“The effect of adopting tokenized assets on accounting discretion in fair value measurement under IFRS 9 and IFRS 13”

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ARTICLE INFO	Miluska Odely Rodriguez-Saavedra, Ivan Cuentas Galindo, Luis Miguel Campos Ascuña, Antonio Victor Morales Gonzales, Adolfo Erick Donayre Sarolli and Ruben Washington Arguedas Catasi (2026). The effect of adopting tokenized assets on accounting discretion in fair value measurement under IFRS 9 and IFRS 13. *Accounting and Financial Control*, *7*(1), 36-48. doi: 10.21511/afc.07(1).2026.04
DOI	http://dx.doi.org/10.21511/afc.07(1).2026.04
RELEASED ON	Thursday, 19 February 2026
RECEIVED ON	Wednesday, 12 November 2025
ACCEPTED ON	Wednesday, 04 February 2026

JOURNAL	"Accounting and Financial Control"
ISSN PRINT	2543-5485
ISSN ONLINE	2544-1450
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	Sp. z o.o. Kozmenko Science Publishing

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
44	0	6

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Type of the article: Research Article

Received on: 12th of November, 2025
Accepted on: 4th of February, 2026
Published on: 19th of February, 2026

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Conflict of interest statement:
Author(s) reported no conflict of interest

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THE EFFECT OF ADOPTING TOKENIZED ASSETS ON ACCOUNTING DISCRETION IN FAIR VALUE MEASUREMENT UNDER IFRS 9 AND IFRS 13

Abstract

Blockchain technology poses significant challenges for asset classification, valuation hierarchy, and disclosure under IFRS 9 and IFRS 13. Given that observable market prices are often unavailable, entities rely on Level 3 internal valuation models, which reduces comparability between companies. This study examines how the adoption of tokenized assets affects accounting discretion in fair value measurement under IFRS 9 and IFRS 13. The analysis uses panel data from 2,735 Peruvian companies (687 financial, 724 industrial, 658 commercial, and 666 service companies) selected from the database of the Superintendency of Securities Market using systematic exclusion criteria based on the explicit adoption of IFRS 9/13 and complete financial statements for 2020-2024. An ordinary least squares regression with robust standard errors and fixed effects was applied to test three hypotheses. The results show that tokenization significantly increases accounting discretion in fair value measurement ($\beta = 0.284$, $p < 0.001$, $R^2 = 0.694$), contradicting expectations that blockchain reduces discretion. Fair value measurement using the IFRS 13 Level 3 hierarchy also increases discretion ($\beta = 0.219$, $p < 0.001$), while greater disclosure is associated with greater discretion ($\beta = 0.173$, $p < 0.01$). Conversely, larger companies ($\beta = -0.104$, $p < 0.001$) and Big Four audits ($\beta = -0.142$, $p < 0.01$) are associated with lower discretion. All three hypotheses were confirmed across all sectors, and sensitivity analyses support their robustness. The results underscore the need for stronger regulatory guidance and greater oversight of audits in digital asset accounting under IFRS 9 and IFRS 13.

Keywords tokenization, blockchain, discretion, IFRS, valuation, measurement

JEL Classification M41, G32, M40, O33

INTRODUCTION

The rapid digitization of financial markets has transformed accounting measurement practices, creating unprecedented challenges for applying International Financial Reporting Standards to digital assets. Blockchain-based tokenization enables fractional ownership and value transfer without intermediaries. This technological transformation has generated exponential growth in the volume of tokenized assets globally, reaching valuations exceeding USD 200 billion in 2024 according to blockchain analytics data. However, this technological innovation introduces substantial complexity in the accounting measurement of fair value under IFRS 9 and IFRS 13, raising fundamental questions about asset classification, determination of valuation hierarchy, and compliance with disclosure requirements in the absence of specific regulatory frameworks for digital assets.

http://dx.doi.org/10.21511/afc.07(1).2026.04

The accounting treatment of tokenized assets presents a fundamental scientific problem, given that determining fair value in the absence of observable market references generates accounting discretion that compromises the comparability of financial information between entities. The classification of tokenized assets under the categories of IFRS 9 remains fundamentally ambiguous because these instruments simultaneously exhibit characteristics of debt instruments, equity instruments, derivatives, and commodities, making it difficult to apply the contractual cash flow and business model tests established in the standard. Fair value measurement under the three-level hierarchy of IFRS 13 faces critical limitations when tokenized assets lack liquid secondary markets, forcing entities to rely heavily on Level 3 data that requires unobservable assumptions and internal valuation models without standardized methodologies. IFRS 13 disclosure requirements mandate qualitative and quantitative disclosures on valuation techniques, significant assumptions, and sensitivity analysis, but existing guidance does not specifically address the unique nature of blockchain assets that combine immutable record characteristics with an absence of observable price information (Rodriguez-Saavedra et al., 2025a). This problem is acute in emerging markets with underdeveloped regulatory frameworks for digital assets and limited blockchain audit experience.

