) most likely indicate the R-squared value or the variance explained by the model. Finally, there are indicators (X1-X4, M1-M4, Y1-Y4) that measure each latent variable, along with the corresponding factor weights, also displayed. Moreover, the visual path diagram corroborates these findings by depicting the strength of the relationships and indicator loadings. The loadings of all measurement items exceed the 0.70 threshold, thereby substantiating the reliability of the indicators. The latent variables demonstrate R^2 values of 0.761 for market liquidity and 0.771 for pricing efficiency, indicating a substantial amount of variance explained by the model. This is interpreted as moderate to substantial explanatory power (Chin, 1998). In summary, the study's findings support the hypotheses, and the model demonstrates both strong measurement properties and meaningful structural relationships. These results validate the theoretical model and its implications for the adoption of tokenized derivatives in financial markets.

DISCUSSION

The study indicates that the perceived adoption of tokenized derivatives exerts a substantial influence on pivotal financial market mechanisms, particularly market liquidity and pricing efficiency. A robust path coefficient ($\beta = 0.872$) substantiates that when market participants perceive tokenized derivatives as being extensively adopted, it results in enhanced liquidity, as evidenced by narrower bid-ask spreads, increased trading volume, and more fluid transaction flows. This finding is consistent with the propositions of the Market Microstructure Theory, which posits that liquidity serves as a pivotal catalyst for market efficiency (Wang & Xu, 2024). Furthermore, perceived adoption has been shown to directly and statistically significantly affect pricing efficiency ($\beta = 0.455$), suggesting that markets integrate information more effectively when the integration of such instruments is believed to be widespread (George & Al-Ansari, 2023; Kayani, 2023). Market liquidity has been identified as a crucial mediator in this relationship ($\beta = 0.395$), thereby substantiating the hypothesis that enhanced liquidity serves as the primary transmission mechanism through which perceived adoption leads to improved pricing outcomes (Cahill et al., 2019; Hair et al., 2022).

A rigorous measurement model substantiates the robustness of these findings. All constructs demonstrate performance that exceeds key thresholds for reliability and validity. Specifically, Cronbach's alpha values exceed 0.70, composite reliability (CR) exceeds 0.70, and average variance extracted (AVE) exceeds 0.50. These values meet the criteria proposed by Hair et al. (2019). Discriminant validity is further confirmed through the HTMT ratio, with all values falling below the 0.90 benchmark, indicating that the constructs are conceptually distinct (Henseler et al., 2015). The model demonstrates notable explanatory power, evidenced by R^2 values of 0.761 for Market Liquidity and 0.771 for Pricing Efficiency. According to Chin (1998), these values indicate moderate to substantial predictive capacity. These outcomes validate the theoretical model and ensure methodological rigor in the application of SEM-PLS.

The novelty of this study lies in several key areas. First, it pioneers the use of perceived adoption rather than actual trading volume or infrastructure metrics as a behavioral construct within a structural model, offering a fresh perspective on market dynamics rooted in behavioral finance and technology adoption theories such as TAM and IDT (Namahoot & Boonchieng, 2023; Amaaz et al., 2024). Secondly, the empirically validated tokenized derivatives have been shown to have a significant impact on market sentiment, thereby bridging the gap between market sentiment and actual performance. Thirdly, the identification of market liquidity as a mediator contributes to the extant literature by explaining how behavioral intentions are operationalized into systemic outcomes. These insights are of practical value for fintech developers, regulators, and financial institutions seeking to enhance the legitimacy and efficacy of digital financial products through the implementation of targeted adoption strategies (Lo & Medda, 2020; Korah et al., 2023). These findings imply that fostering positive perceptions of tokenized derivatives among market participants can be as crucial as developing the underlying infrastructure. By prioritizing transparency, education, and regulatory clarity, policymakers and fintech innovators can foster adoption, increase liquidity, and enhance overall market efficiency.

CONCLUSION

This study confirms that the perceived adoption of tokenized derivatives has a significant impact on key financial market mechanisms. Higher perceived adoption is associated with improved market liquidity characterized by narrower bid-ask spreads, higher trading volumes, and smoother transactions and greater pricing efficiency, with liquidity serving as a mediating channel between the two. These relationships align with the Market Microstructure Theory, highlighting liquidity as a driver of efficient price formation.

The main theoretical contribution lies in integrating the Technology Acceptance Model (TAM) and Innovation Diffusion Theory (IDT) with market mechanism insights from Market Microstructure Theory (MMT), thereby offering a behavioral perspective on the market impact of tokenized derivatives. This interdisciplinary approach extends prior literature by shifting the focus from purely technical or regulatory adoption metrics to behavioral perceptions and their systemic consequences.

From a practical standpoint, the findings suggest that fostering awareness, standardization, and institutional trust in tokenized derivatives can meaningfully enhance market performance.

However, the study has limitations. Its cross-sectional design and focus on a single emerging financial hub limit generalizability across regions and time. Future research should incorporate longitudinal or multi-country data, integrate objective blockchain usage metrics, and explore moderators such as regulatory readiness or perceived risk. Applying alternative estimation approaches, such as CB-SEM or Bayesian SEM, could also strengthen methodological robustness. By centering on perception-driven adoption and its market consequences, this research advances both academic understanding and actionable strategies for enhancing the legitimacy and efficiency of digital financial ecosystems. Future research should incorporate longitudinal or multi-country data, integrate objective blockchain usage metrics, and explore moderators such as regulatory readiness or perceived risk. Applying alternative estimation approaches, such as CB-SEM or Bayesian SEM, could also strengthen methodological robustness.

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