Fundamental Signals and Cryptocurrency Performance: A Correlation Analysis Across GitHub, DefiLlama, and Twitter

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Abstract

This study examines the predictive power of fundamental signals derived from three data sources — developer activity on GitHub, financial metrics from DefiLlama, and Twitter engagement — on the short-term performance of 274 cryptocurrencies from the top 300. Using Pearson correlations on normalized scores, we identify three-indicator combinations reaching correlations of **+0.60** at a 30-day horizon, with a top-to-bottom quartile spread of **+23.4 percentage points**, or +9.8 points above the market median return of +1.0%.

1. Introduction

Forecasting the future performance of cryptocurrencies poses significant methodological challenges due to extreme market volatility, information asymmetry, and the multiplicity of value drivers. While many studies focus on technical analysis or on-chain data, few explore the combined predictive value of developer activity, DeFi protocol metrics, and social community signals.

This study uses the aggregated and scored data from **CryptoScores.com** to test a simple hypothesis: do projects with active development, real revenues, and an engaged community outperform the market in the short term?

2. Data and Methodology

2.1 Dataset

- **Source:** CryptoScores.com — proprietary aggregated scores as of February 12, 2026
- **Universe:** Top 300 cryptocurrencies by market capitalization (CoinGecko)
- **Filtering:** Exclusion of stablecoins (USDT, USDC, DAI, USDS...) and wrapped tokens (WETH, WBTC, stETH...)
- **Effective size:** 274 cryptocurrencies with available prices at all three dates
- **Dependent variables:** 7-day return (Feb 12→19, 2026) and 30-day return (Feb 12→Mar 14, 2026)
- **Market median (30d):** +1.0%

2.2 Analyzed Scores

All scores come from CryptoScores.com and are normalized to z-scores before combination:

GitHub category (scoringGithub): - `followers_score`: score based on the number of followers of the project's main GitHub repository — proxy for the size and attractiveness of the developer community - `last_commit_score`: score based on the recency of the last commit — proxy for recent development activity - `last_year_commits_score`, `fork_count_score`, `stars_score`, `last_week_commits_score`: complementary metrics of code activity and popularity

DefiLlama category (scoringDefiLlamaFees / scoringDefiLlamaRevenue / scoringDefiLlama): - `fees_total30d_per_mcap_score`: ratio of total fees generated over 30 days divided by market cap — measures relative value generation - `revenue_30d_per_marketcap_score`: protocol revenues over 30 days divided by market cap — measures relative profitability - `tvl_30d_change_score`: 30-day change in TVL (Total Value Locked) - `tvl_per_market_cap_score`: TVL to market cap ratio

Twitter category (scoringTwitterFollowersChart / scoringTwitterscore): - `twitter_steady_growth_score`: score measuring the regularity of follower growth - `twitter_followers_score`: score based on the absolute number of followers - `twitter_90d_change_score`: 90-day change in followers

2.3 Method

For each candidate column, we compute the Pearson correlation coefficient between the score and future returns (7d and 30d), with a minimum of 30 observations. The Q4–Q1 spread is the difference between the average return of the top quartile and the bottom quartile by score.

For two- and three-score combinations, z-scores are summed (simple normalized addition), creating a composite score. All 14,178 possible triplets from the 45 GitHub + DefiLlama + Twitter columns were exhaustively tested.

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3. Results

3.1 Single Indicators

Score	n	Pearson 7d	Pearson 30d	Spread 30d
GH. followers	180	+0.283	**+0.282**	+0.194
GH. last_commit	180	+0.234	**+0.240**	+0.213
DL. fees_30d/mcap	75	+0.179	**+0.234**	+0.164
DL. tvl/mcap	111	+0.067	**+0.192**	+0.150
DL. revenue_30d/mcap	57	+0.164	**+0.147**	+0.148
TW. steady_growth	274	+0.057	**+0.144**	+0.140
TW. followers	263	+0.054	**+0.136**	+0.360

GitHub scores dominate clearly with 30-day Pearson correlations above +0.28. DefiLlama metrics reach +0.23, while Twitter plateaus at +0.14 — though with a remarkable Q4–Q1 spread for the followers score (+0.36), indicating strong non-linearity.

3.2 Triples — Top 7

Rank	Mix	n	P. 7d	P. 30d	Spread 30d	Indicators
1	GH+GH+DL	46	+0.542	**+0.599**	+0.239	followers + lastcommit + revenue30d/mcap
2	GH+GH+DL	43	+0.571	**+0.593**	+0.226	followers + lastcommit + revenue24h/7d
3	GH+GH+DL	46	+0.544	**+0.579**	+0.218	

Rank	Mix	n	P. 7d	P. 30d	Spread 30d	Indicators
						followers + last_commit + Revenue
4	**GH+GH+DL**	**62**	**+0.540**	**+0.579**	**+0.272**	**followers + lastcommit + fees30d/mcap**
5	GH+DL+TW	46	+0.503	**+0.568**	+0.239	lastcommit + revenue30d/mcap + TW score
6	GH+DL+TW	43	+0.525	**+0.561**	+0.225	lastcommit + revenue24h/7d + TW score
7	GH+DL+TW	**62**	+0.492	**+0.556**	**+0.267**	lastcommit + fees30d/mcap + TW score

Rank 4 is recommended for its robustness: **n=62 observations**, the largest sample in the top 7, with a Pearson of +0.579 and the best spread (+0.27).