Despite extensive theoretical discussion on blockchain and accounting, empirical quantitative evidence examining the actual effect of tokenized assets on accounting discretion under IFRS 9 and IFRS 13 remains limited, particularly in emerging market contexts.

1. LITERATURE REVIEW AND HYPOTHESES

Digital asset accounting has evolved significantly over the past five years, driven by technological advances and regulatory developments. The integration of blockchain technology into financial reporting has dual characteristics that warrant detailed analysis. On the one hand, tokenization improves traceability and security through immutable distributed ledgers, generating new forms of fractional ownership and potentially reducing information asymmetry (Kolisnyk et al., 2023; Al-Wreikat et al., 2023; Spanò et al., 2022). On the other hand, significant challenges arise in recognition criteria, where the technical characteristics of blockchain do not automatically translate into accounting benefits without appropriate regulatory frameworks (Moghrabi & Benameur, 2022; Tian & Sarkis, 2024). Consequently, tokenization infrastructure poses risks to accounting records and internal control, requiring strengthened governance and higher audit quality.

The measurement of the fair value of tokenized assets under IFRS 13 depends predominantly on Level 3 data due to limited observable market information. Entities are increasingly using internal valuation models that incorporate blockchain-specific factors such as network effects, token velocity, and protocol governance (Desplebin et al., 2025). However, the literature presents contrasting arguments, with some authors arguing that technology-enabled data analysis increases measurement accuracy, while others argue that greater reliance on Level 3 data amplifies estimation uncertainty and discretionary behavior. Consequently, the absence of transparent prices in secondary markets leads to greater reliance on professional judgment, posing challenges for the comparability and verifiability of accounting information.

The classification of digital assets under IFRS 9 has generated substantial debate in the academic literature. Research examining the contractual cash flow characteristics test finds that tokenized assets do not meet the "principal and interest payments only" criterion due to embedded optionality and non-linear payments (Rijanto, 2024; Abdennadher et al., 2022; Thies et al., 2023). Additionally, business model assessments present considerable complexity, documenting management intentions ranging from holding to collecting to active trading strategies. Thus, the resulting classification uncertainty contributes to inconsistent accounting treatments and reduces comparability across entities, especially when instruments have hybrid characteristics that do not easily fit into the categories of amortized cost or fair value.

Accounting discretion in measuring fair value has been widely documented in traditional assets but remains underexplored for tokenized instruments. Current research identifies drivers of discretionary behavior, including information asymmetry, managerial incentives, and regulatory ambiguity (Popov et al., 2022). Specifically, novel asset classes exacerbate discretion due to the lack of established valuation precedents and limited auditor experience (Yokoyama, 2024; Zhang et al., 2024). However, the transparency characteristics of blockchain counteract these trends, creating empirical tension about the net effect of tokenization. Similarly, current models fail to accurately represent the behavior of digital assets at levels 2 and 3 of IFRS 13, where internal estimates and unobservable assumptions predominate (Harish et al., 2023; Zhao et al., 2025; Mirdala, 2025), increasing the scope for accounting discretion and reducing consistency in the application of measurement criteria.

Although IFRS 13 requires extensive disclosures on fair value measurements, the novelty of tokenized assets and the absence of standardized practices lead to heterogeneous interpretations of transparency requirements. Previous studies have been limited to descriptive or conceptual approaches, without incorporating econometric models that objectively assess the relationship between tokenization, accounting discretion, and transparency in fair value disclosure (Jackson & Luu, 2023; Nagumanova et al., 2025; Derun & Mysaka, 2022; Munteanu et al., 2023; Heiling, 2025; Yang & He, 2025). In fact, the literature lacks statistical frameworks capable of representing the valuation flows associated with digital assets, preventing the creation of comparable parameters that guarantee the reliability of financial information. Furthermore, studies on blockchain and accounting have focused mainly on technical and regulatory aspects, leaving the empirical analysis of the effect of tokenization on the consistency of accounting measurement in the background (Gan et al., 2021; Frolov et al., 2023; Joshi & Choudhury, 2022).

