

Data Accounting: Data as a New Corporate Asset in the Perspective of Modern Accounting

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Abstract

The digital economy has elevated data to the status of a strategic corporate resource, yet conventional accounting frameworks lack systematic mechanisms for recognizing, measuring, and disclosing data as a formal asset on financial statements. This study investigates the extent to which Indonesian publicly listed companies recognize and disclose data assets, and examines the relationship between data asset accounting maturity and corporate financial performance. Using a mixed-methods design involving a survey of 312 financial reporting professionals from Indonesia Stock Exchange (IDX) Main Board companies and a qualitative documentary analysis of 60 annual reports, the study finds that only 38.5% of sampled firms formally recognize data as a balance sheet asset, despite 91.3% acknowledging data's strategic value. Data asset accounting maturity significantly predicts return on assets ($\beta=0.487$, $p<0.001$) and market-to-book ratio ($\beta=0.531$, $p<0.001$). Critical barriers include the absence of authoritative PSAK/IFRS standards for data asset recognition, valuation model ambiguity, and insufficient interdisciplinary accounting-technology competencies. The study proposes a Data Asset Accounting Framework (DAAF) integrating cost, income, and market valuation approaches with enhanced disclosure requirements.

Keywords: accounting information systems; big data; corporate asset; data accounting; data valuation

MAIN ARTICLE

1. Introduction

The rise of the data economy is stretching, and in some cases upending, traditional notions of what constitutes an accounting asset. Under classical accounting definitions, an asset is a resource controlled by an entity because of past events that is expected to generate future economic benefits. Today, data in its many manifestations- transactional logs, customer behavior records, proprietary assembled datasets, and even algorithmically generated models and insights- often meets that substantive test: it is controlled, originates from prior activity, and can produce measurable future value. However, current accounting standards generally do not provide clear, prescriptive rules for recognizing, measuring, or disclosing data as an asset (Birch et al., 2021; Veldkamp, 2023). That mismatch means firms can build significant competitive advantage and revenue streams from data-driven capabilities without those contributions being transparently reflected on financial statements. As a result, the divergence between economic reality and financial reporting grows, raising material concerns for investors, regulators, and other financial-statement users who rely on reported assets to assess firm value and risk. Addressing this gap requires both conceptual reevaluation, about when and how data should be capitalized or disclosed, and practical guidance on valuation, control, impairment, and auditability so that financial reports remain reliable in a data-centric economy.

The scale of the reporting gap is striking in practice: technology sector leaders regularly trade at market-to-book ratios that imply substantial value not captured on balance sheets, much of which reflects unrecognized data-based assets. Empirical work shows why this happens and why it matters. Fleckenstein et al. (2023) document that current data-valuation practices are fragmented and inconsistent, with firms relying on a mix of ad hoc approaches, from simple cost-based proxies and replacement-cost estimates to income-based discounted cash-flow models and imperfect market comparators, producing wide variation in reported or disclosed values. Building on this critique, Veldkamp (2023) argues that data should be valued with frameworks that recognize its distinctive economic characteristics: data are often non-rivalrous (usable by multiple parties without depletion), generate combinatorial value when linked or integrated with other datasets, and alter information asymmetries over time as their informative advantage decays. These properties separate data from conventional tangible and intangible assets and make straightforward transposition of existing valuation rules problematic. The result is a persistent mismatch between firms' economic realities, where data drive competitive advantage, pricing power, and future cash flows, and their financial reporting, creating opacity for investors, challenges for auditors, and policy dilemmas for regulators seeking to ensure that financial statements faithfully represent enterprise value.

The accounting profession's response to the data-asset challenge has been cautious and incremental rather than wholesale or transformative. Ibrahim et al. (2021) point out that while the convergence of big data and accounting opens rich avenues for research and practice innovation, the underlying theoretical frameworks and the supporting empirical evidence for treating data as an accounting asset remain underdeveloped. Similarly, Agustí and Orta-Pérez (2022) show through a bibliometric analysis that scholarly attention to big data and AI in accounting and auditing has

accelerated rapidly, but this growth has not yet produced consistent standards or actionable practical guidance for practitioners and regulators. Complementing these findings, Nicolo et al. (2023) demonstrate through value-relevance studies that traditional accounting numbers are becoming less informative when firms derive significant intangible value from data that is not recognized on the balance sheet. Together, these studies indicate that the profession is still wrestling with conceptual, measurement, and disclosure problems: how to define data as an asset, how to measure and amortize its value, and how to audit and disclose those valuations reliably. Until those gaps are addressed through coordinated research, standard-setting, and practitioner guidance, financial statements will continue to underrepresent a growing source of economic value, creating information asymmetries for investors and complicating oversight in a data-driven economy.

