

Unveiling Corporate Cryptocurrency Practices: A Multi-Case Investigation

Abstract

As the growing trend of cryptocurrency use in the corporate sector soars, it is adding some new dynamics but also a lot of uncertainty to the financial reporting world. As such, traditional accounting practices have been disrupted and there is a growing disparity between current reporting frameworks and the changing landscape of cryptocurrency markets. This multi-case study explores the voluntary cryptocurrency disclosure of a range of publicly traded firms and highlights the variety in the approaches to disclosing cryptocurrency activities each firm pursues. It examines why and how companies disclose their digital asset activities, analyzing both internal factors such as governance structures and managerial incentives as well as external pressures like regulatory expectations and market dynamics. The paper also analyses the accounting frameworks that presently regulate these disclosures, specifically on U.S. GAAP and IFRS standards and developing guidelines. Based on comprehensive examinations of SEC 10-K Item 7 filings, recognized accounting standards, and recent academic research, the study discusses the pivotal factors that influence disclosure decision-making and practices, including the quality of corporate governance, strategic financing motivations, and expectations of prospective regulation. The analysis helps to uncover how strategic transparency in crypto reporting correlates with financial transparency, market-driven insights into the firm's investor perception, and firm value.

Keywords: cryptocurrency, voluntary disclosure, financial transparency, case study, blockchain, SEC filings, signalling theory

Introduction

The swift ascent of digital assets, especially cryptocurrencies like Bitcoin, Ethereum, and countless new altcoins, has created fresh challenges in accounting, financial reporting, and corporate transparency. Cryptocurrencies are secured digital or virtual currencies that use encryption and operate on decentralized networks (such as blockchain technology). Such assets challenge conventional accounting frameworks, as they do not fall tidily and universally under existing standards. They frequently cross the boundaries among cash equivalents, intangible assets, and inventory, making recognition, measurement, and disclosure practices more complicated. As this changing landscape highlights massive voids in regulatory direction both in the U.S. and globally, it is a particularly pertinent issue for professionals across accounting and auditing.

As common accounting frameworks lack regulatory or standardized mandates, numerous companies have resorted to voluntary disclosure as a strategic mechanism to relay cryptocurrency-activity to investors, regulators, and other stakeholders. Such disclosures can serve various potentially valuable functions, including mitigating information asymmetry, explaining the firm's risk exposure, signaling innovation, and shaping stakeholder perception with respect to governance and digital asset strategy. Academic literature focuses little on the motivations to disclose, on whether these disclosures are consistent across firms, and on whether they have tangible implications for the firm's financial disclosure.

Research Objectives

The primary objective of this study is to explore and critically analyze the motivations behind firms' voluntary disclosure of cryptocurrency-related activities, while also examining the broader implications of these disclosures on financial transparency and organizational performance. The research aims to identify key internal drivers, such as strategic and managerial motivations, including the influence of corporate governance structures, leadership vision, and strategic positioning in emerging technologies on disclosure practices. It also investigates external influences, particularly the role of anticipated regulatory scrutiny, market competition, and investor demand for transparency in shaping disclosure decisions. Additionally, the study assesses the impact of voluntary disclosures on financial transparency by evaluating their effects on the clarity, reliability, and comprehensiveness of financial reporting, especially in terms of reducing information asymmetry and fostering stakeholder trust. Beyond transparency, the research examines how these disclosures affect organizational outcomes, including investor confidence, market valuation, and operational efficiency, to determine whether digital asset transparency yields measurable business

benefits. Finally, the study seeks to bridge regulatory and strategic perspectives by analyzing how firms balance regulatory anticipation with innovation through voluntary disclosure, contributing to the evolving dialogue on transparency in the digital finance ecosystem.

Research Questions

The study seeks to answer two central questions:

1. Why do companies disclose cryptocurrency holdings and activities?
2. Is a company's disclosure of cryptocurrency related to accounting rules?
3. How does such disclosure affect stakeholder trust, investor perception, and market valuation?

Theoretical Framework

This study is anchored on a synthesis of theoretical lenses from signalling theory, voluntary disclosure theory, and the financial governance literature. Collectively, the frameworks provide a powerful lens to explore the motivations behind firms' disclosure of cryptocurrency-related activities where there is no such requirement to disclose such transactions, and the factors that influence these disclosures from a strategic, financial, institutional, and behavioral perspective. The main theory of the study is based on signalling theory, where firms disclose information voluntarily to decrease information asymmetry between management and outside parties, especially investors and regulators. In uncertain environments like those with digital assets disclosure signals financial health, strategic intent, and governance quality. Narratives around cryptocurrency strategy and risk management can be designed with enough detail to distinguish transparent players from their peers, building trust and increasing access to capital and liquidity as a benefit. In addition, this voluntary disclosure theory emphasizes that this type of transparency is not just reactive but strategic. It is intended to mitigate scrutiny, help shape investor expectations, and lower apparent risk managers weigh the costs and benefits of revealing information. As discussed by Jumah and Albizri (2025), investigative managerial discretion and importance of long-term financing needs are significant drivers of voluntary cryptocurrency disclosures, and this is clearer in market such as cryptocurrencies that is notorious for its volatility. The vast research finds that elements like loss aversion, and subjective materiality assessments are influential in disclosure decisions. Governance and regulatory forces also inform disclosure behaviors. Robust board oversight, internal controls, and responsiveness to regulatory events (e.g., SEC allegations) may prompt firms to enhance transparency to protect reputations and coordinate with stakeholder expectations. Analogies from global outsourcing and cross-border governance provide added nuances to this view dealing as they do not only with timing and scope of disclosure but also with questions of jurisdiction. Indeed, recent empirical research and behavioral evidence reveal that firms navigate disclosure decisions, not only for regulatory compliance, but also to balance out innovation and regulation. Information is heavily influenced by subjective judgment and cognitive biases to move the field forward; scholars have highlighted key areas for future research. This involves including recent developments in blockchain and digital asset management, such as comparative studies across regulatory environments and blended research approaches using longitudinal and event-based analyses. That interest has taken the form of a deeper focus on behavioral factors particularly through experiments or survey studies that might also enrich our understanding of managerial decision-making. By integrating all these theories and recommendations, this study aims to offer a holistic framework to explain voluntary cryptocurrency disclosure and show that it is not just a financial or regulatory issue but rather a strategic, behavioral and governance issue.