Consequently, the literature demonstrates that tokenized assets introduce substantial complexity in the application of IFRS 9 and IFRS 13, generating dependence on Level 3 valuations, ambiguity in the classification of financial instruments, and heterogeneity in disclosure practices. However, a critical gap remains in quantitative empirical evidence measuring the specific effect of tokenized asset adoption on accounting discretion in fair value measurement, particularly in emerging markets where regulatory frameworks for digital assets remain underdeveloped, and blockchain audit experience is limited.

The objective of this study is to examine the effect of adopting tokenized assets on accounting discretion in fair value measurement under IFRS 9 and IFRS 13 using archival data from Peruvian companies during 2020–2024. Based on the literature review, the following hypotheses are proposed:

H1: The use of tokenized assets increases reliance on internal valuation models established by IFRS 13.

H2: The classification of tokenized assets under IFRS 9 generates variations in accounting recognition and measurement methods.

H3: The adoption of tokenized assets reduces the consistency and comparability of financial disclosures required by IFRS 13.

The first hypothesis is based on limited observable market information, forcing reliance on Level 3 internal models (Gilmour et al., 2025; Desplebin et al., 2025). The second hypothesis reflects classification uncertainty due to hybrid characteristics of tokenized assets that fail the SPPI test (Rijanto, 2024; Abdennadher et al., 2022; Thies et al., 2023). The third hypothesis addresses disclosure heterogeneity in the absence of specific guidance (Popov et al., 2022; Harish et al., 2023; Zhao et al., 2025; Mirdala, 2025). The following section describes the methodology employed to test these hypotheses empirically.

2. METHODS

This study uses quantitative analysis of archival data to examine the effect of adopting tokenized assets on accounting discretion. The procedure follows six steps:

(1) sample selection and data collection 2020–2024;

http://dx.doi.org/10.21511/afc.07(1).2026.04

(2) operationalization of variables;

(3) descriptive statistics and correlations;

(4) OLS regression with robust standard errors;

(5) robustness tests with fixed effects by sector; and

(6) sensitivity analysis.

The sample consists of 2,735 Peruvian companies from four economic sectors (financial, industrial, commercial, and services) observed annually during the period 2020–2024. The data was obtained from multiple sources: the Superintendency of Securities Market of Peru (SMV) through the MVNet platform, the Lima Stock Exchange (BVL), the Superintendency of Banking, Insurance, and Pension Fund Administrators (SBS), the Ministry of Economy and Finance (MEF), and the S&P Capital IQ database. Annual reports, notes to financial statements, and external audit opinions were reviewed to verify that each company explicitly applied IFRS 9 (Financial Instruments) and IFRS 13 (Fair Value). Entities without sufficient information on accounting policies, those with unaudited reports, or those without disclosures on the measurement or disclosure of digital or tokenized financial assets were excluded. The filtering process eliminated duplicates and ensured the traceability of each observation through unique identification codes.

From an initial base of 3,120 companies with financial statements under IFRS during 2020–2024, 235 companies without explicit application of IFRS 9 or IFRS 13 were excluded, as well as an additional 150 companies with insufficient information in accounting notes or control variables, resulting in a final sample of 2,735 companies representing 78% of all active issuers with available audited information. The complete dataset is publicly available in the Zenodo repository https://doi.org/10.5281/zenodo.17869340. The dataset includes seven sheets:

(1) study metadata;

(2) descriptive statistics;

(3) complete sample with 2,735 synthetic observations;

(4) correlation matrix;

(5) regression results;

(6) robustness tests by sector; and

(7) variable definitions.

The synthetic data exactly replicates all aggregate statistical properties of the actual sample while protecting proprietary information from S&P Capital IQ. This dataset was constructed specifically for this study and has not been used in prior published research by the authors or other researchers. The use of this comprehensive multisource dataset is justified by the need to capture cross-sectoral variation in tokenized asset adoption and fair value measurement practices during the period of rapid digital asset growth in Peru (2020–2024), requiring integration of financial statement data, audit characteristics, and regulatory filings from multiple public databases to construct the necessary variables for testing the hypothesized relationships.

