The (In)Finite Money Glitch

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CAAW, 6 March 2026

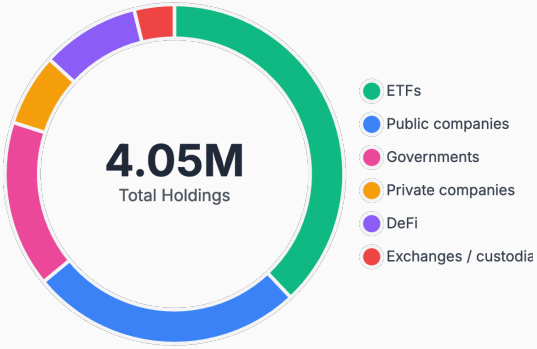
The infinite money glitch

The *"Infinite Money Glitch"* is a self-reinforcing capital-markets loop in which MicroStrategy repeatedly raises money (mainly via convertibles and other equity-linked deals), uses the proceeds to buy more Bitcoin, and—because those buys raise the stock's volatility/premium and the value of new conversion options—can sell yet more paper on favorable terms to buy still more Bitcoin. (FT Alphaville)

The cycle works until market conditions (e.g., lower BTC, lower volatility, or tighter financing) break it and conversions fail, at which point cash repayment and potential BTC liquidation become risks.

Motivation

- Narrow business model: Issue debt to buy crypto assets (mostly BTC)
- MSTR holds about 720k BTC ($49.25bn) and is part of the Nasdaq-100 / MSCI World
- **Why do we care?**
  Systemic and individual risk



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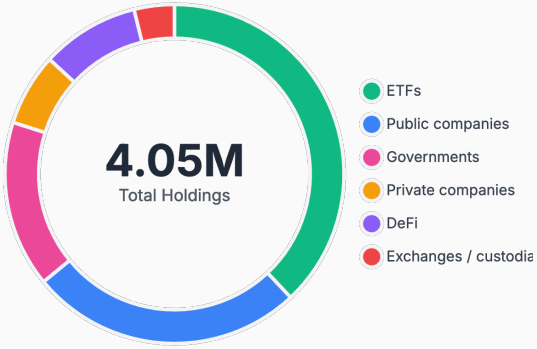
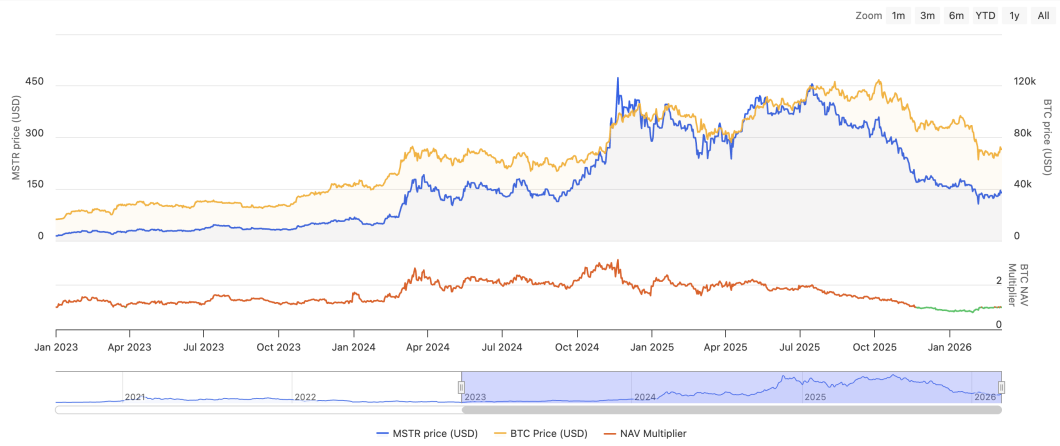


⇒ **Question:** Under what conditions does the infinite money glitch break down?