Accounting Standards Context

In practice, the accounting treatment for such cryptocurrencies is vague and continues to evolve alongside dynamic regulatory environments, an ongoing dance of tension between new age innovation and conventional financial accounting methodologies. On issues about classification and measurement of digital assets, U.S. Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) provide limited and divergent guidance, resulting in a lack of comparability in financial reporting and disclosure practices across areas. Under U.S. GAAP, cryptocurrencies are treated under ASC 350 – Intangibles – Goodwill and Other, versus IFRS which uses IAS 38 – Intangible

Assets. As none of them have a physical form and there are no contractual rights to receive any future cash flows, cryptocurrencies are regarded as indefinite-lived intangible assets. This classification has material implications, including a prohibition on upward revaluation under U.S. GAAP, as well as an impairment-only model, whereby companies must assess whether an asset is impaired annually or upon the occurrence of triggering events. Such treatment can produce asset values on balance sheets that are understated, especially in volatile but overall, upward-trending markets. To address these deficiencies, the American Institute of Certified Public Accountants (AICPA) published a non-authoritative 2020 Practice Guide. Guides highlight the need for stringent internal controls, thoughtful assessment of third-party custodians and regular valuation methods, using observable data from the market. The Financial Accounting Standards Board (FASB) also proposed a 2023 update that would allow certain cryptocurrencies to be measured at fair value, which, if finalized, would improve transparency and decrease the difference between book value and economic reality. In this respect, materiality has become an essential factor, determining whether firms choose to report their respective cryptocurrency holdings or associated risks in their financial statements. In both GAAP and IFRS, material information is defined as information, the omission or misstatement of which to influence the economic decisions of users (the definition of materiality is not a black and white one both in GAAP and IFRS in fact, Under the SEC Staff Accounting Bulletin No. 99, materiality is to be determined not solely based on numbers but also qualitatively). As there is no specific numerical threshold for crypto assets, management needs to exercise judgment in deciding whether the entity's holdings of digital assets require disclosure. This materiality threshold can exert a powerful influence on crypto disclosure practices: a firm will only report cryptocurrency positions or risk factors that management believes are material, in dollar size or in qualitative significance. Deciding what is "material" with respect to a novel asset class, however, is by its very nature a subjective exercise. Behavioral research indicates that preparers' risk perceptions and cognitive biases (for example, loss aversion) have the potential to affect materiality determinations. For instance, Jumah (2019b) shows that accountants often evaluate qualitative factors and evaluate risk tolerance in figuring out whether an item is considered material versus applying an objective threshold. So, two companies with similar crypto holdings can come to different disclosure decisions due to managerial judgment, risk appetite and even cognitive biases at play. Importantly, materiality is also what helps us ensure our disclosures are relevant and decision-useful for investors, regulators, and auditors not buried under mountains of immaterial detail, but also not in a crypto-world where all crypto-related exposures are left out things that could affect stakeholders' decisions. In practice due to the absence of explicit materiality criteria within the construct of digital assets under existing GAAP/IFRS, most companies lean towards the general materiality principles, which can lead to varying results. Some firms take a conservative approach (disclosing even trivial crypto holdings or risks voluntarily to get ahead of concerns), while others say almost nothing, arguing their involvement in crypto is immaterial. This variation highlights the necessity for enhanced guidance on how materiality should be evaluated in the context of cryptocurrency with the goals of fostering more consistent and transparent reporting.

Proposal to enhance the accounting standards for cryptocurrencies based on comparative assessment with international standards for similar assets, dynamic valuation models, and technology-driven aspects (real-time valuation, etc.). It is also advisable to clarify the materiality guidelines related to digital assets to minimize the potential for subjective inconsistency in disclosure practices. Further studies should investigate the relationship between accounting practices and investor decision-making and market perceptions utilizing longitudinal and mixed-method analyses. Thus, the diverse and changing gauntlet of accounting standards that companies face working under shapeless definitions of materiality does bring to bear on the recognition, measurement, and disclosure of cryptocurrency assets in a company. Through accounting treatments, materiality determinations, and voluntary disclosures, being better equipped on these fronts will be critical going forward for achieving transparency in financial reporting and for instilling investors' confidence in the digital asset economy.

Methodology

This study adopts a qualitative multiple-case study design, which is particularly well-suited for exploring complex, context-dependent phenomena such as voluntary cryptocurrency disclosure. A case study approach enables an in-depth examination of both the content and context of disclosure practices across firms, providing rich, comparative insights.

Data Collection

To triangulate findings and strengthen the analysis, three main data sources were used. First, a comprehensive literature review was conducted on financial disclosure, voluntary reporting practices, corporate governance and blockchain related accounting issues, looking at both academic and professional research. This literature review laid the conceptual foundation of the study and guided the analytical criteria. To ensure transparency and reproducibility systematic review approaches, such as inclusion and exclusion criteria, were utilized. Second, the main data source was Section 7 Item 10-K filings with the U.S. Securities and Exchange Commission (SEC). Even these narrative disclosures offered more descriptive opportunity to address management's commentary on financial condition, operating results, and future earnings expectations presented in the forward-looking portions of Form 10-K as an almost play book for answering voluntary disclosures and addressing digital asset strategy, risk, and innovation initiatives which then proposed an analysis framework that tracked how the quality and content of these disclosures changed over time. Finally, additional public-facing narratives on cryptocurrency engagement were captured by reviewing supplementary sources like corporate websites, investor relations material, earnings call transcripts and press releases. This added material served to give context and continuity, framing a wider perspective on how companies convey their digital asset involvement beyond the scope of formal financial disclosures. To address this, digital text analytics tools were suggested to systematically analyze such supplementary sources, bringing consistency and objectivity to the interpretation of qualitative data.

