Copper Quantamental Portfolio - Interview Cheat Sheet

Clean, Simple Answers - Memorize These Numbers

Part 1: Performance Metrics

Headline Numbers

Metric	Value	Notes
Sharpe Ratio	**0.99**	**1.08 OOS, 0.90 IS** ⭐
Sortino Ratio	1.33	Focuses on downside only
Calmar Ratio	0.49	Return / max drawdown
Turnover	70x per year	Moderate for adaptive
Annual Return	4.7%	Low vol, consistent
Annual Volatility	5%	Conservative target
Max Drawdown	-9.6%	Shallow, resilient
Win Rate	50%	Balanced, not overfit

The Killer Stat

Out-of-sample Sharpe (1.08) EXCEEDS in-sample (0.90)

This is extremely rare - most strategies degrade 20-40% OOS.

30-Second Pitch

> "I've built a quantamental copper system achieving 0.99 Sharpe with 5% volatility over 14 years. The key validation: out-of-sample Sharpe of 1.08 exceeds in-sample 0.90 - the model improves OOS, which is rare and shows we haven't overfit. It combines 11 years heading base metals at Andurand with Renaissance-style systematic execution. Production-ready, tested through five crisis periods. I can go live tomorrow."

Part 2: Volatility & Diversification

Why is Portfolio Vol Only 5%?

Individual Sleeve Volatilities:

- Baseline Demand: 6%
- TightStocks: 11%
- VolCore: 19%

Sleeve Correlations:

- Baseline ↔ TightStocks: **-0.19** (NEGATIVE - gold!)
- Baseline ↔ VolCore: -0.02
- TightStocks ↔ VolCore: 0.02

Portfolio Vol: 5% (45% diversification benefit)

Interview Answer

Q: "Why only 5% vol when sleeves are 10%+?"

A: "Diversification benefit. My Baseline and TightStocks sleeves have -0.19 correlation - when one zigs, the other zags. This creates 45% variance reduction. The 5% portfolio vol proves the sleeves capture genuinely different market dynamics, not variations of the same trade."

Part 3: Turnover

What is 70x Turnover?

Simple Explanation:

- Over one year, cumulative position changes = 70x average position size
- This is NOT 70 round-trips per year
- It's small continuous adjustments that sum to 70x

Where It Comes From:

1. Vol targeting (40%) - daily rebalancing
2. Regime-selective overlays (40%) - TightStocks/VolCore on/off
3. Signal evolution (20%) - trend changes

Is It Appropriate?

Strategy Type	Turnover
Pure trend-following	5-15x
Typical CTA	30-60x
YOU (multi-strat + vol)	**70x ✓**
Stat arb	100-300x
HFT	1000x+

Interview Answer

Q: "70x turnover - isn't that high?"

A: "It's moderate for an adaptive strategy. Vol targeting creates continuous adjustments, and regime-selective overlays turn on/off. The 9.3% cost drag shows we're not over-trading - we're efficiently capturing fundamental moves with systematic execution."

Part 4: Leverage & Capital - Copper Only

For $2M Daily 95% VaR (5% Portfolio Vol)

Item	Value
NAV Required	~$400M
Notional Exposure	~$80M (average)
Net Leverage	0.2x (20%)
Gross Leverage	0.2x (same - single instrument)
Margin Used	~$5M (1% of NAV)

Why So Much NAV?

- Your 5% vol is LOW (by design for high Sharpe)
- Low vol = need more capital to hit dollar risk target
- Think: $100M = $500K VaR, so need 4x = $400M for $2M VaR

Does Model Reach 100% Position?

Metric	Value
Max position	118% (occurred 1 day out of 3,763)
Average	20%
95th percentile	46%
Above 70%	Only 1% of the time

→ Lots of unused capital with copper only

Interview Answer

Q: "What NAV for $2M daily VaR?"

A: "About $400M. That reflects our 5% portfolio vol - which is by design for the high Sharpe. Think of it as: with $100M we'd run $500K VaR, so we need 4x to hit $2M. Average position is 20%, so we deploy $80M and have $320M unused. That's good - gives us capacity to add other metals without raising capital."

Part 5: Scaling to Multi-Metal

What Happens When You Add Metals? (5% portfolio vol maintained)

Scenario	Notional	Leverage	Daily VaR
Copper only	$80M	0.2x	$2M
+ Aluminum (2 metals)	$160M	0.4x	$2M ✓
+ 3 more (5 metals)	$400M	1.0x	$2M ✓

The Magic

VaR STAYS THE SAME because diversification maintains 5% portfolio vol.

You're filling up unused capacity - 0.2x → 1.0x without increasing risk.

Maximum Capacity at 5% Vol

Daily VaR	NAV Needed	5-Metal Notional
$2M	$400M	$400M
$5M	$1B	$1B
$10M	$2B	$2B

Practical Limit: With 70x turnover across 5 metals: comfortably $1-2B NAV before liquidity constraints. That's $5-10M daily VaR.

Interview Answers

Q: "What happens when you add metals?"

A: "The beauty of diversification: I add aluminum, zinc, nickel without raising capital OR increasing VaR. With $400M targeting $2M VaR: copper only deploys $80M. Add 4 more metals, I deploy the full $400M at 1.0x leverage. Portfolio vol stays 5% due to diversification, so VaR stays $2M. I'm filling unused capacity."

Q: "What size could this run?"

A: "At 5% vol, it scales linearly: $400M for $2M VaR, $1B for $5M VaR. Practical limit is liquidity - comfortably $1-2B before market impact with 70x turnover across 5 metals."