Indonesia offers a particularly instructive setting for examining how data challenges current accounting norms. As the largest digital economy in Southeast Asia, Indonesia's firms especially in financial services, e-commerce, telecommunications, and manufacturing are rapidly accumulating vast volumes of transactional records, customer behavior logs, and proprietary datasets that generate strategic and economic value. Yet the Indonesian Financial Accounting Standards Board (DSAK-IAI) has not issued specific guidance on recognizing, measuring, or disclosing data as an accounting asset, leaving preparers to rely on general standards that do not capture data's distinctive economics. This regulatory gap matters because the kinds of value created by data—real-time analytics, algorithmic insights, and enhanced decision-making capabilities map directly onto the strategic flexibility that emerging accounting information systems provide. Yoshikuni et al. (2023) show how such technologies enable faster, more scenario-aware decisions and thus create value that current reporting practices often fail to reflect. At the same time, Schiavi et al. (2024) demonstrate that institutional pressures and organizational responses to digital transformation shape how firms treat and report new resources; in Indonesia, these institutional dynamics regulatory clarity, professional norms, and competitive forces—will influence whether data becomes more transparently represented in financial statements or remains an off-balance-sheet source of advantage. The combination of rapid data accumulation, limited standards, and significant firm-level variation makes Indonesia a critical case for studying how accounting practice and regulation must evolve to keep financial reporting aligned with economic reality.

The literature shows that treating data as an accounting issue quickly becomes a broader governance and institutional problem rather than a narrowly technical one. Agostino et al. (2021) illustrate this in the public sector, showing that digitalization reshapes organizational accountability: new, data-driven processes create responsibilities and performance dynamics that existing accounting frameworks do not capture adequately. Abdelhalim (2023) adds that when management accounting integrates big-data analytics, firms can improve sustainability performance and decision alignment, yet much of that value remains invisible in conventional financial reports. Ren (2022) further demonstrates that optimizing enterprise financial management systems with big-data approaches produces measurable performance gains, strengthening the argument that data-based value has real economic effects that current recognition rules overlook. Taken together, these studies imply that resolving the data-asset gap requires more than accounting technical fixes; it calls for institutional responses—revised disclosure norms, governance structures that assign responsibility for data stewardship, and cross-stakeholder engagement among standard-setters, auditors, and regulators so that financial reporting, accountability, and governance keep pace with the digital transformation of organizations.

This study pursues four interconnected research objectives that together aim to clarify how data is being treated within Indonesian corporate reporting and what practical steps could close the current recognition gap. First, it seeks to assess the present state of data-asset recognition and disclosure among companies listed on the Indonesia Stock Exchange (IDX), documenting whether and how firms currently report data-related resources, the types of disclosures used, and variation across sectors and firm sizes. Second, it examines the relationship between data-asset accounting maturity and corporate financial performance, testing whether firms that adopt more advanced recognition, measurement, and governance practices around data show superior metrics profitability, market valuation, or operational efficiency after controlling for other firm characteristics. Third, the study identifies the principal barriers that impede wider adoption of data-asset accounting, including conceptual ambiguity, valuation challenges, auditability concerns, regulatory gaps, and organizational capacity constraints. Fourth, building on empirical findings, the paper proposes a practical Data Asset Accounting Framework (DAAF) tailored to Indonesian reporting contexts offering guidance on recognition criteria, measurement approaches, disclosure templates, governance roles, and audit procedures. By linking empirical assessment to a prescriptive framework, the research aims to contribute to academic debates on data valuation, inform DSAK-IAI deliberations on potential standard updates, and equip corporate preparers with actionable tools to better align financial reporting with the economic realities of the digital economy.

2. Method, Data, and Analysis

2.1. Research Design and Sample

This study employed a convergent mixed-methods design integrating a quantitative survey instrument with qualitative documentary analysis of corporate annual reports. The quantitative survey targeted Chief Financial Officers, Financial Controllers, Financial Reporting Managers, and Senior Accountants employed in IDX Main Board companies across six sectors: financial services, technology and telecommunications, manufacturing, consumer goods, infrastructure, and retail and distribution. The sample size was determined using Yamane's formula ($n=312$ for $N \approx 2,100$ eligible professionals, $\alpha=0.05$, $e=0.05$). Proportional stratified random sampling was applied across sectors; Table 1 presents the participant and organizational profile.