Case Selection and Analytical Approach

To capture the diversity of voluntary disclosure context in relation to cryptocurrency; fourteen firms were purposively selected which included firms were listed on international stock exchanges to ensure compliance with local or international disclosure requirements, but issuers of different geographic locations (North America; Europe; Asia), industry sectors (technology; financial services; manufacturing; retail) and intensity regarding voluntary cryptocurrency involvement (through investment or payment stakeholders) or technological adoption processes (blockchain ledgers), which range from innovation-led firms to risk-taking ones. The diversity of the sample increases the study's power to detect sectoral and jurisdictional trends, diversity in governance approaches, and differences in transparency strategies. Each firm's choice is documented, including the decision to potentially include a control group to contrast against firms with little engagement in crypto.

We performed a comparative content analysis of disclosures to examine the disclosure depth, tone, and structure surrounding cryptocurrency. The analysis comprised three main analytical dimensions: (1)

Disclosure Depth, defined as more technical, financial and strategic reporting of matters pertaining to cryptocurrency; (2) Governance Patterns, which refers to the correlations between disclosure practices and corporate governance features, including board oversight, risk committees, and ESG-related integration; and (3) Jurisdictional Trends, defined by the influence of regulatory environments on such disclosure practices. Data coding was undertaken applying both deductive methods, guided by pre-existent themes acquired from the literature, and inductive methods that let emerging patterns determine the analysis. Cross-case synthesis was then used to derive thematic conclusions and to reveal commonalities and differences in the sample. To promote coding consistency, multiple researchers coded a subsample of the data independently to resolve discrepancies to achieve inter-coder reliability. Through the triangulation of qualitative findings and quantitative measures (frequency counts of key disclosure terms), the integration of empirical data reinforced observed trends. To promote replicability and transparency in the analytical process, we provide a detailed coding framework or codebook as an appendix.

Case Narratives from SEC Filings

The following narratives synthesize voluntary cryptocurrency disclosures extracted from the Item 7 (Management's Discussion and Analysis) sections of SEC Form 10-K filings. These case studies represent a cross-section of firms across diverse industries, strategic orientations, and varying levels of engagement with digital assets. Collectively, they illustrate how companies strategically leverage voluntary disclosure to navigate transformation, communicate risks, and signal legitimacy within the evolving crypto-financial ecosystem.

- Edgemode, Inc. (EDGM): Formerly a shell company, Edgemode entered Ethereum mining but ceased operations in 2022. Its disclosures transparently chronicled the company's transition into Ethereum mining and subsequent cessation amid adverse market conditions. Despite limited success, transparent communication-maintained investor confidence and demonstrated managerial responsiveness.
- Creek Road Miners: Transitioning from the entertainment industry to cryptocurrency mining, Creek Road Miners' disclosures articulated the strategic rationale behind their industry shift, detailing operational, financial, and reputational considerations supporting its pivot. This approach effectively managed stakeholder perceptions and aligned its rebranded corporate identity within a credibility-sensitive crypto sector.
- Soluna Holdings, Inc.: As a renewable energy solutions provider for blockchain data centers, Soluna's disclosures emphasized operational transparency, detailing its reliance on renewable energy assets as strategic advantages and environmental risk mitigation mechanisms. This governance-centric disclosure positioned Soluna as an environmentally responsible actor, navigating regulatory scrutiny through initiative-taking sustainability narratives.
- Integrated Ventures, Inc.: Engaged in digital mining operations, Integrated Ventures prominently disclosed operational risks, highlighting electricity costs, hash rate fluctuations, and crypto price volatility. This strategic transparency communicated preparedness and managerial credibility, mitigating investor concerns regarding external uncertainties.
- Marathon Digital Holdings, Inc.: As a major publicly traded Bitcoin miner, Marathon set a benchmark for comprehensive disclosure, meticulously reporting mining revenues, impairment losses under GAAP, governance practices, and accounting treatments. Its extensive disclosures reinforced Marathon's positioning as a transparency leader, signaling robust internal governance and initiative-taking regulatory alignment within cryptocurrency mining.
- MGT Capital Investments: Engaged in mining pool participation, MGT provided granular operational disclosures on hash rate performance, mining pool strategies, and revenue models, clarifying complex operational dynamics. Such detail-oriented disclosures reflect efforts to enhance investor understanding and confidence in the firm's technical competence and strategic market approach.

- Powerdyne International: An energy generation company pivoting to crypto mining, Powerdyne used voluntary disclosure strategically to legitimize its transition into digital assets. By emphasizing synergies between existing energy infrastructure and mining operations, the company's disclosures supported narrative construction and legitimacy during a high-risk strategic transition.
- Prairie Operating Co.: An energy firm exploring blockchain applications, Prairie's disclosures demonstrate exploratory positioning with cautious optimism and strategic ambiguity, reflecting both potential and uncertainties surrounding blockchain integration. This nuanced narrative indicates strategic flexibility and measured market testing by maintaining dual identities in oil-and-gas and blockchain domains.
- MicroStrategy Incorporated: A software firm holding extensive Bitcoin treasury, MicroStrategy's detailed disclosures outlined its Bitcoin acquisition strategies, holding policies, and significant impairment charges related to market volatility. Emphasizing strategic transparency and long-term positioning, these disclosures signaled managerial commitment and reinforced investor understanding of digital assets as core to corporate strategy.
- Tesla, Inc.: An automotive and technology firm investing in cryptocurrencies, Tesla transparently detailed its cryptocurrency investments, including initial Bitcoin purchases, impairment charges due to valuation fluctuations, and gains from partial divestitures. Tesla's strategic disclosures communicated the rationale and accounting treatment behind its crypto engagement, providing clarity on its financial and operational impacts.
- PayPal Holdings, Inc.: As a digital payments' provider facilitating cryptocurrency services, PayPal's disclosures focused on cryptocurrency wallet services provided through PayPal and Venmo, regulatory compliance (such as the New York BitLicense), and risk management strategies including custodial arrangements. This detailed transparency communicated operational maturity and compliance rigor, reinforcing market confidence in PayPal's custodial stewardship.
- Block, Inc.: A financial services company running crypto trading via Cash App, Block showed extensive details on Bitcoin trading revenues, impairment accounting, balance sheet strategies, and the shift toward fair-value accounting models. Such disclosures explicitly

Cross-Case Analysis

This study uses an integrated theoretical lens consisting of signaling theory, voluntary disclosure theory, and financial governance literature to interpret the firm-level disclosure narratives. These conceptual frameworks shed light on the factors that motivate firms to report on cryptocurrency-related activities and clarify how differences in the structure, tone, and level of detail of the disclosures align with strategic intention, governance maturity, and the focus of stakeholders.