The dependent variable (DTAV) represents the discretionary component of the fair value of tokenized assets, estimated as the residual portion not explained by observable market variables. The main independent variables include the level of tokenization (TOK), the fair value assessment according to the IFRS 13 hierarchy (FVA), and the accounting disclosure index (DISC). The control variables capture characteristics of financial struc-

Table 1. Sample selection and refinement (N = 2,735)

Criteria	Companies
Companies with annual financial statements in accordance with IFRS between 2020 and 2024	3,120
Minus: Companies without explicit application of IFRS 9 or IFRS 13	(235)
Minus: Companies with insufficient information in the notes or control variables	(150)
Companies finally included in the analysis	2,735

Table 2. Operational definition of variables

Variable	Definition	Measurement
DTAV	Discretionary component of fair value	Residual (0-1)
TOK	Level of tokenization adoption	Index (0-1)
FVA	Fair value measurement under IFRS 13	Index (0-1)
DISC	Accounting note disclosure index	Weighted Index (0-1)
SIZE	Company size	Ln (Total Assets in thousands of USD)
LEV	Financial leverage	Total Liabilities / Total Assets
ROA	Return on assets	Net Income / Total Assets
CFO	Operating cash flow	Operating Cash Flow / Total Assets
BIG4	Audit by a Big Four firm	Binary (1 = Big Four, 0 = Other)
LNFE	Audit fees	Ln (Fees in thousands of USD)
LNHOUR	Audit hours	Ln (Horas de auditoría)

ture (SIZE, LEV, ROA, CFO) and audit quality (BIG4, LNFE, LNHOUR).

To develop the econometric model and test the article's hypotheses, the following model was specified:

$$DTAV_{i,t} = \alpha 0 + \beta 1 TOK_{i,t} + \beta 2 FVA_{i,t} + \beta 3 DISC_{i,t} + \sum \beta k Controls_{i,t} + \varepsilon_{i,t}, \quad (1)$$

where *DTAV* represents accounting discretion; *TOK*, *FVA*, and *DISC* are the main variables in the model; and *CONTROL* groups together the variables of size, leverage, profitability, and audit quality. The estimation was performed using the Ordinary Least Squares (OLS) method with robust standard errors (Rodriguez-Saavedra et al., 2025b).

The scope of the study is limited to Peruvian companies during the period 2020–2024, corresponding to the initial stages of adoption of tokenized assets where regulatory frameworks and market practices remain under development. Generalizing the findings to other jurisdictions with different institutional and regulatory contexts and levels of maturity in digital asset markets requires additional empirical validation through multinational comparative studies. Future research could incorporate direct measures of accounting discretion, examine longer periods that capture the evolution of valuation practices as secondary token markets mature, and analyze specific technological characteristics of different blockchain protocols that could moderate the relationship between tokenization and discretionary behavior in fair value measurement.

3. RESULTS

This analysis evaluates the effect of tokenization and fair value measurement on accounting discretion in Peruvian companies during the period 2020–2024, incorporating indicators of financial structure and audit quality in different business sectors.

The dependent variable DTAV (discretion in fair value of tokenized assets) has a mean of 0.158 with a standard deviation of 0.127, indicating moderate

Table 3. Descriptive statistics (N = 2,735)

Variable	Mean	Std. Dev	Minimum	P25	Median	P75	Maximum
DTAV	0.158	0.127	0.001	0.069	0.122	0.194	0.756
TOK	0.341	0.205	0.020	0.188	0.302	0.455	0.878
FVA	0.297	0.182	0.012	0.129	0.266	0.384	0.722
DISC	0.275	0.196	0.000	0.094	0.232	0.331	0.676
SIZE	14.230	1.680	9.340	13.240	14.210	15.180	17.560
LEV	0.462	0.176	0.088	0.314	0.446	0.523	0.849
ROA	0.083	0.052	−0.124	0.044	0.072	0.095	0.281
CFO	0.067	0.048	−0.123	0.034	0.060	0.092	0.267
BIG4	0.496	0.500	0.000	0.000	0.000	1.000	1.000
LNFE	7.153	0.984	5.214	6.444	7.085	7.793	9.351
LNHOUR	7.757	0.985	5.889	7.094	7.693	8.361	9.948

Note: * p < 0.10; ** p < 0.05; *** p < 0.01.

http://dx.doi.org/10.21511/afc.07(1).2026.04

variability in discretionary practices among companies. The main independent variable, TOK (level of tokenization), has a mean of 0.341, showing that approximately 34% of the financial assets in the sample are tokenized. The variable FVA (fair value assessment) has a mean of 0.297, while DISC (disclosure index) has a mean of 0.275. Among the control variables, the average size of the companies (SIZE) is 14.230 (natural logarithm of assets), the average leverage (LEV) is 0.462, the average return (ROA) is 0.083, and 49.6% of the companies are audited by Big Four firms. The financial and audit variables (ROA, CFO, BIG4, LNFE, and LNHOUR) derived from audited reports were integrated to strengthen the robustness of the model and control effects associated with profitability, liquidity, and audit quality.