Motivation


Zoom 1m 3m 6m YTD 1y All
MSTR price (USD)
450
300
150
0
BTC price (USD)
120k
80k
40k
0
BTC NAV Multiplier
2
0
Jan 2023
Apr 2023
Jul 2023
Oct 2023
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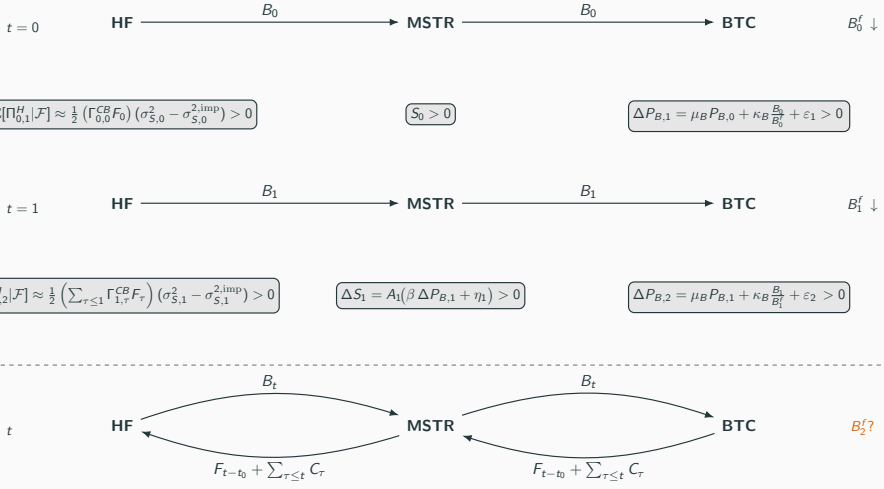
2026
MSTR price (USD)
BTC Price (USD)
NAV Multiplier

The Infinite Money Glitch



Model: Core Mechanics

- **Convertible issuance:** Firm issues zero-coupon convertibles with fixed conversion premium $\pi \approx 0.3$–0.4:

$$K_\tau = (1+\pi)\, S_\tau, \quad c_\tau = \frac{1}{K_\tau}$$

- **BTC purchases:** Proceeds B_t buy Bitcoin: $\Delta H_t = \frac{B_t}{P_{B,t}}$

- **Price impact:** Firm purchases drive BTC prices higher:

$$\Delta P_{B,t+1} = P_{B,t}\, \mu_B + \kappa_B \frac{B_t}{B_t^f} + \varepsilon_{t+1}$$

- **Equity amplification:** Higher BTC volatility + hedging feedback amplifies equity moves via amplifier $A_t = 1/(1-\psi_t)$:

$$\sigma_{S,t}^2 = A_t^2 \left(\beta^2\, \sigma_{B,t}^2 + \sigma_\eta^2\right)$$

Model: Hedge Fund Financing the Loop

- **HF financing:** Hedge fund shorts convertibles to fund firm's purchases. Delta and gamma per \$/face:

$$Q_t^{\text{short}} = \sum_{\tau \le t} \Delta_{t,\tau}^{\text{CB}} \, F_\tau$$

- **HF rehedging:** HF rebalances short dynamically; realized P&L depends on realized vs. implied volatility:

$$\mathbb{E}\Big[\Pi_{t,t+1}^{H} \,\Big|\, \mathcal{F}_t\Big] \approx \frac{1}{2}\left(\sum_{\tau \le t} \Gamma_{t,\tau}^{\text{CB}} \, F_\tau\right)(\sigma_{S,t}^2 - \sigma_{S,t}^{2,\text{imp}})$$

- **Market clearing:** At issuance, three constraints bind:

$$\text{Capital: } B_t \le K_t^{\text{HF}}, \quad \text{Borrowing: } \Delta_{t,t}^{\text{CB}} \, F_t \le L_t, \quad \text{Stability: } 0 \le \psi_t < 1$$

Model: Sustainability & Default

- **Net asset value:** $\mathrm{NAV}_t = H_t\, P_{B,t} - \sum_{\tau=0}^{t} V_{t,\tau}\, F_\tau$
- **Coupon servicing:** Recent bonds carry coupons; cash paid reduces BTC purchases:

$$\Delta H_1 = \frac{B_1 - C_0}{P_{B,1}}, \quad C_0 = q_0\, F_0$$

  When $B_1 < C_0$, firm must **sell BTC**.

- **Conversion & insolvency at $t = 2$:** Each tranche converts if $S_2 \geq K_\tau$; otherwise requires cash. Default occurs if:

$$H_2\, P_{B,2} < \sum_{\tau \in \{0,1\}} F_\tau\, \mathbf{1}\{S_2 < K_\tau\}$$

- **Loop breaks if:** HF capital exhausted, borrowing constraints bind, stability fails ($\psi_t \to 1$), or HF sees negative P&L at $t = 1$.