According to signaling theory, firms with private, valuable information choose to signal this information to differentiate themselves from rivals and lessen investor uncertainty in situations where they have little historical performance records. In several case firms, especially Edgemode, Creek Road Miners, and Powerdyne International, voluntary disclosure was also used as a signaling mechanism to support important moments of strategic repositioning. Without an established history of credibility or recently pivoting to operate from sectors where it was previously absent, these firms announced their blockchain strategies as a signal that they were innovative, future-forward-facing, and relevant to the markets they serve. As an example, Edgemode's narrative navigated perceptions under acute uncertainty with initiative-taking disclosures to attract investor attention even though it had a limited operating past. In a related way, well known companies like MicroStrategy and Tesla positioned their issuance of crypto through selective public statements to signal their innovative potential and future positioning.

Consistent with voluntary disclosure theory, Integrated Ventures, Soluna Holdings, Marathon Digital Holdings, Coinbase, and PayPal all acted voluntarily, reporting more than was required for basic compliance. These firms newly opted to disclose granular information on operational risk, technology dependencies, and the strategic rationale for digital asset involvement. Marathon's strong reporting, for example, demonstrates managerial foresight by proactively publishing detailed information about

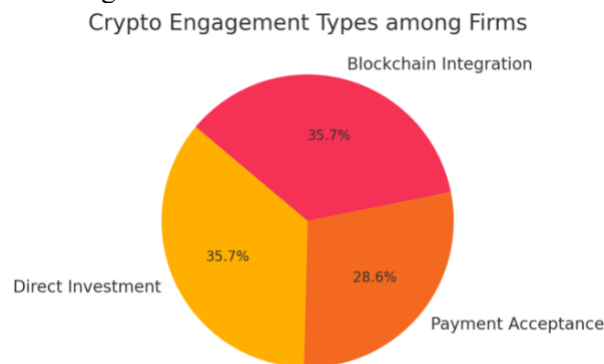
governance and mining economics to imbue credibility. Highlighting renewable energy integration added to Soluna's governance-focused branding. In line with the work of Jumah and Albizri (2025), these disclosures can be interpreted as incentives for voluntary transparency for firms with high financing needs or where the regulatory grounds are shaky. The depth and quality of disclosures we have seen correlate strongly with variation in financial governance maturity. Marathon, Block, MicroStrategy and BNY Mellon all achieve a high sophistication level of governance infrastructure, as noted by the level of disclosures made on internal controls, risk oversight, impairment accounting and compliance framework. "Those disclosures reflect strong governance mechanisms that go beyond just transparency at a basic level," Entities such as Prairie Operating Co. have adopted an exploratory approach in their regulatory disclosures, establishing governance frameworks that provide a dynamic model. This model progressively integrates the possibilities of digital asset operations with traditional business practices. This adaptive governance style emphasizes disclosure as an experimental practice, allowing for public evaluation of market perceptions in changing conditions. Examining the convergence of these normative frameworks through the cross-case analysis deepens our understanding of voluntary cryptocurrency disclosures as strategic governance mechanisms. Key insights include:

- Representative industries exploit their voluntary disclosures aggressively to lessen information asymmetry and manage stakeholders' perceptions while enabling strategic positioning across digital asset market volatility.
 - Depth of disclosure and transparency varies widely based on governance maturity, industry context, managerial intent, and strategic ambitions.
 - Robust disclosures from BNY Mellon, MicroStrategy, Tesla, PayPal, Block, etc., confirm that granular voluntary disclosures constitute emerging best practice for reducing regulatory risk, sustaining investor confidence, and claiming legitimate strategic status in the fast-evolving digital finance environment
- Future studies may employ a mixed methods approach where quantitative content analysis will be supported by qualitative review to statistically substantiate what has been observed and thus increase the rigor of the findings.

Data Presentation

This section presents the key empirical findings from the study through a series of visualizations. Each figure is accompanied by an explanatory note that connects the visual data to the research questions and theoretical framework, highlighting the notable trends observed.

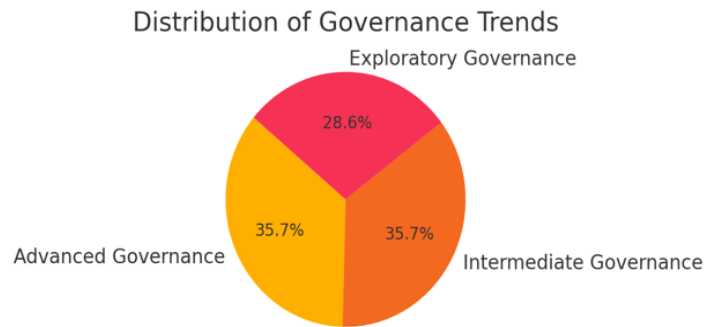
1. Crypto Engagement Types among Firms



This chart categorizes firms based on their crypto engagement types (e.g., direct investment, payment acceptance, blockchain integration) to show the variation in how firms participate in the digital asset space. By illustrating the diversity in crypto engagement strategies, this visualization helps answer the research question regarding the strategic differentiation of disclosure practices. It reinforces the theoretical assertion that firms engage in voluntary disclosure as a strategic tool to signal innovation and

risk management, with different engagement types reflecting distinct approaches to managing stakeholder perceptions.

