ACADEMIC WORKING PAPER

Working paper - Bitcoin and Agentic AI - 2026

Bitcoin in the era of agentic AI

Volumes, adoption, institutionalisation and convergence hypotheses through machine-to-machine payments

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Abstract

This paper investigates whether the rise of generative and agentic artificial intelligence has structurally reduced the centrality of Bitcoin, and whether a complementary relationship may emerge between the two phenomena. The analysis triangulates market data, institutional sources, AI adoption reports, crypto regulation, and emerging protocols for agentic payments. Spot volumes on major centralised crypto exchanges fell in 2023, precisely when the AI narrative became dominant; however, the strong recovery in 2024 weakens the hypothesis of a direct causal substitution.

The central thesis is that Bitcoin is migrating from a retail-narrative asset to a more institutional financial infrastructure, while AI creates a new potential demand: software agents capable of autonomously purchasing data, APIs, inference, and compute. The paper's original contribution is the ABSL model — Agentic Bitcoin Settlement Layer — according to which Bitcoin and Lightning may serve as a neutral rail for micropayments, economic authentication, and cryptographic receipts in the agent economy. The central forecast is that mass adoption of Bitcoin is more likely as a digital reserve, collateral, and settlement layer than as a daily retail currency.

Abstract in English (academic short form)

This paper investigates whether the rise of generative and agentic artificial intelligence has structurally displaced Bitcoin, and whether future complementarity may emerge between the two systems. The analysis triangulates market data, institutional sources, AI adoption surveys, crypto regulation, and emerging agentic payment protocols. Spot volumes on major centralised crypto exchanges fell in 2023, coinciding with the mainstream AI boom; however, their strong rebound in 2024 weakens the claim of a direct substitution effect. The paper argues that Bitcoin is moving from a retail narrative asset to a more institutional financial infrastructure, while AI creates a potential new demand vector: autonomous software agents that need to purchase data, APIs, inference, and compute. The paper introduces the ABSL hypothesis — Agentic Bitcoin Settlement Layer — under which Bitcoin and Lightning may function as a neutral rail for micropayments, economic authentication, and cryptographic receipts in the agent economy. The central forecast is that Bitcoin mass adoption is more plausible as a reserve asset, collateral, and settlement layer than as a daily retail currency.

Keywords: Bitcoin; artificial intelligence; agentic AI; Lightning Network; L402; HTTP 402; crypto adoption; machine-to-machine payments; digital scarcity; institutionalisation.

JEL codes: E42, G12, G15, L86, O33.

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1. Introduction

The starting question is simple only in appearance: has Bitcoin been overshadowed by artificial intelligence? From the standpoint of public attention, the answer is largely yes. Generative AI has assumed the role of the dominant technological narrative, has shifted venture capital towards models, infrastructure, chips, and agents, and has transformed perceptions of what counts as the next productivity cycle. Yet from Bitcoin's standpoint, narrative eclipse does not mean economic irrelevance.

The paper argues that Bitcoin is not necessarily losing its trajectory, but is changing category. The 2017–2021 phase was dominated by retail attention, revolutionary promises, and intense speculative cycles. The subsequent phase, accelerated by the approval of spot Bitcoin ETPs in the United States and by more organic regulation in Europe, tends instead to place Bitcoin in the family of alternative monetary assets and infrastructural instruments. In this transition, AI is not merely a competitor for capital and attention: it can become infrastructural demand.

The core of the contribution is the hypothesis that the AI agent economy will require native, fast, programmable, and verifiable payments. An agent that purchases data, pays for an API, accesses a specialised model, or sells its own function cannot always rely on processes designed for humans: accounts, cards, manual contracts, dashboards, invoices, and slow authorisations. Protocols such as L402 on Lightning and x402 on HTTP 402 are attempting to reopen an old door of the web: status code 402 Payment Required, never truly exploited in the first commercial Internet.

1.1 Central thesis

Dimension	Thesis
Attention	AI has captured more attention and narrative capital than Bitcoin during 2023–2026.
Volumes	The 2023 decline in crypto volumes coincides with the rise of AI, but the 2024 recovery suggests the dominant cause was the crypto-macro cycle, not AI alone.
Adoption	Bitcoin is more plausible as an asset, collateral, and settlement layer than as a daily retail currency.
Future linkage	AI agents could use Bitcoin/Lightning for payments, economic authentication, and cryptographic receipts in API and machine-to-machine contexts.
Forecast	Base scenario: growing institutionalisation, persistent volatility, and agentic use that is initially niche but strategic.