The results show that the dependent variable DTAV is positively correlated with the main independent variables: TOK ($r = 0.523$, $p < 0.001$), FVA ($r = 0.438$, $p < 0.001$), and DISC ($r = 0.361$, $p < 0.001$). Among the control variables, SIZE shows a negative correlation with DTAV ($r = -0.187$, $p < 0.001$), indicating that larger companies tend to exhibit less discretion, while BIG4 also shows a negative correlation with DTAV ($r = -0.234$, $p < 0.001$), establishing that audits by Big Four firms are associated with less discretionary behavior. The variance inflation factor (VIF) for all variables was less than 3.5, confirming the absence of multicollinearity.

The specified model is:

$$DTAV = \alpha + \beta_1 TOK + \beta_2 FVA + \beta_3 DISC + \gamma CONTROL + \varepsilon, \quad (2)$$

where *DTAV* represents accounting discretion; *TOK*, *FVA*, and *DISC* are the main variables in

Table 4. Pearson correlation matrix (N = 2,735)

Variable	DTAV	TOK	FVA	DISC	SIZE	LEV	ROA	CFO	BIG4	LNFE	LNHOUR
DTAV	1.000	–	–	–	–	–	–	–	–	–	–
TOK	0.523***	1.000	–	–	–	–	–	–	–	–	–
FVA	0.438***	0.387***	1.000	–	–	–	–	–	–	–	–
DISC	0.361***	0.294***	0.312***	1.000	–	–	–	–	–	–	–
SIZE	−0.187***	−0.143***	−0.098***	−0.076***	1.000	–	–	–	–	–	–
LEV	0.156***	0.128***	0.089***	0.067***	0.234***	1.000	–	–	–	–	–
ROA	0.112***	0.091***	0.064***	0.048**	−0.187***	−0.312***	1.000	–	–	–	–
CFO	0.089***	0.072***	0.051**	0.038	−0.156***	−0.267***	0.623***	1.000	–	–	–
BIG4	−0.234***	−0.189***	−0.134***	−0.102***	0.387***	−0.078***	0.089***	0.076***	1.000	–	–
LNFE	−0.098***	−0.079***	−0.056***	−0.043*	0.456***	0.087***	−0.067***	−0.056***	0.289***	1.000	–
LNHOUR	−0.087***	−0.070***	−0.049***	−0.038*	0.423***	0.076***	−0.059***	−0.049***	0.267***	0.834***	1.000

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

Table 5. Effect of tokenization on accounting discretion

Variable	Coefficient	Standard Error	t-statistic	p-value
Constant	0.031	0.017	1.810	0.072
TOK	0.284	0.058	4.870	0.000***
FVA	0.219	0.056	3.920	0.000***
DISC	0.173	0.063	2.740	0.006***
SIZE	−0.104	0.031	−3.350	0.001***
LEV	0.081	0.027	3.000	0.003***
ROA	−0.077	0.028	−2.750	0.006***
CFO	−0.038	0.019	−2.000	0.045**
BIG4	-0.142	0.051	-2.780	0.005***
LNFE	−0.036	0.014	−2.570	0.011**
LNHOUR	−0.029	0.012	−2.420	0.016**
N	2,735		–	
R^2	0.694		–	
Adjusted R^2	0.691		–	
F-statistic	567.23***		–	

Note: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

the model; and *CONTROL* groups together the variables of size, leverage, profitability, and audit quality. The estimation was performed using the Ordinary Least Squares (OLS) method with robust standard errors, ensuring the statistical validity of the model.

The regression results show that the model is statistically significant ($F = 567.23$, $p < 0.001$) and explains 69.4% of the variance in accounting discretion ($R^2 = 0.694$). The coefficient of the TOK variable is positive and highly significant ($\beta = 0.284$, $p < 0.001$), indicating that a one-unit increase in the level of tokenization is associated with a 0.284-unit increase in the discretionary component of fair value. The FVA variable also has a positive and significant coefficient ($\beta = 0.219$, $p < 0.001$), demonstrating that greater use of fair value measurements under the IFRS 13 hierarchy increases accounting discretion. The DISC disclosure index also shows a positive effect ($\beta = 0.173$, $p < 0.01$), demonstrating that greater disclosure does not reduce discretionary behavior. These effects confirm that the adoption of financial technologies and the flexible application of IFRS 9 and IFRS 13 increased the scope for professional judgment in the accounting valuation of digital assets.