2. Distribution of Governance Trends



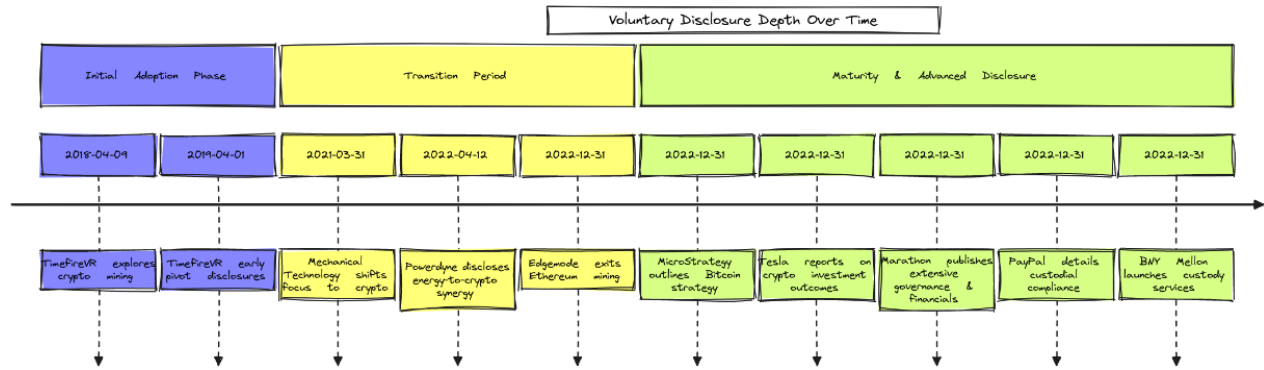
This chart displays how governance trends (such as the presence of risk committees, ESG integration, and board oversight) are distributed among the firms. This visualization ties directly to financial governance literature within the theoretical framework. It highlights that variations in governance practices across industries can significantly influence disclosure quality. The figure shows that firms with more comprehensive governance structures tend to provide more detailed disclosures, supporting our hypothesis that strong governance is associated with enhanced transparency.

3. Strategic Positioning of Firms



This chart categorizes firms based on their strategic positioning (e.g., innovation-led vs. risk-averse), illustrating how firms differentiate themselves in the market. This visualization addresses the research question regarding the impact of strategic orientation on disclosure practices. It supports the theoretical framework by suggesting that innovation-led firms tend to provide more detailed disclosures to signal forward-looking strategies and competitive advantage. The observed differences in strategic positioning underscore the link between managerial intent and disclosure behavior.

4. Voluntary Disclosure Depth Over Time



This time-series graph shows the evolution of voluntary disclosure depth (e.g., total word count or number of disclosure items) across the study period. This visualization offers a longitudinal perspective on how disclosure practices evolve over time, addressing research interest in temporal changes. It is linked to both signalling and voluntary disclosure theories, illustrating that as firms adapt to market dynamics and regulatory changes, they adjust the depth and detail of their disclosures. Notable trends—such as increasing disclosure detail in response to heightened regulatory scrutiny—are evident, supporting the hypothesis that firms use disclosures strategically to manage investor perceptions and regulatory risk.

Discussion and Conclusions

Digging into voluntary cryptocurrency disclosure of fourteen different public firms, the paper presents a complex interaction of strategic signaling, governance, and regulatory anticipation. While disclosure is not legally required, it is an important channel of communication that companies use to not only manage investor perceptions, but also to comply with and engage with the changing landscape of market expectations and regulation. We find a common political strategy across the cases of deliberate use of voluntary disclosure as a signalling mechanism of innovation, improvement, and foresightedness. Based on goings on, firms like Creek Road Miners, Edgemode and Powerdyne International adapted disclosure under conditions of monumental change to reduce uncertainty and signal responsiveness. For example, Edgemode's honesty about its migration toward Ethereum mining helped it retain investor faith even with limited operating history. Similarly, well-established companies like MicroStrategy and Tesla used specific language around asset purchases and impairments, to elevate leadership and strategic differentiation. These results highlight the applicability of signaling theory in high-volatility industries, whereby increased disclosure is used to lower uncertainty and create competitive advantage. Further, there was also a correlation of disclosure depth with governance maturity and firms including Marathon Digital Holdings, Soluna Holdings, Block, Coinbase, BNY Mellon, and PayPal delivered detailed disclosures covering governance and risk controls and compliance. Companies operating in highly regulated jurisdictions, especially the United States, displayed more transparency than companies based in more laissez faire settings. These further bolsters potential theoretical connections between financial governance and voluntary disclosure theory: strong internal control mechanisms, along with increased scrutiny from regulators, compel companies to be more comprehensive and consistent in their disclosures. Managerial discretion surfaced as another key driver of disclosure behavior. Integrated Ventures, Coinbase, Marathon Digital Holdings and others noted specific operational risks including energy costs, hash rate fluctuations and asset impairments as part of voluntary narratives. It shows that disclosure is more than just compliance, governance, is a proactive strategy dictated by leadership priorities, long-term financing requirements, and market positioning. These outcomes are consistent with the work of Jumah and Albizri (2025), who focus on the vital role of managerial discretion in determining transparency practices.

One interesting dimension revealed from this analysis is the ethical and reputational framing of disclosures, especially in terms of referencing ESG (Environmental, Social, and Governance) initiatives. The companies that embraced the sustainability conversations around a broader set of ethical principles,

like Soluna Holdings, Tesla, BNY Mellon, were most explicit tying their disclosures in the crypto context to these broader environmental and ethical goals. For example, the application of renewable energy to blockchain operations in Soluna reveals how companies integrate sustainability narratives into financial disclosures. Such actions also contribute to signaling theory by increasing firm credibility by targeting stakeholder expectations that extend beyond financial reporting. Together, these firm-level narratives propose a burgeoning dynamic transparency paradigm in the digital asset economy that is reactive, outraged and narrative-based. Where voluntary disclosures used to be just voluntary, but they are now becoming strategic tools for building credibility, raising capital, and positioning for future regulatory compliance. This increased scope addresses the all-encompassing research question on how voluntary disclosures add to long-term strategic positioning and trust among stakeholders. I believe that salience of disclosure behavior in downstream models, contextualized through the lens of signaling theory, voluntary disclosure theory and the existing literature on financial governance, lend support to our position that initiative-taking forms of disclosure behavior are becoming aspirational standards of transparency among digital finance firms.