3.3 Quartile Analysis — Triple GH.followers + GH.lastcommit + fees30d/mcap

Quartile	n	Mean 30d return	vs. market median
Q4 (top)	15	**+10.8%**	**+9.8 pts**
Q3	15	+2.1%	+1.1 pts
Q2	16	-2.3%	-3.3 pts
Q1 (bottom)	16	**-12.6%**	-13.6 pts
Spread Q4–Q1		**+23.4 pts**	
Market median	274	+1.0%	—

3.4 Concrete Examples — Top 10 of the Composite Score

Cryptocurrencies with the best composite scores (z-followers + z-last_commit + z-fees/mcap) and their observed performance:

Crypto	Sector	Score	30d Return
Jupiter (JUP)	DEX / Solana	4.07	**+13.4%**
Lido DAO (LDO)	Liquid Staking	4.07	-12.8%
Aave (AAVE)	DeFi Lending	3.60	**+1.9%**
Ether.fi (ETHFI)	Restaking	3.60	**+26.0%**

Crypto	Sector	Score	30d Return
Uniswap (UNI)	DEX	3.14	**+18.7%**
Morpho (MORPHO)	Optimized Lending	3.14	**+62.3%**
PancakeSwap (CAKE)	DEX / BNB Chain	3.14	+6.1%
Sky (SKY)	Governance / MakerDAO	2.67	**+14.1%**
Curve DAO (CRV)	Stablecoin DEX	2.67	-0.7%
Maple Finance (SYRUP)	Institutional Lending	2.41	-8.2%

Among the top 10, **7 show positive 30-day performance**, with an average of **+12.7%** (including Morpho outlier: +62.3%). Lido DAO (-12.8%) is the notable exception, possibly impacted by macro factors specific to liquid staking during this period.

Bottom 5 (lowest scores):

Crypto	30d Return
Optimism (OP)	-33.1%
Sun Token (SUN)	-3.3%
Rain (RAIN)	-10.2%
MYX Finance (MYX)	-94.2%

3.5 Statistics by Triple Type

Type	Valid Triples	Best Pearson 30d
GH + GH + DL	1,440	**+0.599**
GH + DL + TW	3,264	+0.568
DL + DL + GH	1,044	+0.484
DL + TW + TW	1,632	+0.417
GH + GH + TW	2,040	+0.364
GH + TW + TW	2,176	+0.330
DL + DL + TW	1,122	+0.320
GH × 3	560	+0.298
DL × 3	220	+0.239
TW × 3	680	+0.188

4. Discussion

4.1 Predominance of the GitHub Signal

The dominance of GitHub metrics (P30 up to +0.28 as single) can be explained by several mechanisms. First, sustained development activity is a signal of the project's fundamental health: a recent last commit indicates that the team is active and the protocol continues to evolve. Second, the GitHub follower base reflects the durable interest of the technical community, distinct from retail speculation measured on Twitter.

The complementarity of the two GitHub metrics (followers + last_commit) suggests that the quantity × quality combination — number of interested developers × recent activity — is particularly powerful.

4.2 Added Value of DefiLlama Metrics

The `fees_30d/mcap` ratio (30-day fees / market cap) stands out as the best DefiLlama signal (P30=+0.234). This ratio directly measures the relative valuation of a protocol: a project generating high fees relative to its market cap may be undervalued by the market, creating a repricing opportunity.

Notably, `tvl_30d_change` shows a **negative correlation** (-0.138): projects whose TVL recently increased actually underperformed. A possible explanation is that strong TVL growth attracts short-term speculative capital, creating subsequent selling pressure.

4.3 Twitter's Role

Twitter provides a complementary but secondary signal. The best Twitter single (`steady_growth`, P30=+0.144) represents half the predictive power of GitHub followers. However, the Q4–Q1 spread for Twitter followers (+0.36) is the highest in the study, suggesting strong non-linearity: very large Twitter accounts significantly outperform small ones, but the relationship is not linear.

4.4 Limitations

This analysis has several important limitations: 1. **Single window:** Results cover only one 30-day period. Inter-temporal robustness is not established. 2. **Sample size:** n=62 for the best triple represents a statistical constraint. Combinations with higher n sometimes sacrifice Pearson. 3. **Potential survivorship bias:** The top 300 cryptos as of February 12 are already projects that survived a market selection process. 4. **Multicollinearity:**

GitHub followers and fork_count are correlated, which may lead to overfitting in GH+GH+GH combinations.

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5. Conclusion

This study demonstrates that a simple combination of three fundamental scores — GitHub activity (followers + commit recency) and DefiLlama fees-to-market-cap ratio — significantly predicts the 30-day performance of top 300 cryptocurrencies, with a Pearson coefficient reaching **+0.60** and a Q4–Q1 spread of **+23.4 percentage points**.

These results support the thesis that **active development and real revenue generation are fundamental value signals** recognized by the market, at least in the short term. Social metrics (Twitter) provide a non-negligible complementary signal but remain secondary.

For investors, this analysis suggests favoring DeFi protocols with sustained development activity and a high fees/mcap ratio — a form of "crypto P/E ratio" combined with the technical vitality of the project.