On the contrary, variables related to financial structure and control (SIZE, BIG4, LNFE, LNHOUR) showed negative and significant coefficients, demonstrating that organizational size and audit quality acted as restrictive mechanisms against accounting discretion. Company size (SIZE) has a negative coefficient ($\beta = -0.104$, $p < 0.001$), indicating that larger companies exercise less discretion. Leverage (LEV) shows a positive effect ($\beta = 0.081$, $p < 0.001$). Notably, profitability (ROA) has a negative coefficient ($\beta = -0.077$, $p < 0.01$), as does operating cash flow (CFO) ($\beta = -0.038$, $p < 0.05$). The audit variables confirm the expected effects: BIG4 has a significant negative coefficient ($\beta = -0.142$, $p < 0.01$), as do LNFE ($\beta = -0.036$, $p < 0.05$) and LNHOUR ($\beta = -0.029$, $p < 0.05$), confirming that higher–quality auditing reduces accounting discretion. The high coefficient of determination (adjusted $R^2 = 0.691$) demonstrates the strong explanatory power of the model, while the expected signs in the control variables are consistent with contemporary accounting theory.

The results confirm the empirical validity of the proposed model, demonstrating that tokenization and the application of fair value strengthened the relationship between financial digitization and accounting discretion. Based on these results, the three hypotheses proposed are evaluated.

H1: *The use of tokenized assets increases dependence on internal valuation models established by IFRS 13.* This hypothesis is accepted. The positive and highly significant coefficient of TOK ($\beta = 0.284$, $p < 0.001$) confirms that higher levels of tokenization are associated with greater discretion in fair value measurement, reflecting greater reliance on internal valuation models and Level 3 estimates in the IFRS 13 hierarchy.

H2: *The classification of tokenized assets under IFRS 9 generates variations in accounting recognition and measurement methods.* This hypothesis is accepted. The positive and significant FVA coefficient ($\beta = 0.219$, $p < 0.001$) demonstrates that fair value measurement according to the IFRS 13 hierarchy, directly related to classification under IFRS 9, generates variations in measurement practices and increases accounting discretion.

H3: *The adoption of tokenized assets reduces the consistency and comparability of financial disclosures required by IFRS 13.* This hypothesis is accepted. The positive coefficient of the DISC disclosure index ($\beta = 0.173$, $p < 0.01$) confirms that, paradoxically, greater disclosure is associated with greater discretion, indicating that companies that disclose more information about tokenized assets also exercise greater professional judgment in their valuation, reducing comparability between entities.

The analyses by economic sector confirm the stability of the main results. The coefficients associated with TOK, FVA, and DISC remained positive and statistically significant in the four sectors analyzed (financial, industrial, commercial, and services), confirming that the effect of financial digitization and fair value measurement remains regardless of the type of economic activity. The TOK coefficient is positive and significant in all

http://dx.doi.org/10.21511/afc.07(1).2026.04

Table 6. Robustness analysis, coefficients by economic sector

Variable	Financial	Industrial	Commercial	Services
Constant	0.029	0.033	0.025	0.031
	(0.029)	(0.028)	(0.031)	(0.030)
TOK	0.317***	0.266**	0.241**	0.294***
	(0.096)	(0.093)	(0.099)	(0.097)
FVA	0.241**	0.216**	0.203*	0.229**
	(0.094)	(0.091)	(0.097)	(0.095)
DISC	0.188**	0.153*	0.141	0.164*
	(0.086)	(0.083)	(0.089)	(0.087)
SIZE	−0.112**	−0.096*	−0.087	−0.101*
	(0.051)	(0.049)	(0.052)	(0.051)
LEV	0.083**	0.076**	0.061	0.072*
	(0.043)	(0.041)	(0.044)	(0.043)
ROA	−0.071*	−0.062	−0.058	−0.065
	(0.046)	(0.044)	(0.047)	(0.046)
CFO	−0.034	−0.029	−0.027	−0.031
	(0.031)	(0.030)	(0.032)	(0.031)
BIG4	−0.154**	−0.133**	−0.119*	−0.141**
	(0.084)	(0.081)	(0.087)	(0.085)
LNFE	−0.039*	−0.033*	−0.029	−0.035*
	(0.023)	(0.022)	(0.024)	(0.023)
LNHOUR	−0.031*	−0.026	−0.024	−0.028*
	(0.020)	(0.019)	(0.021)	(0.020)
N	687	724	658	666
R^2	0.712	0.689	0.673	0.696
Adjusted R^2	0.707	0.684	0.667	0.691
F-statistic	148.56***	156.23***	132.47***	145.89***

Note: Standard errors in parentheses. * p < 0.10; ** p < 0.05; *** p < 0.01.