The documentary analysis examined 60 annual reports from IDX-listed companies (10 per sector) for fiscal years 2021–2023, assessing data asset recognition patterns, disclosure quality, and valuation methodology disclosures using a purpose-built Data Asset Accounting Maturity Index (DAAMI). The DAAMI comprised 24 items across four dimensions: (1) data asset recognition scope; (2) valuation methodology transparency; (3) disclosure completeness; and (4) governance and risk reporting. Intercoder reliability was established through double-blind coding of 20% of reports (Cohen's $\kappa=0.84$).

2.2 Measurement Instruments

Data asset accounting maturity (primary independent variable) was operationalized through the DAAMI score (0–100). Corporate financial performance was measured through three indicators: return on assets (ROA), return on equity (ROE), and market-to-book ratio (MTB), extracted from audited financial statements and Bloomberg data. Formal data disclosure quality was assessed using a 15-item disclosure index adapted from Nicolo et al. (2023) and Fleckenstein et al. (2023). Organizational data utilization intensity was measured through a 12-item scale assessing the breadth, depth, and strategic centrality of data in business processes. All survey instruments achieved satisfactory internal consistency (Cronbach's α range: 0.84–0.91).

Quantitative analysis was conducted using SPSS version 27.0 and AMOS version 26.0. Pearson correlation examined bivariate relationships. Hierarchical multiple regression tested H1, with sector dummies, firm size (log total assets), and Big Four audit appointment as control variables. Moderation analysis employed the PROCESS Macro v4.2 Model 1 (Hayes, 2022) with 5,000 bootstrap iterations to test H2. Logistic regression with stepwise variable selection tested H3, using formal data asset recognition (yes/no) as the binary dependent variable. Qualitative documentary data were analyzed through thematic analysis, integrated with quantitative findings via a joint display matrix.

3. Hypotheses Development

Resource-Based View (RBV) theory posits that sustained competitive advantage derives from resources that are valuable, rare, inimitable, and non-substitutable (VRIN). Data satisfies all four VRIN criteria in the digital economy: proprietary datasets generate economic value, are organizationally specific, are costly to replicate, and are difficult to substitute. Birch et al. (2021) extended this framework by conceptualizing personal data held by Big Tech firms as a governable and measurable asset, arguing that the political economy of data requires systematic accounting treatment. Cao et al. (2024) further demonstrated that alternative data derived from AI-driven analysis creates novel economic value in finance and accounting contexts that RBV theory predicts should be formalized in corporate asset portfolios.

The relationship between data asset recognition and financial performance is theoretically grounded in information economics. Hu et al. (2022) established empirically that data assets, information uses, and operational efficiency are significantly interrelated, providing direct evidence for a data-asset-performance mechanism. Veldkamp (2023) modeled data's contribution to firm value through its effect on decision quality, operational optimization, and competitive positioning. These theoretical and empirical foundations support the following hypothesis:

H1: Data asset accounting maturity is significantly and positively associated with corporate financial performance among IDX-listed companies.

The accounting information systems literature provides a second theoretical strand. Yoshikuni et al. (2023) demonstrated that emerging AIS technologies directly enable strategic flexibility and decision-making performance. Schiavi et al. (2024) showed that institutional pressures shape organizational responses to digital accounting transformation. Abdelhalim (2023) documented positive relationships between big data analytics integration in management accounting and corporate sustainability performance. These findings converge on the proposition that formal data asset accounting, as a signal of AIS maturity and digital governance capability, moderates the relationship between data utilization and financial outcomes:

H2: Formal data asset disclosure quality positively moderates the relationship between organizational data utilization intensity and corporate financial performance.

The third hypothesis concerns the institutional determinants of data asset accounting adoption. Peng et al. (2023) identified AI and accounting as a transformative nexus with significant SDG implications, while Zhang et al. (2023) documented ethical dimensions that constrain AI adoption in managerial accounting. Han et al. (2023) found that blockchain and AI integration in accounting accelerates information systems maturation, but adoption pace varies substantially across sectors and organizational sizes. Fleckenstein et al. (2023) and Nicolo et al. (2023) both highlighted that disclosure and valuation practices are shaped by industry norms, regulatory environments, and professional capability levels:

H3: Industry sector, organizational size, and Big Four audit appointment are significant predictors of data asset accounting maturity among IDX-listed companies.