Part 6: Responding to Objections

"Only 1.0 Sharpe when some funds claim 2.0+?"

→ "This is copper only, not 50 diversified markets. More importantly, I'm showing REAL out-of-sample results. Many 2.0+ claims are in-sample only or don't include proper costs. I'd rather show 1.0 Sharpe OOS than claim 2.0 in-sample."

"Why is leverage so low at 0.2x?"

→ "That's by design. We're running concentrated single-metal exposure with 5% vol targeting. Until we diversify across aluminum, zinc, nickel, conservative leverage is appropriate. As we add uncorrelated metals, we scale to 1.0x while maintaining the same VaR. We're building foundation first, not maxing out prematurely."

"Your win rate is only 50%?"

→ "50% by design - I'm not curve-fitting. What matters is the 1.23 win/loss ratio and 1.24 profit factor. Winners are 23% larger than losers. I'd rather have 50% win rate with proper sizing than 70% that's overfit."

"Sortino is higher than Sharpe - why?"

→ "Sortino only penalizes downside volatility. My 1.33 Sortino vs 0.99 Sharpe shows positive skew - we capture more upside than downside. That's exactly what you want."

"$400M sounds like a lot for copper?"

→ "It reflects our 5% portfolio vol. With $100M, we'd run $500K VaR. Scale 4x to hit $2M. The low vol is a feature for high Sharpe, not a bug. And we only deploy $80M on average, leaving $320M for other metals."

"How do I know it will work going forward?"

→ "Three reasons: (1) OOS metrics exceed IS, (2) fundamental edge from supply/demand signals not pattern mining, (3) tested through five crisis periods. The rolling Sharpe averages 0.93 with reasonable stability."

Part 7: Quick Reference Table

Performance Metrics

Metric	Value	What It Means
Sharpe (full period)	0.99	Risk-adjusted return
Sharpe (out-of-sample)	1.08 ⭐	Improves OOS (rare!)
Sortino	1.33	Downside-focused
Calmar	0.49	Return/max drawdown
Annual Return	4.7%	Low vol, consistent
Annual Volatility	5%	Conservative target
Max Drawdown	-9.6%	Shallow, resilient
Turnover	70x	Moderate for adaptive
Win Rate	50%	Balanced, not overfit

Copper Only ($2M VaR)

Item	Value	Notes
NAV	$400M	For 5% vol target
Average Notional	$80M	20% position

Item	Value	Notes
Net Leverage	0.2x	Conservative
Unused Capital	$320M	Room to add metals

5-Metal Basket ($2M VaR)

Item	Value	Notes
NAV	$400M	Same (diversification!)
Total Notional	$400M	Using full capital
Net Leverage	1.0x	Standard
Daily VaR	$2M	Maintained via diversification

Capacity

Daily VaR	NAV Required
$2M	$400M
$5M	$1B
$10M	$2B (liquidity limit)

Part 8: The Narrative

Who You Are

- 11 years Head of Base Metals at Andurand Capital
- 6 years energy transition ventures at Genpax
- Now building quantamental copper trading framework

What You've Built

- Systematic copper strategy: 0.99 Sharpe, 5% vol, -9.6% max DD
- 3 uncorrelated sleeves: baseline demand, supply disruption, vol premium
- Renaissance-style validation: strict IS/OOS split
- Production-ready: 4-layer architecture, institutional standards

The Proof Point

- Out-of-sample Sharpe (1.08) exceeds in-sample (0.90)
- Most strategies degrade 20-40% OOS - yours improves
- Demonstrates robust parameters, no overfitting

What's Next

- Expand to aluminum using copper as template
- Build 12-18 month live track record
- Scale to 5-metal portfolio
- Target PM role at multi-strat fund or trading house

The Ask

- $15-30M seed capital to generate live track record
- Then scale to $50-100M institutional allocation
- Or PM seat at established fund to deploy framework

Part 9: Final Checklist

Before Interview - Memorize

- ☐ Sharpe: 0.99 (1.08 OOS ⭐)
- ☐ Sortino: 1.33, Calmar: 0.49
- ☐ Vol: 5%, Max DD: -9.6%
- ☐ Turnover: 70x (moderate)
- ☐ Leverage: 0.2x copper, 1.0x multi-metal
- ☐ NAV: $400M for $2M VaR
- ☐ Capacity: $1-2B practical limit

Key Talking Points

- ☐ "OOS Sharpe exceeds IS - extremely rare"
- ☐ "5% vol from diversification, not luck"
- ☐ "70x turnover moderate for adaptive strategy"
- ☐ "0.2x leverage appropriate for single metal"
- ☐ "Scales to 1.0x with multi-metal at same VaR"
- ☐ "11 years PM experience + Renaissance methodology"
- ☐ "Production-ready, can go live tomorrow"

What Makes You Different

- ☐ Show OOS validation (most don't)
- ☐ Realistic costs (9.3% vs industry 20%+)
- ☐ Production code (not research)
- ☐ Fundamental + systematic edge
- ☐ Crisis-tested (5 major events)

Summary

Print this out. Read it once before interviews. You've got this.

The numbers tell a compelling story:

- 1.0 Sharpe with OOS validation
- Low leverage that scales naturally
- Room to grow without raising capital
- Institutional-quality risk management

You're not selling a backtest. You're selling a production-ready framework built by an experienced PM using institutional methodology.

That's a very strong package.

Good luck! 🚀