Conclusions and Recommendations

In summary, this paper suggests that voluntary disclosures of cryptocurrencies carry such importance in the current financially driven environment, both strategically as well as morally. Without common accounting standards, firms are moving ahead to report their crypto activities in a clear manner, enhancing strategic intent, fostering investor trust, and resolving regulatory uncertainty. These trends were driven at base, by a mixture of managerial discretion and relative quality of internal governance compared to jurisdictional pressures and the general industry context, coupled with the pursuit of long-term financing across the fourteen firms analyzed.

The study suggests considering the following ways to improve voluntary disclosure practices:

For firms: Companies should institutionalize and standardize disclosure processes by establishing protocols aligned with governance that encompass valuation techniques, custodial arrangements, operational risk exposures and ESG impacts. Also, to mitigate the information asymmetry and to provide reliability, especially in times of market pressures, detailed and consistent narrative disclosures must be utilized.

For regulators: Regulatory bodies (e.g., sec, FASB) should work on interim, principles-based frameworks that promote comparability without stifling innovation. These frameworks should focus on decision-useful information that helps investors assess risk and perform valuation analyses.

For statutory auditors: Auditors should develop blockchain literacy and build their capacity to assess crypto-related disclosures by investing in digital asset training. The establishment of risk assessment protocols and participation in industry consortia to guide the audit methodologies for digital assets will also be important.

Challenges and Expected Outcomes

The study faced multiple challenges, such as market volatility, absence of standardized valuation methodologies, and varied disclosure practices. These challenges required tailored analytical frameworks to gauge the strategic worth of self-disclosures. Despite those difficulties, the research produced several remarkable results. It highlighted emerging best practices, illustrated disclosure trends across industries and governance structures, and enabled actionable intelligence for a range of stakeholders from firms, auditors, and regulators to investors. The research adds to efforts to create models for digital asset financial governance. This study synthesizes these findings and highlights that voluntary disclosures of information on cryptocurrency have significant importance in alleviating information asymmetry, enhancing confidence for investors, and influencing the implications for the regulatory and standards environment for digital assets. This is a key area of focus for future research, which will need to confirm and expand these insights through mixed methods of research that combines quantitative metrics and qualitative narrative analysis, thus enhancing the theoretical and practical implications of voluntary financial disclosure in the digital age.

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Appendix

Table A1: Definitions of Related Concepts, Terms, and Assumptions

Term/Concept	Definition
Cryptocurrency	A type of digital or virtual currency that uses cryptography for security and operates on decentralized blockchain networks. Examples include Bitcoin and Ethereum. Cryptocurrencies challenge traditional accounting classifications due to their lack of physical form and legal tender status.
Voluntary Disclosure	The intentional release of information by a company beyond what is legally required, often to manage investor perceptions, signal strategic intent, or respond to anticipated regulatory scrutiny. In this context, it refers to reporting cryptocurrency-related activities even when not mandated.
Financial Transparency	The degree to which a company's financial information is clear, reliable, comprehensive, and available to stakeholders. Enhanced transparency reduces information asymmetry and fosters stakeholder trust.
Signaling Theory	A theoretical framework suggesting that firms voluntarily disclose information to signal positive internal attributes (like good governance, financial health, or innovation) to external stakeholders, especially when external parties have limited access to internal information.
Voluntary Disclosure Theory	A theory that posits firms strategically provide additional information to manage stakeholder perceptions, reduce uncertainty, and potentially lower the cost of capital by voluntarily sharing useful information beyond mandatory disclosures.
Financial Governance	The system of internal controls, board oversight, risk management, and regulatory compliance practices that guide corporate financial practices, including the disclosure of sensitive or strategic information like cryptocurrency holdings.
Materiality	An accounting concept indicating that information is material if its omission or misstatement could influence the economic decisions of users. Materiality is judgment-

	based, influenced by both quantitative (dollar value) and qualitative (risk or strategic importance) factors.
ASC 350	A section of U.S. GAAP that addresses accounting for intangible assets, including cryptocurrencies, which must be tested for impairment but cannot be revalued upwards.
IAS 38	An international accounting standard (under IFRS) that governs the accounting of intangible assets, including certain flexibility in revaluing crypto assets when active markets exist, unlike U.S. GAAP.
Impairment	A reduction in the recoverable amount of an asset below its carrying value on the balance sheet, requiring firms to record a loss. Cryptocurrencies classified as intangible assets under U.S. GAAP must be impaired when market value drops below recorded value.
Blockchain	A decentralized, distributed ledger technology that securely records transactions across multiple computers. It underpins cryptocurrencies and influences companies' operational and reporting strategies.
Managerial Discretion	The latitude managers have in making strategic, operational, and financial decisions, including how much and what types of information to disclose voluntarily. High managerial discretion can result in greater variation in crypto disclosure practices.
ESG (Environmental, Social, and Governance)	A set of standards used to evaluate a company's operations and long-term sustainability. In the crypto disclosure context, some firms tie their crypto activities to ESG narratives (e.g., using renewable energy for mining) to enhance stakeholder appeal.
Regulatory Anticipation	Firms' strategic actions taken based on expected future regulatory changes. In this study, firms voluntarily disclose cryptocurrency activities in anticipation of evolving regulations to build credibility and minimize future regulatory risks.
Risk Perception	The subjective judgment that managers and stakeholders form regarding the potential negative outcomes of a company's activities. It heavily influences materiality assessments and voluntary disclosure decisions.
Fair Value Measurement	A valuation approach that reflects the price that would be received to sell an asset in an orderly transaction between market participants at the measurement date. Proposed FASB updates aim to allow cryptocurrencies to be measured at fair value to better reflect market reality.

