Are miners leveraged metal? Gold, silver and copper equities against their metals, 2008–2026

Gaurav Gupta · Research note · 5 November 2026 · Weekly total returns, Jan 2008 – Oct 2026 (983 weeks; copper from Nov 2011)

1.68
Gold miners' beta to gold (S&P 500 beta 0.38)

6.6% vs 8.0%
Gold miners vs gold, annual return; volatility 37.8% vs 17.1%

37%
Company-specific share of gold miners' weekly variance

29%
Share of copper miners' variance explained by copper

Group	Metal beta	S&P beta	Metal share of risk	Return/yr	Metal return/yr	Worst drawdown
Gold miners	1.68	0.38	58%	6.6%	8.0%	−76.7%
Royalty & streaming	1.56	0.55	50%	15.1%	8.0%	−71.3%
Silver miner	1.00	0.40	45%	1.8%	6.1%	−84.3%
Copper miners	0.97	0.88	29%	11.2%	3.0%	−79.3%

Two-factor weekly regressions on the metal fund (GLD, SLV, CPER) and SPY. Gold miners: NEM, Barrick, AEM; royalty: FNV, WPM; silver: PAAS; copper: FCX, SCCO, TECK (from Nov 2011).



Growth of $1, dividends reinvested (log scale).

SOURCES

- Prices and dividends: defeatbeta/yahoo-finance-data (ODC-BY), sha256-pinned
- Tufano (1998), Journal of Finance 53(3)
- Newey & West (1987), Econometrica 55(3)

METHOD

- Weekly total returns incl. dividends; split-jump screen
- Two-factor betas (metal + S&P 500), Newey-West t-stats
- Variance split; up/down betas; calendar capture
- Rolling two-year betas

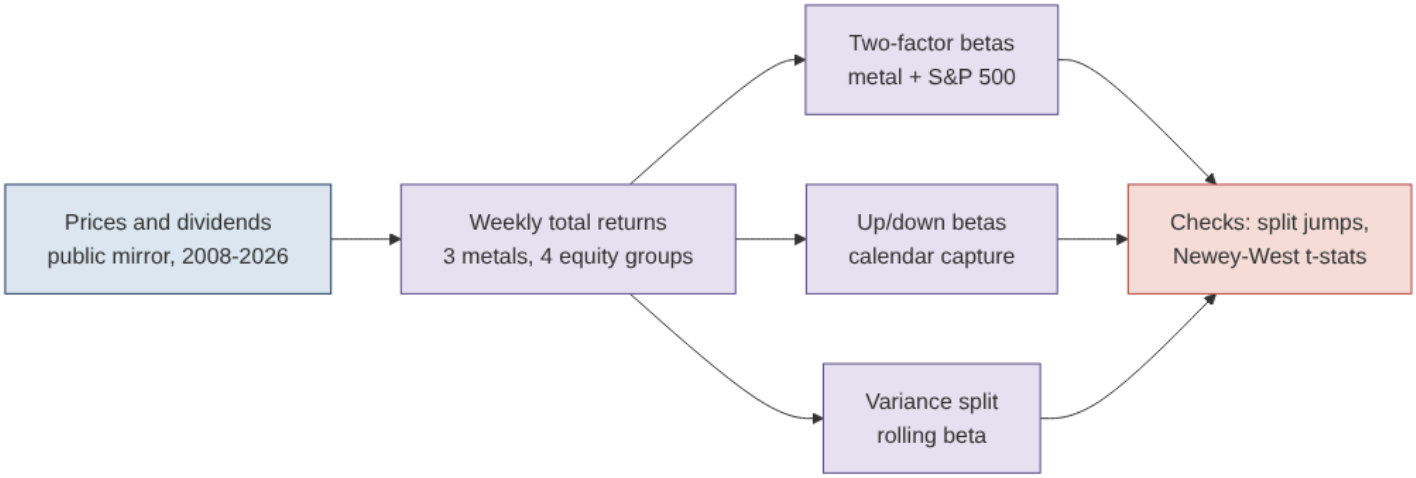
KEY CALCULATIONS

- $100M gold miners ≈ 1.68 × $100M = $168M gold exposure
- Equity exposure ≈ 0.38 × $100M = $38M
- Company-specific 1-sd swing ≈ 22.9% × $100M ≈ $23M a year
- Gold up >15% years: gold +32.5%, miners +49.0%; flat years +1.5% vs +0.1%

RECOMMENDATIONS

- Report mining positions as metal-equivalent exposure plus equity beta.
- Cap company-specific risk explicitly.
- A metal hedge removes at most the metal share of variance; hedge equity beta separately.
- Re-estimate betas quarterly; gold-miner beta ranged 1.2 to 2.4.
- Own the metal for metal exposure unless the equity risk is wanted.

Independent research on public data; not deployed; not investment advice. Dollar figures are illustrative. Analysis, code, charts and text were produced with AI assistance and reviewed by the author. Code: github.com/guptagaurav-info/metal-miner-leverage



Pipeline. Blue: sources. Lavender: code. Red: checks.