Definition (Equilibrium)
Given parameters $\Omega = (\Omega^c, \Omega^{fi}, \Omega^{fr})$, a three-date equilibrium consists of issuance decisions $\{B_0, B_1\}$, pricing variances $\{\sigma^{2,\text{imp}}_{S,0}, \sigma^{2,\text{imp}}_{S,1}\}$, price paths $\{P_{B,t}, S_t\}_{t=0}^2$, holdings $\{H_t\}_{t=0}^2$, and convertible Greeks $\{\Delta^{\text{CB}}_{t,\tau}, \Gamma^{\text{CB}}_{t,\tau}\}$ such that:

(i) *Issuance & BTC purchases:* Proceeds B_t buy BTC: $\Delta H_t = B_t / P_{B,t}$.

(ii) *BTC price impact:* $\Delta P_{B,t+1} = P_{B,t}\,\mu_B + \kappa_B\, B_t / B^f_t + \varepsilon_{t+1}$.

(iii) *Equity dynamics & amplification:* Hedging feedback ψ_t drives amplifier $A_t = 1/(1-\psi_t)$, generating variance $\sigma^2_{S,t} = A_t^2(\beta^2\,\sigma^2_{B,t} + \sigma^2_\eta)$.

(iv) *HF breakeven & market clearing:* At each $t \in \{0,1\}$ with $B_t > 0$, implied variance satisfies $\sigma^{2,\text{imp}}_{S,t} = \sigma^2_{S,t}$, capital and borrowing constraints bind, and stability holds: $0 \le \psi_t < 1$. Otherwise $B_t = 0$.

(v) *Settlement at $t = 2$:* Tranche τ converts if $S_2 \ge K_\tau = (1+\pi)S_\tau$; otherwise requires cash F_τ. Default if $H_2\, P_{B,2} < \sum_\tau F_\tau\, \mathbf{1}\{S_2 < K_\tau\}$.

Equilibrium – Solution

Algorithm 1: Equilibrium computation.

Input: $\Omega^c, \Omega^{fi}, \Omega^{fr}$; Seed

Output: Endogenous model variables

Issuance at $t = 0$: Bisection on $B_0 \in [0, K_0^{HF}]$ with inner fixed point to obtain $(F_0, \Psi_0, A_0, \sigma^2_{S,0})$; Coupon dollars $C_0 = q_0 F_0$.

Propagate $[0 \to 1]$: Draw $\varepsilon_1 \sim \mathcal{N}(0, \sigma^2_{B,0})$ and $\eta_1 \sim \mathcal{N}(0, \sigma^2_{\eta})$; compute (P_1^B, S_1) using B_0 and A_0.

Issuance at $t = 1$: Bisection on $B_1 \in [0, K_1^{HF}]$ (existing tranche priced ex-coupon) to obtain $(F_1, \Psi_1, A_1, \sigma^2_{S,1})$. Net dollars to BTC: $B_1^{\text{net}} = B_1 - C_0$.

Propagate $[1 \to 2]$ (pre-liquidation): Draw ε_2 and η_2; compute $(P_2^{B,\text{pre}}, S_2^{\text{pre}})$ using B_1^{net} and A_1.

Compute holdings: $H_2^{\text{pre}} = B_0 / P_0^B + B_1^{\text{net}} / P_1^B$.

Liquidation & settlement at $t = 2$: Compute L by the threshold logic above; cap by $L_{\max} = H_2^{\text{pre}} P_2^{B,\text{pre}}$; apply within-period impact to obtain (P_2^B, S_2), H_2^{post}; evaluate conversion and cash due at S_2; compute shortfall and N_2.

Write outputs.