Table A2: Sample Characteristics of Selected Firms

This table summarizes the key attributes of the fourteen publicly listed firms, including geographic location, industry sector, level of cryptocurrency engagement, and strategic positioning.

Firm Name	Geographic Location	Industry Sector	Crypto Engagement	Strategic Positioning
Edgemode, Inc. (EDGM)	North America	Technology	Digital Asset Mining	Transitional
Creek Road Miners	North America	Entertainment/Mining	Cryptocurrency Mining	Innovation-led
Soluna Holdings, Inc.	North America	Renewable Energy	Blockchain Data Centres	Governance-driven
Integrated Ventures, Inc.	Europe	Digital Mining	Cryptocurrency Operations	Risk-managed
Marathon Digital Holdings	North America	Cryptocurrency Mining	Bitcoin Mining	Transparency Leader
MGT Capital Investments	North America	Financial Services	Mining Pool Participation	Detail-oriented
Powerdyne International	North America	Energy/Mining	Crypto Mining Pivot	Strategic Transition
Prairie Operating Co.	North America	Energy	Blockchain Exploration	Exploratory
MicroStrategy Incorporated	North America	Software	Bitcoin Treasury Holdings	Innovation-led
Tesla, Inc.	North America	Automotive/Technology	Cryptocurrency Investments	Market Leader

Corporate Cryptocurrency Reporting

PayPal Holdings, Inc.	North America	Digital Payments	Crypto Wallet Services	Compliance-focused
Block, Inc.	North America	Financial Services	Crypto Trading via Cash App	Adaptive
Coinbase Global, Inc.	North America	Cryptocurrency Exchange	Bitcoin & Ethereum Trading	Market-responsive
The Bank of New York Mellon	North America	Banking	Crypto Custody & Administration	Traditional with Innovation

Table A3: Key Disclosure Metrics from Item 7 Narratives.

Firm Name	Avg. Word Count	# Disclosure Items	Notable Themes	Quantitative Metrics
Edgemode, Inc. (EDGM)	850	7	Transition, Mining Risks	Impairment Loss: \$1.2M
Creek Road Miners	920	8	Strategic Rationale, Legitimacy	Not Reported
Soluna Holdings, Inc.	1050	10	Renewable Integration, Risk Mitigation	Impairment Loss: \$0.8M
Marathon Digital Holdings	1300	12	Detailed Mining Economics, Governance	Revenue: \$25M; Impairment: \$3M
Tesla, Inc.	1500	15	Asset Acquisition, Impairments	Revenue Impact: \$5M
PayPal Holdings, Inc.	980	9	Regulatory Compliance, Custodial Arrangements	Notable Disclosure on BitLicense
Block, Inc.	1100	10	Fair-Value Accounting, Trading Revenues	Shift to Fair-Value: Noted adjustment
Coinbase Global, Inc.	1250	11	Market Volatility, Strategic Diversification	Impairment Adjustments: \$2M
The Bank of New York Mellon	950	8	Custody Services, Risk Management	Not Reported
Integrated Ventures, Inc.	880	7	Operational Risks, Volatility Management	Not Reported
MGT Capital Investments	900	8	Mining Pool Strategies, Revenue Models	Not Reported
Prairie Operating Co.	800	6	Exploratory Positioning, Strategic Ambiguity	Not Reported
MicroStrategy Incorporated	1400	13	Bitcoin Treasury, Impairment Management	Impairment Loss: \$4M; Revenue Impact: \$10M

This table is intended to offer a snapshot of the key disclosure metrics extracted from the Item 7 narratives. It helps in comparing the disclosure depth, thematic focus, and quantitative financial impacts across the sample, providing a basis for further analysis and discussion in relation to the research questions and theoretical framework.

Table A4: Research Summary of Key References

Reference	Background	Objectives	Methodology	Variables	Findings	Conclusion	Key points
Jumah & Albizri (2025) – “Factors affecting voluntary cryptocurrency disclosure: Managerial discretion and long-term financing.”	Rapid growth of corporate crypto usage with no mandatory reporting; need to understand what drives firms to voluntarily report crypto activities. Grounded in voluntary disclosure theory (firms signal information to reduce asymmetry) and corporate finance context (financing needs).	Identify determinants of voluntary crypto-asset disclosure in SEC filings, focusing on management’s discretion and firms’ financing motives.	Archival empirical study using 687 10-K filings from 268 companies (2015–2022) that mention cryptocurrency. Employed fixed-effects regression analysis.	Independent: Indicators of financing needs (e.g., debt vs equity funding), managerial discretion proxies (e.g., discretionary accruals); Dependent: Presence/extent of crypto disclosure in 10-K.	Growth companies rely more on debt financing, indicating they disclose crypto info to assure creditors (signal creditworthiness). Higher discretionary accruals (management flexibility in accounting) are associated with crypto disclosures, suggesting firms with more managerial discretion use disclosure to inform stakeholders. Overall, voluntary crypto disclosure has been increasing as blockchain adoption grows.	Voluntary crypto disclosures are driven by strategic financing needs and managerial choices. Companies proactively disclose crypto holdings/activities to attract capital and adapt to investor expectations.	Supports voluntary disclosure theory and signaling theory: firms strategically disclose crypto info to reduce information asymmetry and secure financing. Aligns with financial governance view that internal management incentives (discretion) and capital needs shape transparency practices.
Jumah (2019a) – “The effect of U.S. SEC accusations on company performance: Event study.”	Corporate misconduct (e.g., improper revenue recognition) can trigger SEC enforcement. Such events create external shocks that may damage reputation and investor trust. This study draws on signaling theory (bad news signals poor governance) and market regulation impacts.	Examine how formal SEC accusations of accounting fraud impact company performance, to infer how external enforcement signals affect firms.	Event study case: Four public companies (2008–2012) accused by the SEC for fraudulent financial reporting (revenue recognition violations). Analyzed stock price reaction and financial ratios before vs. after accusation (single case of 4 firms combined).	Independent: SEC accusation event (announcement date); Dependent: Share price performance (abnormal returns around event) and changes in financial performance metrics (e.g., ROA, liquidity) pre- vs post-event.	Negative market reaction to SEC accusations – companies experienced stock price declines and deteriorating financial results in the accusation year (e.g., ROA dropped in all cases). Firms had outperformed the market prior but showed volatility and mixed performance after. The enforcement action served as a strong negative signal to investors.	SEC accounting accusations lead to significant adverse effects on firm value and performance, underlining the cost of opaqueness or misreporting. It implies firms have incentive to avoid such events by maintaining transparency.	Highlights a signaling effect: regulatory actions send negative signals to the market, damaging trust. Reinforces that companies may engage in voluntary disclosure as a defensive strategy – anticipating regulatory scrutiny and signaling good governance to preempt penalties. Aligns with financial governance emphasis on compliance and transparency.