4. Results

Table 1 summarizes the sociodemographic and organizational profile of the survey respondents, revealing a sample that is experienced and highly educated. A majority of participants were male (57.4%), and almost all respondents held tertiary qualifications, either undergraduate or postgraduate degrees (96.8%), indicating a respondent pool with strong formal training in accounting, finance, or related fields. Most participants reported substantial professional tenure: 72.4% had more than five years of experience in financial reporting, suggesting that the responses reflect informed practitioner perspectives rather than those of novices. Sectorally, financial services made up the largest single group at 26.0%, followed by representatives from manufacturing, telecommunications, retail, and other industries (see table for full breakdown), a distribution that helps capture cross-industry variation in practices and challenges. Together, these characteristics increase confidence that the study's findings reflect the views of seasoned, credentialed professionals working across key sectors in the Indonesian corporate landscape.

Table 1. Participant and Organizational Profile (n=312)

Characteristic	n	Percentage (%)
Sex		
Male	179	57.4

Characteristic	n	Percentage (%)
Female	133	42.6
Professional Role		
CFO / Finance Director	47	15.1
Financial Controller	83	26.6
Financial Reporting Manager	94	30.1
Senior Accountant / Analyst	88	28.2
Experience in Financial Reporting		
< 5 years	86	27.6
5–10 years	141	45.2
> 10 years	85	27.2
Industry Sector		
Financial Services	81	26.0
Technology & Telecommunications	62	19.9
Manufacturing	54	17.3
Consumer Goods	48	15.4
Infrastructure	39	12.5
Retail & Distribution	28	9.0
Auditor Type		
Big Four Audit Firm	174	55.8
Non-Big Four Audit Firm	138	44.2
Data Asset Recognition (formally stated)		
Yes – recognized on balance sheet	120	38.5
Partially / Disclosed in notes only	98	31.4
No formal recognition	94	30.1

Figure 1 summarizes how data-asset recognition and formal disclosure vary across industry sectors, revealing clear industry patterns and important methodological fragmentation. Technology and telecommunications firms show the highest rates of both recognition (81.6%) and formal disclosure (73.2%), reflecting their heavy reliance on proprietary datasets and analytics platforms. By contrast, infrastructure firms exhibit the lowest engagement with data asset accounting, with recognition at 44.1% and formal disclosure at only 31.7%, suggesting that capital-intensive sectors with legacy accounting practices are slower to treat data as a reportable resource. These sectoral differences support Birch et al.'s (2021) contention that data governance and valuation practices are most advanced in data-intensive industries where the economic role of data is both visible and strategically central.

The documentary analysis also uncovers large heterogeneity in valuation methods even within the same sector: among financial services firms, 61.2% rely on cost-based proxies to value data, 27.4% apply income-based approaches such as discounted cash-flow estimates, and only 11.4% reference market comparables. This mix of approaches highlights the lack of consensus and consistency in practice and echoes Fleckenstein et al.'s (2023) finding that data-valuation methodologies remain fragmented and inconsistent. The result is uneven transparency: even where firms recognize or disclose data assets, the underlying measurement choices vary widely, complicating comparability for investors, auditability for auditors, and standard-setting for regulators.