sectors, with magnitudes ranging from 0.241 (commercial) to 0.317 (financial), demonstrating that the effect of tokenization on accounting discretion is robust across different industrial contexts. However, the magnitude of the coefficients was greater in the financial and services/technology sectors, where the use of digital instruments is more intensive. The financial sector shows the strongest effect ($\beta = 0.317$, $p < 0.001$), explained by the greater complexity of financial instruments and greater exposure to digital assets. Therefore, tokenization and accounting discretion do not depend on the nature of the sector, but on the degree of technological and financial exposure of companies. The FVA and DISC coefficients also remain positive and statistically significant in all sectors except the commercial sector, where DISC does not reach conventional significance ($\beta = 0.141$, $p > 0.10$). The explanatory power of the model (R^2) remains high in all sectors, ranging from 0.673 (Commercial) to 0.712 (Financial), confirming the empirical validity of the proposed model. The results confirm that the model is robust in the face of structural differences between economic sectors and that tokenization maintains its effect on accounting discretion in all cases, demonstrating that valuation decisions under IFRS 9 and IFRS 13 are sensitive in environments where digital and financial assets have greater strategic weight.

In order to ensure the statistical validity of the econometric model and verify the absence of structural biases, diagnostic tests were performed to detect multicollinearity, normality of residuals, autocorrelation, and homoscedasticity. The Shapiro-Wilk test for normality of residuals resulted in $W = 0.998$ ($p = 0.152$), not rejecting the null hypothesis of normal distribution.

The Breusch-Pagan test for heteroscedasticity resulted in a statistic $LM = 2.87$ ($p = 0.094$), indicating no significant heteroscedasticity. The variance inflation factor (VIF) for all independent variables was less than 3.5, with an average VIF of 1.84 and a maximum VIF of 2.47 for the TOK variable, confirming the absence of problematic multicol-

linearity. The Durbin-Watson statistic resulted in DW = 1.97, confirming the independence of errors and absence of autocorrelation. The Ramsey RESET test ($F = 1.46$, $p = 0.219$) validated the correct functional specification of the model. These diagnostic tests validate the robustness of the estimates and confirm that the model meets the necessary assumptions for valid statistical inference, demonstrating that it does not present multicollinearity, heteroscedasticity, or autocorrelation, complying with the classical assumptions of the general linear model.

4. DISCUSSION

The study found that the level of tokenization (TOK) has a positive and highly significant coefficient ($\beta = 0.284$, $p < 0.001$), indicating that each unit increase in the adoption of tokenized assets increases discretion in fair value measurement by 0.284 units. The model explains 69.4% of the variance ($R^2 = 0.694$, $F = 567.23$, $p < 0.001$), a significantly higher explanatory power than that reported in studies of accounting discretion for traditional financial instruments. This finding is consistent with Centobelli et al. (2022) on the difficulties of accounting for digital assets, Seshadrinathan and Chandra (2025), who documented the fragmentation power of tokenization that increases measurement complexity by allowing fractional ownership without established regulatory frameworks, and Alkhwaldi et al. (2024), who identified that fair value discretion is amplified in situations of uncertainty. However, it contradicts the expectations of Spanò et al. (2022) and Lukova (2021), who argued that the immutable traceability of blockchain would reduce discretion. The difference lies in the fact that, in the absence of observable prices, entities rely on internal valuation models without standardized methodologies, generating heterogeneous estimates across organizations that compromise the comparability of financial information. The sectoral analysis revealed that the effect is more pronounced in the financial sector ($\beta = 0.317$) than in the commercial sector ($\beta = 0.241$), demonstrating that sophistication in financial instruments does not mitigate but rather amplifies discretion when digital assets are combined with the absence of liquid markets, extending the observations of Fahdil et al. (2024) and Matskiv et al. (2023), who did not quantify sectoral differences.

The study found that fair value assessment (FVA) has a positive and significant coefficient ($\beta = 0.219$, $p < 0.001$), confirming that reliance on Level 3 data substantially increases accounting discretion. This result is consistent with Chavali et al. (2024), who identified ambiguity in the classification of financial instruments when observable data is lacking; Putritama et al. (2024), who documented that tokenization increases reliance on internal valuations by transforming traditional OTC markets into decentralized platforms without regulatory oversight; and Secinaro et al. (2021), who demonstrated that the centralized use of decentralized technology introduces complexity by requiring traditional entities to adapt their accounting systems to unprecedented valuation assets. The finding validates Giang and Tam (2023), although their study did not quantify the effect on discretion. However, it contradicts Saheb et al. (2025) and Maffei et al. (2021), who claimed that blockchain would facilitate measurement and reduce uncertainty through improved traceability. The contradiction shows that registration technology does not solve the fundamental problem of the absence of market references for novel assets, forcing entities to exercise intensive professional judgment in determining unobservable assumptions for valuation models. The persistence of the effect across the four sectors indicates that Level 3 dependence is a structural feature of the tokenized asset measurement process, not a transitional phase that will disappear as the market matures, extending the findings of Church et al. (2021) and Han et al. (2023), who did not provide quantitative empirical evidence.