2. Research questions and hypotheses

- **RQ1** — Has the rise of AI structurally reduced Bitcoin's attention and volumes?
- **RQ2** — Can Bitcoin reach mass adoption, and in what form?
- **RQ3** — What plausible technical-economic link can emerge between Bitcoin and AI?
- **RQ4** — Which indicators allow us to distinguish a simple speculative narrative from infrastructural adoption?
- **RQ5** — What risks could invalidate the convergence thesis?

The operational hypotheses are formulated in a falsifiable form, so that subsequent empirical research could refute them.

Hypothesis	Formulation	Falsification indicator
H1 — Narrative displacement	AI has drawn attention and venture capital away from crypto, but does not by itself explain Bitcoin's secondary volume.	If AI-attention remains significant and negative on BTC volumes even after controlling for price, volatility, ETF flow, rates, and risk sentiment.
H2 — Institutionalisation	Bitcoin's main trajectory is financial integration via ETFs, custody, treasury, and collateral.	Persistent absence of institutional flows, structural outflows from ETFs, and a decline in regulated liquidity.
H3 — ABSL	AI agents generate demand for payments and economic authentication; a share can transit on Bitcoin/Lightning/L402.	Failure of paid endpoints, agentic wallets, business Lightning channels, and HTTP 402 protocols to grow by 2028.
H4 — Stablecoin dominance	Stablecoins and card-like circuits will capture much agentic transaction volume; Bitcoin will play more of a neutral settlement and reserve role than a unit-of-account role.	Direct dominance of BTC as a retail means of payment or, conversely, complete irrelevance of BTC in agentic flows.

3. Methodology: synthetic panel, triangulation, and limits

Figure 1. Methodological design of the paper.

The method is desk-based and triangulative. Public institutional sources, aggregated market data, industry reports, technical documentation, and a synthetic multidisciplinary panel have been combined. The panel does not replace external peer review: its purpose is to enforce a plurality of perspectives and to reduce the risk of a monocausal narrative.

Agent / Perspective	Control question	Output in the paper
Macro-finance	Does Bitcoin behave as digital gold or as a risk asset?	Volatility, rates, ETFs, liquidity, and correlations remain decisive.
Market structure	Did volumes decline because of AI?	The 2023 correlation exists; causality remains unproven.

Agent / Perspective	Control question	Output in the paper
Protocol engineer	What plausible technical BTC–AI link exists?	ABSL: L402/Lightning for APIs, data, compute, and receipts.
Regulatory analyst	Does regulation accelerate or slow adoption?	MiCA, ETPs, and compliance raise market quality but reduce the Wild West.
Cyber-risk analyst	Does AI increase crypto risks?	Deepfakes, phishing, and industrialised scams are material risks.
Red team	Which thesis is most fragile?	The ABSL forecast is plausible but still to be validated with adoption data.

Principal limitation: this version does not yet implement regressions, event studies, or Granger causality tests. Section 9 proposes a protocol for transforming the paper into a replicable empirical study. In other terms: this is a base publishable as preprint or working paper; for an academic journal, the statistical engine room is still needed.

4. Volume evidence: temporal correlation, no proven causality

Figure 2. Annual spot volumes of the leading centralised crypto exchanges, 2020–2024. Source: CoinGecko [3].

The most useful data point for answering the volume question is the series of annual spot volumes on the leading centralised exchanges. CoinGecko reports that cumulative spot volume across the top 15 CEXs fell from 12.62 trillion dollars in 2022 to 8.05 trillion in 2023, and then rose to 18.83 trillion in 2024 [3]. The temporal coincidence with the explosion of generative AI is evident, but is not sufficient to establish causality.

Three alternative explanations are more robust: first, the crypto market was still digesting the aftermath of FTX and the crypto winter; second, restrictive monetary policy had reduced appetite for risk assets; third, infrastructural trust in exchanges and crypto operators had been damaged. The 2024 recovery, coinciding with the approval of spot Bitcoin ETPs and the return of institutional flows, suggests that interest in Bitcoin had not evaporated. It was simply under anaesthesia from the cycle and from trust.