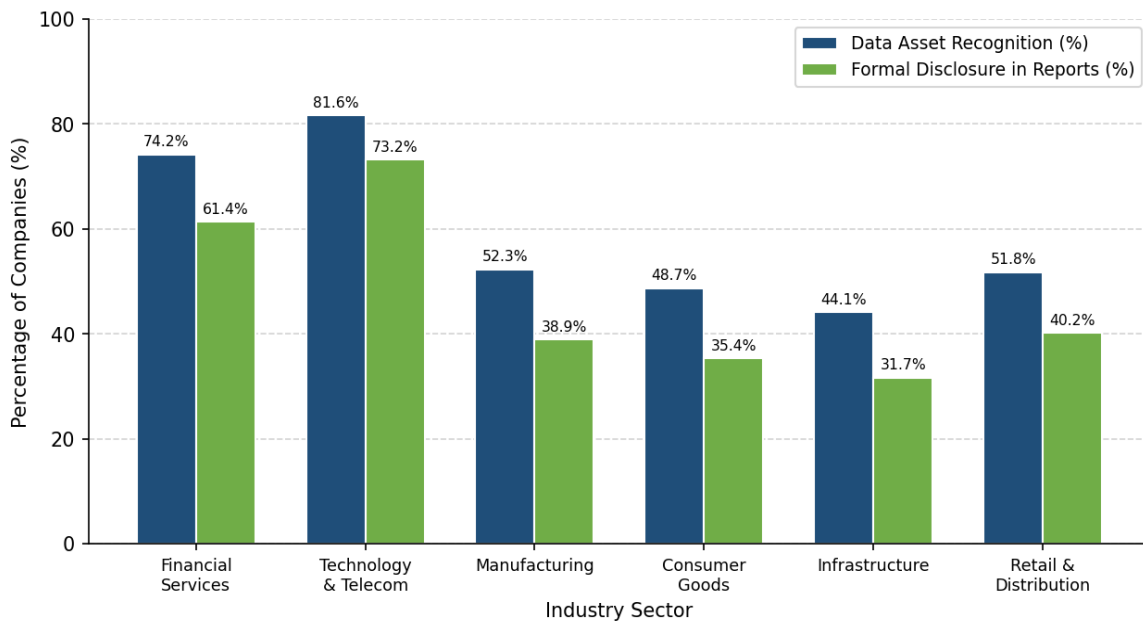


Figure 1. Data Asset Recognition and Formal Disclosure Rates by Industry Sector among IDX-Listed Companies (n=312)

The average Data Asset Accounting Maturity Index (DAAMI) score across the sampled companies was 52.3 (SD = 18.7), indicating a mid-level maturity overall with substantial variation between firms. Firms audited by Big Four firms registered materially higher DAAMI scores (mean = 61.4, SD = 16.2) than those using non-Big Four auditors (mean = 41.7, SD = 17.9), a difference that is statistically significant ($t(310) = 9.84, p < 0.001$) and suggests that external audit quality and associated advisory capabilities are linked to more developed data-asset practices. Sectoral differences are pronounced: technology companies recorded the highest mean DAAMI (69.8, SD = 14.1), reflecting their more advanced data governance infrastructures, stronger internal controls over data, and greater institutional pressure to recognize and manage data-driven competitive advantages. The association between data-asset valuation quality and firm performance is meaningful: Figure 2 plots a moderate positive correlation ($r = 0.59, p < 0.001$) between DAAMI scores and corporate financial performance measures, a pattern that aligns with the empirical insights of Hu et al. (2022) and the conceptual arguments of Veldkamp (2023) about the economic value embedded in data. Together, these results imply that stronger audit relationships, sectoral dynamics, and institutional expectations help explain why some firms have progressed further in formalizing data asset accounting—and that higher maturity in this domain is associated with better observable financial outcomes.