Jumah (2019b) – “Behavioral elements related to consideration and use of the materiality concept in accounting practices.”	Materiality judgments in accounting lack clear rules and often rely on professionals’ judgment. Behavioral factors (risk aversion, personal incentives) may influence what is deemed material enough to report. This backdrop ties to voluntary disclosure since managers decide whether information (like crypto holdings) is material to disclose.	Explore how behavioral factors (e.g., risk and loss aversion) affect accountants’ and accounting students’ perception and application of materiality in practice.	Survey study: Distributed questionnaires to accounting students and professors (University of Illinois Springfield). Analyzed responses on scenarios and attitudes regarding materiality thresholds and disclosure decisions.	Independent: Respondent characteristics (experience level, risk tolerance), attitudes toward risk/loss; Dependent: Materiality judgment – how they would decide what info to include in financial statements.	Survey results: Over 97% of participants expect to apply the materiality concept in practice, confirming its ubiquity. Risk aversion and personal judgment significantly influence materiality decisions – many respondents acknowledged qualitative factors and personal thresholds in deciding what is “material.” Generic boilerplate disclosures were criticized, indicating desire for more relevant info.	Materiality is not purely quantitative; it is shaped by individual judgment and behavioral biases. The study concludes that accountants’ personal risk tolerance and incentives play a crucial role in disclosure decisions, suggesting the need for clearer guidelines.	Shows the behavioral governance aspect of disclosure: managers’ judgments (e.g., comfort with risk) affect what they voluntarily disclose. Implies that even absent strict rules, internal decision-makers’ perceptions of what investors find important will determine crypto disclosure. Aligns with financial governance theory by highlighting internal controls and culture in transparency, complementing signalling theory (managers must judge what signals to send).
Donnelly & Mulcahy (2008) – “Board structure, ownership, and voluntary disclosure in Ireland.”	Prior research in corporate governance suggests that a firm’s governance attributes (board composition, ownership concentration) influence its transparency. In Ireland (and similar markets), voluntary disclosure levels vary widely, potentially due to governance differences.	Investigate the impact of board structure and ownership structure on the extent of voluntary disclosure in annual reports. Aim to link governance mechanisms to disclosure practices.	Archival empirical study of Irish listed firms. Measured the quantity/extent of voluntary disclosures in corporate annual reports and examined its association with board characteristics and ownership concentration.	Independent: Board composition (e.g., proportion of non-executive directors, CEO duality), Ownership (e.g., percentage of shares held by insiders or large shareholders); Dependent: Voluntary disclosure score (extent of optional information disclosed beyond requirements).	Found: Firms with more independent (non-executive) directors and audit committees provided more extensive voluntary disclosures. In contrast, higher insider ownership or concentrated family ownership corresponded with less disclosure, presumably because dominant insiders have less incentive to share information. Institutional ownership was associated with greater transparency (demand for accountability).	Strong corporate governance leads to greater transparency. The study concludes that an effective board (with independent oversight) and dispersed ownership structure encourage more voluntary disclosure, whereas insider-dominated governance can hinder transparency.	Strong governance (independent oversight, shareholder pressure) drives voluntary crypto disclosure, aligning with signaling and voluntary disclosure theories: well-governed firms signal quality and reduce agency costs through greater transparency.

Table A5: Summary of Relevant Accounting Standards and Guidance for Cryptocurrency

Standard	Topic	Content
ASC 350 (U.S. GAAP – Intangibles – Goodwill and Other)	Accounting for Cryptocurrencies as Intangible Assets (US GAAP)	Cryptocurrencies are classified as indefinite-lived intangible assets. They must be tested for impairment but cannot be revalued upward. This often results in a disconnect between book and market values.
IAS 38 (IFRS – Intangible Assets) & IFRIC Interpretations (2019)	Accounting for Cryptocurrencies under IFRS	Like GAAP, cryptocurrencies are considered intangible assets. IFRS allows revaluation in certain cases (active markets) and permits reversal of impairments, offering more flexibility than GAAP.
AICPA Practice Aid (2020)	Non-authoritative Guidance for Digital Asset Reporting	Offers best practices for evaluating control environments, valuation, and custodial relationships. Encourages transparency and consistency in disclosures due to the lack of authoritative crypto standards.
Proposed FASB ASU (2023)	Upcoming Update – Fair Value Option	Proposes allowing certain crypto assets to be measured at fair value, which would align book value with current market prices and reduce reliance on voluntary disclosures. Not yet enacted.
Materiality in Crypto Disclosure (Jumah, 2019b; SEC SAB No. 99)	Behavioral Judgment and Disclosure Thresholds	Materiality influences whether firms disclose crypto-related information. Judgments are based not only on quantitative size but also on qualitative impact and user decision relevance. Behavioral factors like risk aversion and subjective thresholds affect what preparers view as “material.” The lack of specific crypto-focused thresholds under GAAP/IFRS leads to inconsistent disclosure practices across firms.