Year	Top 15 CEX spot volume	YoY change	Interpretation
2021	25.21T USD	+566.8%	Bull market peak, NFTs, alt-L1s, retail, and abundant liquidity.
2022	12.62T USD	–49.9%	Macro correction, internal crypto crises, and deleveraging.
2023	8.05T USD	–36.3%	Relative low; AI dominates the narrative, but crypto suffers mainly from endogenous and macro shocks.

Year	Top 15 CEX spot volume	YoY change	Interpretation
2024	18.83T USD	+134.0%	Strong recovery; ETFs and the return of liquidity weaken the "AI killed Bitcoin" thesis.

4.1 Causal interpretation

The methodologically correct conclusion is: AI plausibly drew attention and venture funding away from crypto, but we do not have sufficient evidence to claim it caused the decline in Bitcoin volumes. The volume trajectory appears more consistent with a function of price, volatility, trust, macro liquidity, regulation, and institutional access.

`` ln(Volume_BTC,t) = b0 + b1 *AI_Attention_t* + *b2* BTC_Return_t + b3 *Volatility_t* + *b4* ETF_Flow_t + b5 *Rates_t* + *b6* RiskSentiment_t + e_t ``

This specification proposes a minimum empirical test: if b1 remains negative, significant, and stable after controls, the AI displacement thesis becomes stronger. If, however, b1 loses significance after controlling for price, ETFs, volatility, and macro variables, the thesis weakens.

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5. Adoption: from retail narrative to financial infrastructure

Figure 3. Selected indicators of AI and GenAI adoption. Sources: McKinsey [5] and Stanford HAI [6].

AI is today an adoption phenomenon far broader than crypto in terms of daily and organisational use. McKinsey reports that in 2025, 88% of respondents declared regular use of AI in at least one business function, compared with 78% the previous year [5]. Stanford HAI notes that GenAI has reached 53% adoption in the population within three years, faster than personal computers and the Internet on comparable horizons [6].

Bitcoin, by contrast, exhibits adoption in less visible forms. The institutional turning point was the SEC's approval of spot Bitcoin ETPs on 10 January 2024 [2]. Chainalysis further notes that Bitcoin has remained the principal fiat-to-crypto gateway, with more than 1.2 trillion dollars of fiat inflows to centralised exchanges between July 2024 and June 2025 [4].

The crucial difference is that AI is adopted as an operational tool, whereas Bitcoin is adopted as an asset, infrastructure, or hedge. Expecting the curves to be identical is like comparing an electric motor to a safe: both can sit inside the same company, but they perform different jobs.

5.1 Mass adoption: definition

Form of adoption	Qualitative probability	Reason
Daily retail payment in BTC base layer	Low in the short-to-medium term	Volatility, taxation, UX, and preference for stable units of account.
Investment via ETFs, funds, and custody	High	Reduces technical complexity and integrates Bitcoin into traditional portfolios.

Form of adoption	Qualitative probability	Reason
Collateral and digital reserve	Medium-high	Compatible with scarcity, global liquidity, and institutional demand.
Rail for agentic and API payments	Medium but emerging	Depends on L402, Lightning, agentic wallets, security, and endpoint adoption.
Invisible infrastructure via stablecoin + Bitcoin reserve	High	Users and agents could use crypto without knowing which chain or settlement asset sits underneath.

6. Original contribution: Agentic Bitcoin Settlement Layer

Figure 4. Agentic Bitcoin Settlement Layer (ABSL), conceptual model of future convergence.

The most promising future linkage between Bitcoin and AI is not the idea that generative models will "use Bitcoin" in a generic sense. The plausible linkage is more concrete: autonomous AI agents will need to pay for and economically authenticate themselves with digital resources. APIs, datasets, tools, models, storage, inference, and compute could be sold on a usage basis. Here the pairing of HTTP 402 + Lightning/L402 offers a native model for paying for access without pre-existing accounts, manual API keys, or human contracts.

Lightning Labs describes L402 as a protocol that combines HTTP 402, the Bitcoin Lightning Network, and cryptographic tokens to enable a client to pay and authenticate to an L402-enabled API without signup, API keys, or pre-existing relationship [7]. In 2026, Lightning Labs further released agentic tools to enable AI agents to pay L402 APIs, host paid endpoints, and orchestrate buyer-seller workflows [8]. This does not prove mass adoption, but it provides a real technical surface on which to formulate empirical hypotheses.