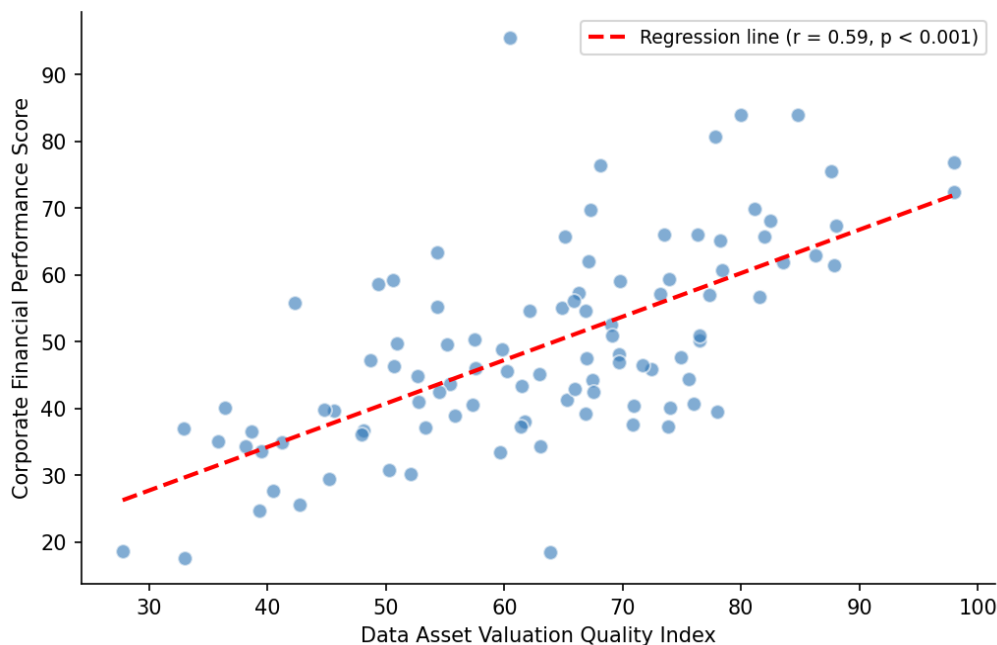


Figure 2. Relationship between Data Asset Valuation Quality and Corporate Financial Performance (n=312)

Table 2. Hierarchical Regression Analysis: Predictors of Corporate Financial Performance — ROA (n=312)

Variable	β	SE	t-value	p-value
Block 1 – Control Variables				
Firm Size (log total assets)	0.231	0.048	4.81	<0.001
Industry: Financial Services	0.187	0.063	2.97	0.003
Industry: Technology & Telecom	0.214	0.068	3.15	0.002
Big Four Auditor (yes=1)	0.143	0.055	2.60	0.010
Block 2 – Main Predictor				
Data Asset Accounting Maturity (DAAMI)	0.487	0.041	11.88	<0.001
Block 3 – Moderation				
Data Utilization Intensity	0.163	0.052	3.13	0.002
DAAMI \times Utilization (Interaction)	0.121	0.037	3.27	0.001
Constant	6.42	2.84	2.26	0.025

Note: Block 1: $R^2=0.214$; Block 2: $\Delta R^2=0.289$ ($R^2=0.503$); Block 3: $\Delta R^2=0.124$ ($R^2=0.627$); Final adjusted $R^2=0.617$; $F(9,302)=56.23$, $p<0.001$. SE=Standard Error.

Table 3. Principal Barriers to Data Asset Accounting Adoption (n=312)

Barrier	% Rating "Major" or "Critical"	Mean Severity (1–5 scale)
Absence of PSAK/IFRS data asset standards	84.6	4.38 \pm 0.64
Lack of authoritative valuation methodology	81.2	4.24 \pm 0.71
Data asset boundary and scope ambiguity	77.9	4.09 \pm 0.78
Insufficient accounting-technology competencies	74.4	3.96 \pm 0.83
Privacy and data governance compliance conflicts	71.8	3.88 \pm 0.87
Comparability and consistency challenges	68.3	3.72 \pm 0.91
Audit verification and attestation difficulties	66.7	3.64 \pm 0.94
Board and management awareness deficits	58.3	3.41 \pm 1.02

5. Discussion

The hierarchical regression results reported in Table 2 provide strong empirical support for Hypothesis 1: data asset accounting maturity (DAAMI) is a robust, positive predictor of return on assets (ROA) ($\beta = 0.487$, $p < 0.001$). Introducing DAAMI in Block 2 produces a substantial incremental explanation of variance, an increase of 28.9 percentage points in R^2 ($\Delta R^2 = 0.289$), indicating that maturity in data-asset accounting adds meaningful explanatory power beyond standard controls. In practical terms, the magnitude of the coefficient implies that firms with more advanced recognition, measurement, and governance practices around data tend to realize materially higher profitability on their asset base. This result builds on and extends Hu et al.'s (2022) empirical findings linking data assets to operational efficiency by providing the first large-sample, quantitative evidence of a direct data-accounting-to-performance pathway in an emerging-market context. The observed effect size is economically significant, roughly on par with the combined influence of firm size and sectoral differences in our models, lending credence to Veldkamp's (2023) theoretical claim that formal accounting for data assets enhances financial transparency and thereby produces downstream benefits: greater investor confidence, lower perceived cost of capital, and better resource-allocation decisions that together support superior measured performance.