The study found that the disclosure index (DISC) has a positive and significant coefficient ($\beta = 0.173$, $p < 0.01$), demonstrating that greater disclosure is associated with greater discretion, not less, as would be expected by normative theory, which assumes that transparency reduces opportunistic behavior. This paradoxical finding is consistent with Chowdhury et al. (2023), who questioned whether blockchain represents a genuine disruptive change or exaggerated expectations, showing that the technology does not automatically eliminate traditional accounting problems. Ivanchenkova et al. (2023) identified risks due to a lack of standardization that allow entities to design disclosures that maximize flexibility rath-

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er than comparability, and Secinaro et al. (2021) documented new areas of professional judgment introduced by blockchain. However, this contradicts Deng (2025), who argued that developed disclosure frameworks would improve comparability. The difference can be explained by the fact that a greater volume of information does not automatically improve quality when standardized practices are lacking, creating the paradoxical situation where entities with more extensive disclosures simultaneously have greater leeway to select which valuation techniques to emphasize and which critical assumptions to minimize. The absence of specific IASB guidelines on the disclosure of tokenized assets allows entities with greater technical sophistication to prepare voluminous disclosures that are strategically designed to preserve flexibility in valuation. This finding is also consistent with Maffei et al. (2021) on disclosure heterogeneity, although their study was descriptive and did not quantify the effect on discretion.

The study found that organizational size (SIZE, $\beta = -0.104$, $p < 0.001$) and Big Four audit quality (BIG4, $\beta = -0.142$, $p < 0.01$) have significant negative effects, confirming that larger companies and higher-quality audits reduce discretionary behavior through reinforced internal control mechanisms and greater external scrutiny. Fees (LNFE, $\beta = -0.036$, $p < 0.05$) and audit hours (LNHOUR, $\beta = -0.029$, $p < 0.05$) also reduce discretion, indicating that investment in audit processes has tangible effects in restricting opportunistic behavior. These results are consistent with Alkhwaldi et al. (2024) on reinforced control mechanisms necessary for innovative blockchain adoption, Chowdhury et al. (2023) on strengthened governance as an implementation strategy, and Giang and Tam (2023), who demonstrated that blockchain impacts are moderated by the quality of organizational control processes. The magnitude of the BIG4 coefficient ($\beta = -0.142$) indicates that the reputation and experience of large firms are more effective in restricting discretion than the proportional increase in monetary investment (LNFE $\beta = -0.036$), showing that quality matters more than quantity in digital asset auditing. The findings validate Rijanto (2024) on the importance of audit quality in blockchain contexts and extend Abdennadher et al. (2022) and Thies et al. (2023), who identified audit challenges in blockchain environments through exploratory analyses but did not quantify the effect of audit intensity on discretionary behavior.

CONCLUSION

This study examined the effect of adopting tokenized assets on accounting discretion in fair value measurement under IFRS 9 and IFRS 13 using panel data from 2,735 Peruvian companies during 2020–2024.

The empirical analysis reveals that tokenization significantly increases accounting discretion ($\beta = 0.284$, $p < 0.001$), contradicting theoretical expectations that blockchain transparency would inherently reduce discretionary behavior. Fair value measurement under IFRS 13 Level 3 hierarchy amplifies discretion ($\beta = 0.219$, $p < 0.001$) due to reliance on unobservable inputs, while greater disclosure paradoxically associates with increased discretion ($\beta = 0.173$, $p < 0.01$), confirming all three hypotheses. The model demonstrates strong explanatory power with $R^2 = 0.694$, indicating that 69.4% of the variance in discretionary behavior is explained by the specified variables. These findings lead to three principal conclusions. First, distributed ledger technology does not inherently reduce accounting discretion when tokenized assets lack observable market prices and standardized valuation methodologies, suggesting that technological transparency alone is insufficient to constrain professional judgment in fair value measurement. Second, the regulatory framework under IFRS 9 and IFRS 13 requires enhanced guidance specifically addressing tokenized asset classification criteria and Level 3 measurement techniques to reduce heterogeneity across entities. Third, audit quality, particularly from Big Four firms ($\beta = -0.142$, $p < 0.01$), represents an effective external constraint on discretionary behavior, highlighting the critical role of specialized audit competencies in emerging digital asset accounting practices.

AUTHOR CONTRIBUTIONS

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