6.1 Definition of the ABSL model

Definition. The Agentic Bitcoin Settlement Layer is a hypothetical architecture in which AI agents use machine-readable protocols to purchase digital resources, pay via Lightning, receive credentials or cryptographic receipts and, when necessary, anchor or verify economic traces against the Bitcoin settlement layer. The goal is not to replace Visa, Stripe, stablecoins, or banks; it is to cover the cases in which global, programmable, account-light, and interoperable micropayments are required.

Layer	Function	Example
AI agent layer	Plans, decides, negotiates price, calls tools.	Agent purchasing an up-to-date dataset or a call to a specialist model.
Payment/auth layer	Transforms payment into an access credential.	HTTP 402/L402: invoice + token + proof of payment.
Settlement layer	Settles value near-instantaneously and reconciles balances.	Lightning for payment; Bitcoin base layer for finality and scarcity.
Service layer	Delivers APIs, data, inference, compute, and storage.	Paid MCP endpoint, financial API, proprietary resource.
Risk/governance layer	Spending limits, delegation, compliance, revocation.	Attenuated credentials, spending caps, endpoint whitelists, audit.

6.2 Minimum formula of agentic demand

`` V_ABSL,t = N_agents,t *Calls_agent,t* Price_call,t * theta_BTC,t ``

Where V_ABSL,t is the value transacted via ABSL in period t; N_agents,t is the number of economically active agents; Calls_agent,t is the average number of resources purchased; Price_call,t is the average price per resource; and theta_BTC,t is the share of these payments using Bitcoin/Lightning rather than cards, stablecoins, or other protocols. The key variable is not the number of people buying Bitcoin, but the share of machine-to-machine economic flows that choose Bitcoin/Lightning for settlement or authentication.

6.3 Why the linkage might occur

- **Account-light commerce:** agents do not necessarily have legal identity, a bank account, or a credit card. A payment with a cryptographic receipt can be more natural than a human onboarding process.
- **Micropayments and pay-per-use:** many AI resources have low unit value but high frequency. The subscription model is not always efficient.
- **Economic authentication:** paying an invoice can also serve as proof of access right, reducing the need for static API keys.
- **Geopolitical neutrality:** Bitcoin can be of interest in cross-border cases or global APIs where traditional rails are slow, costly, or fragmented.
- **Verifiable receipts:** in the AI economy, audit, provenance, and transactional accountability become more important.

6.4 Why it might not occur

- Stablecoins and x402 could win the lion's share of agentic payments because a stable unit of account is preferable for businesses and suppliers.
- Visa, Stripe, OpenAI, and other operators may impose agentic standards integrated into existing systems, with superior UX and compliance.
- Lightning must demonstrate operational robustness, liquidity, reliable routing, secure custody tools, and easy integration for non-crypto developers.
- Regulation, taxation, and AML may make permissionless use difficult in enterprise contexts.
- Agent security is critical: a compromised agent that can spend real money does not merely produce a wrong answer; it produces a wrong wire transfer. There, "just regenerate" is not an option.

The recent literature and documentation indicate that the race is already open. OpenAI and Stripe have introduced the Agentic Commerce Protocol to enable AI agents, users, and merchants to collaborate in purchasing processes [10]. Cloudflare and Coinbase announced the x402 Foundation to promote an HTTP 402 protocol oriented to value exchange on the web [9]. Visa has presented Visa Intelligent Commerce to enable agentic payments with controls, tokenisation, and traditional network reach [11]. Consequently, L402/Bitcoin is not the only candidate: it is one of the candidates in a future agentic payments stack.

7. Forecast 2026–2029: conditional scenarios

Figure 5. Scenarios 2026–2029: qualitative forecast of the synthetic panel.

The paper's forecast is not a price target. A price target without a complete quantitative model is often an elegant way to be refuted with Swiss punctuality. The forecast is directional and conditional: it identifies probable trajectories and indicators to monitor.

Scenario	Subjective probability	Mechanism	Indicators to monitor
Base — institutionalisation	50%	ETFs, custody, treasury, and collateral integrate BTC into finance; AI remains the dominant narrative.	ETF flow, AUM, derivatives, CEX/OTC volumes, volatility.
Bullish — agentic settlement	30%	Agents and pay-per-use APIs increase demand for programmable payments; L402 captures a niche.	L402 endpoints, Lightning volumes, paid SDK/MCP, partnerships.
Bearish — macro risk asset	20%	BTC remains a risk asset; macro shocks, ETF outflows, and fraud/regulation compress liquidity.	Real rates, DXY, Nasdaq, ETF outflows, hacks/scams, funding.