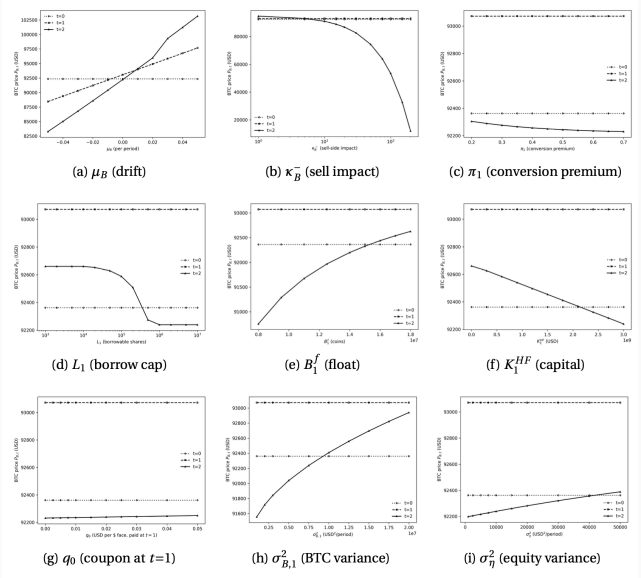
Results – Calibration

Calibrated			
N_0	1.6968125×10^7	shares	Shares outstanding at $t = 0$.
S_0	433.7997	USD/share	Stock price anchor (VWAP window for Nov 19, 2024).
$P_{B,0}$	92,362.09	USD/BTC	BTC reference near the same window.
π_0	0.55		Conversion premia for CB issued at $t = 0$.
B_0^f	1.43×10^7	BTC	Effective BTC free float at $t = 0$.
$\sigma_{B,0}^2$	7.5×10^6	USD^2	BTC dollar variance at $t = 0$.
λ_c	0.02		Credit hazard.
q	0.00		Borrow/dividend yield.
H_0	100,000	BTC	Initial BTC reserve amount.
Fixed model parameters			
κ_B^+	5.0		Flow-to-price slope for positive B_t.
λ	2.0×10^{-6}	USD/share	Linear equity price impact per net share.
β	4.5×10^{-2}	USD/USD	Stock dollar change per \$1 BTC move (pre-amplifier).
K_0^{HF}	3.0×10^9	USD	HF capital capacity at $t = 0$.
L_0	1.0×10^8	shares	Borrowable shares available to short in $t = 0$

Results – Calibration

Free model parameters			
μ_B	0.00		Baseline BTC drift.
κ_B^-	10.0		Flow-to-price slope for negative B_t.
π_1	0.55		Conversion premia for CB issued at $t = 1$.
B_1^f	1.43×10^7	BTC	Effective BTC free float at $t = 1$.
$\sigma_{B,1}^2$	7.5×10^6	USD^2	BTC dollar variance at $t = 1$.
σ_η^2	1.0×10^4	USD^2	Idiosyncratic stock variance.
q_0	0.02		Coupon payment for $t = 0$ convertible bond.
K_1^{HF}	1.5×10^9	USD	HF capital capacity at $t = 1$.
L_1	5.0×10^6	shares	Borrowable shares available to short in $t = 1$.

Results – Bitcoin price



(a) μ_B (drift)

(b) κ_B^- (sell impact)

(c) π_1 (conversion premium)

(d) L_1 (borrow cap)

(e) B_1^f (float)

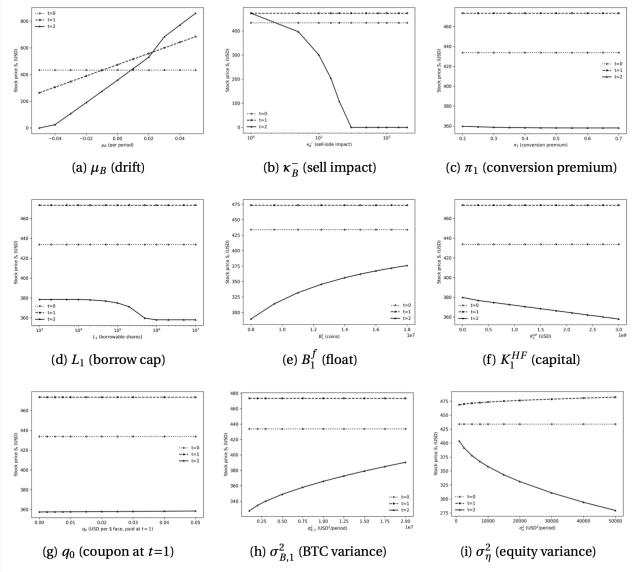
(f) K_1^{HF} (capital)

(g) q_0 (coupon at t=1)

(h) $\sigma_{B,1}^2$ (BTC variance)

(i) σ_η^2 (equity variance)

Results – Stock price



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(c) π_1 (conversion premium)

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(e) B_1^f (float)