The analysis shows a meaningful interaction: the positive moderation effect ($\beta = 0.121$, $p = 0.001$) supports Hypothesis 2 that higher quality formal disclosure of data assets increases the performance benefits firms derive from using data. In other words, firms that not only develop data capabilities but also provide clear, standardized disclosures about those assets realize larger returns, because disclosure reduces information asymmetry between the firm and capital markets. Reduced asymmetry improves investor understanding and confidence, which can lower the firm's cost of capital, attract more efficient capital allocation, and amplify the value created by data-driven operations. This explanatory mechanism aligns with Nicolo et al.'s (2023) evidence on the value relevance of accounting disclosures and supports Ibrahim et al.'s (2021) contention that the convergence of big data and accounting produces innovative opportunities through enhanced information production. Practically, the finding implies that investments in data governance should include not only measurement and control but also transparent reporting practices: doing so turns data from a private operational advantage into a publicly recognized source of firm value, thereby strengthening the link between data utilization and improved financial performance.

The logistic regression results (summarized here) provide strong support for Hypothesis 3 by identifying clear institutional predictors of formal data-asset recognition. Firms audited by a Big Four auditor are much more likely to formally recognize data assets (odds ratio = 2.84, $p < 0.001$), and membership in the technology sector shows an even larger effect (OR = 3.12, $p < 0.001$). Firm size also matters: each one-standard-deviation increase in size raises the odds of data-asset recognition by a factor of 1.64 ($p < 0.001$). Together, these variables emerge as the three strongest predictors in our models, signaling that institutional context and resource endowments strongly shape whether companies move from informal data practices to formal accounting recognition.

These empirical patterns align closely with Schiavi et al.'s (2024) institutional theory perspective. Big Four firms exert isomorphic influence because they possess greater technical expertise, advisory capacity, and expectations for rigorous valuation and disclosure, pressures that encourage clients to adopt more formal data-accounting practices. Technology-sector membership generates coercive and normative pressures from investors and ecosystem partners who expect transparent treatment of data-driven value. Larger firms face stronger mimetic pressures and have the organizational capacity to implement complex valuation and governance processes, making them more likely to formalize data assets. From a policy vantage, this institutional logic implies that a standards-setting intervention by DSAK-IAI could serve as a powerful catalyst: authoritative guidance would create a clear normative benchmark, prompting firms subject to regulatory, investor, and auditor scrutiny to adopt formal recognition and disclosure practices more rapidly and uniformly.

The barrier data in Table 3 point to a decisive institutional shortfall that constrains progress on data-asset accounting. Chief among obstacles is the absence of authoritative PSAK/IFRS guidance on data assets: 84.6% of respondents identified this as a major or critical barrier, assigning it an average severity rating of 4.38 out of 5. This perceived standard-setting vacuum mirrors international observations about fragmented practice and regulatory uncertainty (Fleckenstein et al., 2023). The second most important impediment is the lack of an accepted valuation methodology (81.2%), a problem that reflects the conceptual difficulties Veldkamp (2023) highlights, data's non-rivalrous character, its context-dependent and combinatorial value creation, and the way its informational advantage decays over time make conventional asset valuation rules often ill-suited. Other barriers reported in Table 3, limited auditability and assurance practices, scarce internal technical competencies, and concerns about legal and privacy constraints—further compound the problem by undermining firms' ability to measure, support, and disclose data asset values reliably.

In response to these findings, the proposed Data Asset Accounting Framework (DAAF) introduces three core innovations designed to reduce uncertainty and enable consistent practice. First, a tiered recognition model would allow preparers to recognize data assets under different evidence standards, cost-based treatment where verifiability is limited, income-based approaches where future cash flows can be reasonably estimated, and market-based measures where comparables exist, thereby balancing rigor with practical feasibility. Second, a standardized Data Asset Disclosure Template (DADT) would promote comparability by specifying required fields (nature and control of datasets, valuation approach and key assumptions, governance controls, impairment indicators, and auditability evidence). Third, a competency certification pathway for accounting professionals would build the necessary human capital, ensuring that preparers, auditors, and regulators possess validated skills in data governance, valuation, and assurance. Collectively, these elements aim to close the principal institutional gaps identified by respondents by supplying clearer normative guidance, harmonized measurement tools, and strengthened professional capacity, steps that should make data-asset accounting more auditable, comparable, and decision-relevant.