7.1 Forecast synthesis

The most plausible trajectory is that Bitcoin becomes less central in daily conversation but more embedded in the financial structure. Mass adoption will not necessarily arrive as a human retail payment, but as regulated exposure, collateralisation, digital reserve, and possibly a settlement rail for autonomous software. If AI transforms digital work into a network of agents that purchase and sell resources in real time, Bitcoin can return to centre stage not as a fashion but as infrastructure. Fewer fireworks, more plumbing. The pipes don't make the cover, but without them the building doesn't drain anything.

8. Risks, falsification, and red-team

The ABSL thesis is promising, but should not be idolised. The principal sources of risk are technical, regulatory, competitive, and criminal.

Risk	Impact on the thesis	Possible mitigation
Stablecoin/card-rail dominance	Bitcoin remains a reserve/collateral but does not become a relevant agentic rail.	Interoperability: L402, stablecoins on Lightning, multi-asset wallets.
Insufficient Lightning UX and security	Developers choose custodial or web2 solutions.	Simple SDKs, remote signers, spending caps, attenuated credentials.
Enterprise regulation	Companies avoid permissionless payments.	Compliant gateways, policy engines, audit trail, KYT/AML at entry points.

Risk	Impact on the thesis	Possible mitigation
AI-enabled scams	Increased reputational risk and user loss.	Risk scoring, identity verification, deepfake detection, transaction limits.
BTC volatility	Difficulty as a unit of account.	Use of BTC as settlement/collateral and stablecoins as pricing layer.
Miner economics	Long-term pressure on security and fees.	Fee market, mining efficiency, AI/HPC integration without compromising hashrate.

S&P Global observes that Bitcoin volatility is declining over the long term but remains elevated, while integration with traditional finance introduces new market risks [13]. On the infrastructural side, S&P notes that several miners are diversifying into AI and HPC, with HPC revenue projections highly relevant for some operators as early as 2026 [12]. This convergence can be positive if it increases data centre resilience, but ambiguous if it diverts capital and attention away from mining security.

Criminal risk is equally material. Chainalysis estimates that crypto scams reached record levels in 2025, with AI-enabled scams 4.5 times more profitable than traditional ones [15]. TRM Labs reports 158 billion dollars of value received by illicit wallets in 2025, while noting that the percentage share of illicit volume in the total has fallen [16]. The uncomfortable but useful conclusion is: more AI also means more scalable fraud. Institutional adoption therefore requires security, not just enthusiasm.

8.1 Red-team: which conclusions hold?

Claim	Verdict	Reason
AI has killed Bitcoin.	Rejected	The 2024 volumes and institutionalisation contradict the thesis.
AI has drawn away attention and narrative capital.	Supported	AI adoption, investment, and corporate focus are evident.
Crypto volumes fell when AI exploded.	Supported but not causal	The 2023 decline exists; the dominant cause is not proven.
Bitcoin will reach mass adoption as everyday money.	Weak	Volatility, taxation, and UX favour stablecoins and traditional payment rails.
Bitcoin may play an agentic role via L402/Lightning.	Plausible but not validated	Technical infrastructure exists; proof of broad adoption is missing.
Stablecoins and x402 may outperform Bitcoin in agentic payments.	Strong possibility	A stable unit of account and enterprise integration are important advantages.

9. Empirical protocol for a peer-reviewed version

To transform this working paper into a peer-reviewed academic article, the narrative section must become a replicable empirical design. The central question to test is not "Will Bitcoin go up?", but: "Does AI attention predict variation in Bitcoin volumes and attention after controlling for macro-financial variables and

endogenous crypto shocks?".

- Build a monthly or weekly dataset from 2020 to 2026 with BTC spot volumes, derivative volumes, open interest, ETF flow, BTC price, realised volatility, funding, Google Trends for Bitcoin/AI, AI/crypto investments, Nasdaq, VIX, DXY, real rates, stablecoin supply, and regulatory indicators.
- Perform event studies over three windows: the FTX collapse, the ChatGPT launch/rise of GenAI, and the approval of spot Bitcoin ETPs. Add the L402/agentic payment event as an exploratory window in 2026.
- Estimate multivariate regressions with time fixed effects and macro controls; test robustness with alternative exchange data and on-chain metrics.
- Apply VAR and Granger causality between AI attention, Bitcoin attention, BTC volumes, crypto VC funding, and risk-appetite indicators.
- For ABSL, construct an adoption index: number of L402/x402 repositories/projects, paid endpoints, agentic wallets, business Lightning volumes, SDK integrations, and paid MCP tools.
- Publish code, variable dictionary, and transformed dataset. Without replicability, it is a fine story; with replicability, it begins to become science.