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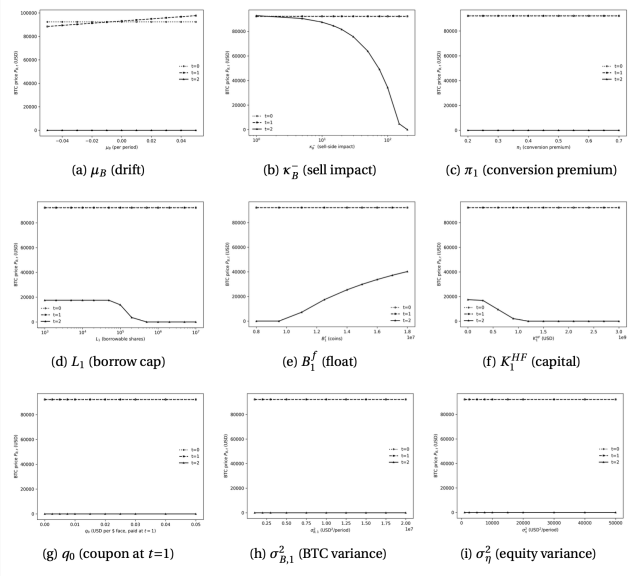
(g) q_0 (coupon at t=1)

(h) $\sigma_{B,1}^2$ (BTC variance)

(i) σ_η^2 (equity variance)

Results – Bitcoin price (crisis calibration)



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(e) B_1^f (float)

(f) K_1^{HP} (capital)

(g) q_0 (coupon at t=1)

(h) $\sigma_{B,1}^2$ (BTC variance)

(i) σ_η^2 (equity variance)

Results – Bitcoin price (parameter sweep)

	Lower Range	Upper Range	Average	PB_1 Bot. 5%	PB_2 Bot. 5%	PB_2 Bot. 1%	PB_2 Top 5%
$P_{B,1}$			93,071.26	88,684.92	92,451.02	92,717.54	97,089.77
$P_{B,2}$			67,038.38	58,646.33	17,876.74	2,097.14	101,838.92
S_1			473.32	273.62	445.09	457.22	656.31
S_2			91.83	0.55	0.00	0.00	798.06
μ_B	−0.05	0.05	0.00	−0.05	−0.01	0.00	0.04
				(0.000)	(0.000)	(0.000)	(0.000)
κ_B^-	1.00	200.00	100.53	100.55	173.49	179.70	64.25
				(0.841)	(0.000)	(0.000)	(0.000)
B_1^f	8.00×10^6	1.80×10^7	1.30×10^7	1.30×10^7	9.95×10^6	9.23×10^6	1.33×10^7
				(0.845)	(0.000)	(0.000)	(0.000)
$\sigma_{B,1}^2$	1.00×10^6	2.00×10^7	8.00×10^6	8.00×10^6	7.54×10^6	7.35×10^6	8.99×10^6
				(0.358)	(0.000)	(0.000)	(0.000)
π_1	0.20	0.70	0.50	0.50	0.53	0.55	0.43
				(0.896)	(0.000)	(0.000)	(0.000)
q_0	0.00	0.2	0.10	0.10	0.09	0.09	0.08
				(0.292)	(0.000)	(0.000)	(0.000)
K_1^{HF}	0.00	3.00×10^9	1.50×10^9	1.50×10^9	1.97×10^9	2.34×10^9	1.41×10^9
				(0.442)	(0.000)	(0.000)	(0.000)
L_1	1.0×10^3	1.00×10^7	1.09×10^6	1.08×10^6	2.23×10^6	2.90×10^6	934,551.80
				(0.184)	(0.000)	(0.000)	(0.000)

Results – Bitcoin price (parameter sweep)

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S_2			91.83	0.55	0.00	0.00	798.06
μ_B	−0.05	0.05	0.00	−0.05	−0.01	0.00	0.04
				(0.000)	(0.000)	(0.000)	(0.000)
κ_B^-	1.00	200.00	100.53	100.55	173.49	179.70	64.25
				(0.841)	(0.000)	(0.000)	(0.000)
B_1^f	8.00×10^6	1.80×10^7	1.30×10^7	1.30×10^7	9.95×10^6	9.23×10^6	1.33×10^7
				(0.845)	(0.000)	(0.000)	(0.000)
$\sigma_{B,1}^2$	1.00×10^6	2.00×10^7	8.00×10^6	8.00×10^6	7.54×10^6	7.35×10^6	8.99×10^6
				(0.358)	(0.000)	(0.000)	(0.000)
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K_1^{HF}	0.00	3.00×10^9	1.50×10^9	1.50×10^9	1.97×10^9	2.34×10^9	1.41×10^9
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				(0.184)	(0.000)	(0.000)	(0.000)

Conclusion – Where are we?