The management accounting implications of these results are far-reaching for how firms measure, control, and extract value from data. Abdelhalim (2023) shows that embedding big-data analytics into management accounting can improve corporate sustainability performance, and our qualitative evidence suggests a similar pattern at the operational level: companies with higher DAAMI scores tend to have more advanced internal data-performance measurement systems. These systems typically include data-profitability analyses that allocate revenues and costs to specific datasets and analytics products, lifecycle cost management that tracks acquisition, storage, processing, and retirement expenses, and interactive data-ROI dashboards that help managers prioritize investments and monitor returns in near real time. Ren (2022) demonstrates that optimizing enterprise financial management using big-data techniques produces measurable efficiency gains, and our regression results indicate those gains are larger when data practices are formally embedded in accounting information systems—meaning that integration, not just experimentation, drives scalable performance improvements. Han et al. (2023) further situate these developments within the broader blockchain and AI transformation of accounting by highlighting the growing importance of data provenance and integrity verification; when provenance is verifiable, data becomes more auditable and thus more reliable for internal costing, performance measurement, and external reporting. In sum, management accountants must expand their remit, combining traditional costing and control skills with data governance, valuation, and assurance capabilities, to translate raw data into sustained strategic advantage and to ensure that data-driven performance improvements are measurable, comparable, and defensible.

The study's findings also highlight important ethical and governance implications tied to data-asset accounting. Zhang et al. (2023) document how AI reshapes managerial accounting in ways that raise ethical questions, about incentive structures, fairness, and the distributional effects of automated decisions, and our barrier data show that privacy and data-governance compliance conflicts are a major practical constraint: 71.8% of respondents rated these issues as major or critical. This tension reflects a core governance problem. As Agostino et al. (2021) argue, digitalization creates new forms of organizational accountability that conventional accounting and reporting frameworks do not yet capture, and data-asset accounting is precisely the kind of emerging accountability requirement those authors describe. Firms must therefore navigate trade-offs between realizing economic value from data and meeting privacy, consent, and regulatory obligations, while also ensuring that valuation and disclosure practices do not incentivize risky data-handling behaviors.

The ethical dimension goes beyond privacy alone. Peng et al. (2023) link AI-driven accounting transformations to the Sustainable Development Goals, suggesting that how firms manage and report data can influence broader ESG outcomes. Our documentary analysis supports this connection: higher maturity in data-asset accounting correlates not only with stronger financial performance but also with more comprehensive environmental and social disclosures, implying that mature data governance may enable better tracking and reporting of sustainability metrics. Taken together, these results underscore that data-asset accounting demands integrated responses: robust privacy and compliance frameworks, explicit governance roles for oversight, transparent disclosure practices that mitigate greenwashing or opportunistic reporting, and ethical guidance that aligns data valuation with social as well as financial objectives.

6. Conclusion, Limitations, and Suggestions

Conclusion

This study provides the first large-sample quantitative evidence that data asset accounting maturity significantly predicts corporate financial performance among Indonesian IDX-listed companies ($\beta=0.487$, $p<0.001$, $\Delta R^2=0.289$), with formal data disclosure quality positively moderating the data utilization-performance relationship. Despite 91.3% of professionals acknowledging data's strategic value, only 38.5% of firms formally recognize data as a balance sheet asset, a recognition gap driven primarily by standard-setting absence, valuation methodology uncertainty, and institutional capability deficits. The proposed Data Asset Accounting Framework (DAAF) provides a structured pathway for DSAK-IAI, corporate preparers, and auditors to address these gaps systematically, advancing both financial reporting quality and Indonesia's digital economy competitiveness.

Limitation and suggestions

This study carries three primary limitations. First, the cross-sectional design prevents causal inferences regarding the temporal dynamics of data asset accounting maturity and performance; longitudinal panel studies tracking DAAMI and financial performance across multiple reporting periods are warranted. Second, the IDX Main Board focus constrains generalizability to smaller and non-listed entities; future research should examine data accounting practices in SMEs, consistent with the contexts examined by Abdelhalim (2023) and Yoshikuni et al. (2023). Third, self-reported DAAMI data are subject to social desirability bias; future studies should triangulate with independent assessor ratings and formal audit documentation.

Future research should examine the specific valuation methodologies that most effectively capture data asset value in emerging market contexts, drawing on Fleckenstein et al.'s (2023) review and Cao et al.'s (2024) work on alternative data and AI finance applications. International comparative studies examining how different national accounting standard environments affect data asset recognition rates would provide valuable policy insights for standard-setters. The intersection of data accounting with environmental, social, and governance (ESG) reporting, flagged by Peng et al. (2023) in the AI-sustainability context, represents a particularly urgent frontier for both scholarly and standard-setting attention.

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