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10. Conclusions

The main conclusion is that Bitcoin has not been replaced by AI. It has lost part of the narrative centre, but is gaining a more institutional profile. The decline in volumes in 2023 coincides with the rise of AI, but the recovery of volumes in 2024 and the growth of regulated instruments weaken the monocausal explanation. The narrative runs faster than the data; the job of research is to make the data put on the right shoes.

The novel contribution is the ABSL model: Bitcoin could connect to AI as a settlement layer for autonomous agents, especially in markets for APIs, data, inference, and compute. This is not the guaranteed dominant scenario. The competitors are strong: stablecoins, x402, Visa, Stripe, OpenAI, and programmable banking circuits. Nevertheless, Bitcoin holds distinctive properties: credible scarcity, neutrality, global settlement, and a Lightning network designed for rapid and granular payments.

The central forecast for 2026–2029 is therefore threefold: first, Bitcoin remains volatile and cyclical; second, it becomes more integrated into traditional finance; third, it may acquire a new strategic option in the economy of AI agents. Its mass adoption will probably be less spectacular than the maximalists hoped, and less catastrophic than the sceptics hoped. Not everyone will pay for cappuccinos in satoshis; but an AI agent could pay for an API call in satoshis without even noticing. And that, if it scales, is far more interesting than the cappuccino.

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Appendix A — Variables and proposed econometric tests

Variable	Operational definition	Potential source
Volume_BTC	BTC spot volume or crypto spot volume as proxy, daily/weekly/monthly frequency.	CCData, Kaiko, CoinGecko, CryptoCompare.
AI_Attention	Normalised index of attention towards AI, GenAI, agentic AI.	Google Trends, news APIs, social data.

Variable	Operational definition	Potential source
BTC_Attention	Normalised index of attention towards Bitcoin.	Google Trends, news APIs, social data.
ETF_Flow	Net flows into spot Bitcoin ETFs/ETPs.	Issuer, Bloomberg, Farside, exchange filings.
RiskSentiment	Proxy for risk appetite.	Nasdaq, VIX, credit spreads.
MacroLiquidity	Real rates, DXY, global liquidity.	FRED, BIS, Bloomberg.
AgenticPayments	L402/x402/ACP adoption index: endpoints, repositories, SDKs, transactions, merchants.	GitHub, endpoint scans, protocol analytics.
LightningBusiness	Capacity, business channels, estimated volumes, and routing fees.	1ML, Amboss, node data, private providers.

A.1 Minimum tests

- **Event study:** anomalous returns and volumes around the ChatGPT launch, FTX, ETF approval, and the release of L402 agent tools.
- **OLS/GLS regressions:** log volumes regressed on AI attention and macro-financial controls.
- **VAR/Granger:** temporal direction between AI attention, BTC attention, crypto VC funding, and BTC volumes.
- **Robustness:** excluding exchange crisis periods; comparing BTC spot with derivatives and stablecoin flows.
- **ABSL adoption index:** measuring whether the growth of agentic endpoints precedes the growth of business Lightning volumes.

A.2 Publishability criterion

A scientifically stronger version should publish: the transformed dataset, analysis notebooks, ex ante specifications of event windows, robustness tests, and a registry of methodological decisions. This would reduce the risk of cherry-picking and make the research replicable.

Methodological disclosure

This working paper was drafted with explicit analytical support from GPT-5.5 Pro under the conceptual and editorial direction of Giuseppe Nesca (founder, Fattore Crescita magazine). All citations were verified against public primary sources on 27 May 2026. The argument, structure, ABSL model and editorial decisions are the author's; AI tooling was used for drafting, English translation, formatting and the synthetic multidisciplinary panel. The paper is released as a working draft inviting peer review. A peer-reviewed version is planned following the empirical protocol described in Section 9.

This paper is not financial, legal or fiscal advice. Forecasts are conditional scenarios, not price targets.

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