Company	Ticker	Decline from ATH	Company	Ticker	Decline from ATH
Bit Digital Inc.	BTBT	$> 90\%$	The Blockchain Group	ALTBG.PA	70.7%
Cango Inc.	CANG	$> 90\%$	Bitfarms Limited	BITF	$> 70\%$
Genius Group Ltd.	GNS	$> 90\%$	Cipher Mining	CIFR	$> 70\%$
Meitu Inc.	1357.HK	$> 90\%$	Semler Scientific	SMLR	$> 70\%$
Microcloud Hologram	HOLO	$> 90\%$	Block Inc.	SQ	$\sim 65\%$
The Smarter Web Co.	SWC:AQSE	83.6%	CleanSpark Inc.	CLSK	$> 60\%$
Hive Digital Tech	HIVE	$> 80\%$	Galaxy Digital Holdings	GLXY.TO	$> 60\%$
MARA Holdings	MARA	$> 80\%$	Trump Media & Tech	DJT	$> 60\%$
Riot Platforms Inc.	RIOT	$> 80\%$	Metaplanet Inc.	3350.T	58.6%
MicroStrategy Inc.	MSTR	77%	Coinbase Global Inc.	COIN	$\sim 58\%$
Next Technology Holding	NXTT	73%	Tesla Inc.	TSLA	$\sim 51\%$

Note: Data as of March 2026.

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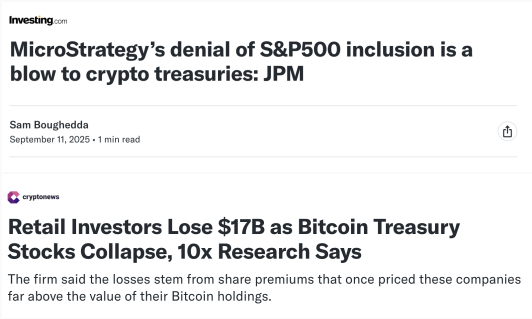

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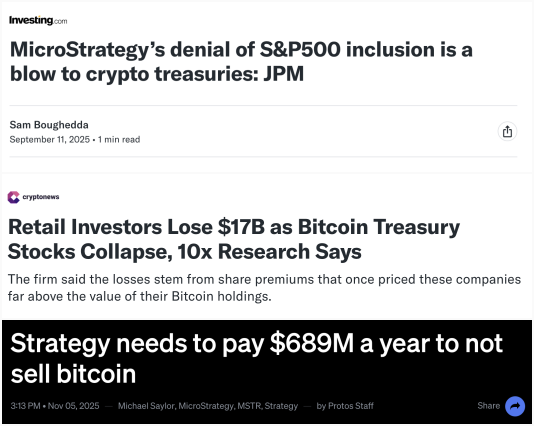

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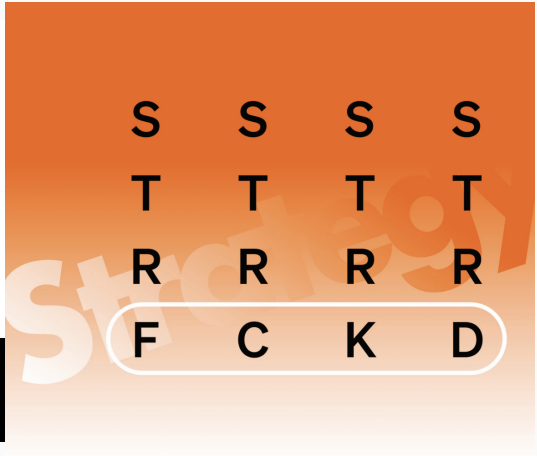

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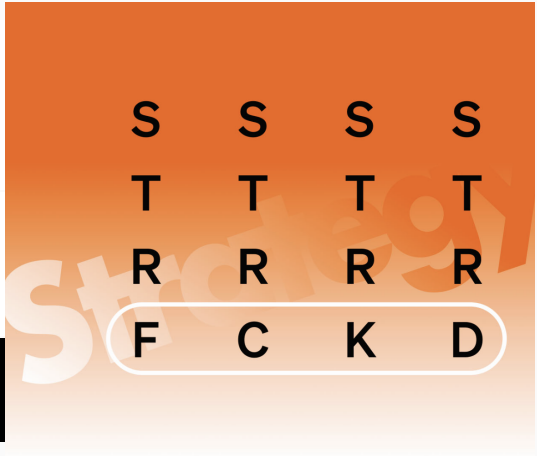

Thank you!