RiskModels — RISKMODELS.APP — HIGHLIGHTS · VOL. II

Risk benchmarks. Tradeable hedge ratios.

Any portfolio. One API call.

A **custom benchmark** *for every position — built from tradable ETFs, returned in one API call.*

EDITION · 2026·04·23

100-POSITION PORTFOLIO ~$0.50

CLI · PYTHON · REST · MCP

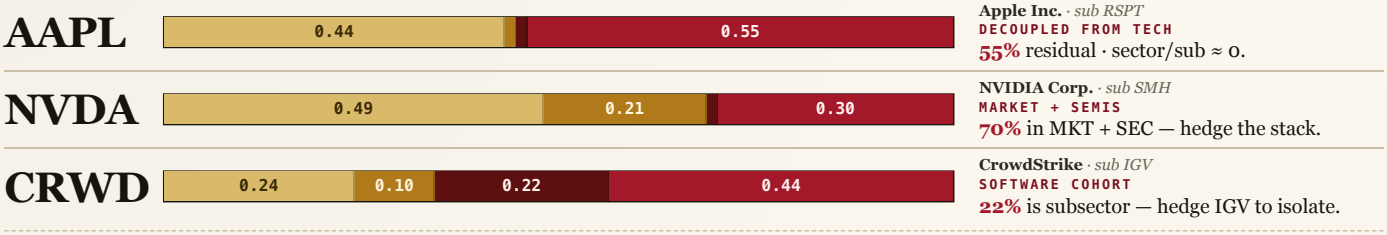
GET API KEY

Decouple your portfolio into tradable **market · sector · subsector · residual** bets.

Get **ETF hedge ratios** to align exposures with your thesis **— in real time, from a single API call.**

I PROOF · THREE TECH STOCKS, THREE RISK SHAPES

Sector XLK · Variance decomposition (ER), Σ = 1.00 · live 2026·04·23



Apple Inc. · *sub RSPT*
DECOUPLED FROM TECH
55% residual · sector/sub ≈ 0.

NVIDIA Corp. · *sub SMH*
MARKET + SEMIS
70% in MKT + SEC — hedge the stack.

CrowdStrike · *sub IGV*
SOFTWARE COHORT
22% is subsector — hedge IGV to isolate.

Instantly expand your portfolio's risk context — inside your existing workflow.

Your data + our betas → tradable portfolio decomposition.

II MECHANISM · YOUR TICKERS, MEET THE RISK MODEL

Overnight decomposition · ticker-level JOIN · ~120ms round-trip

We pre-compute the risk model. The API matches your tickers in milliseconds.

No portfolio uploaded. No weights sent. Just a ticker-level JOIN against the solved model.

YOU SEND
Tickers
`"AAPL"` `"NVDA"` `"CRWD"` `"MSFT"`
weights stay local

JOIN
Ticker → FIGI
time-safe simulation mapping

YOU RECEIVE · PER TICKER
Risk model metrics

L1	MKT	β · HR · ER
L2	SEC	β · HR · ER
L3	SUB	β · HR · ER
R	Residual return (RR)	

precomputed · EOD refreshed

Portfolio aggregation is local. The SDK applies your weights client-side and rolls the per-ticker metrics up to L1 / L2 / L3 — no portfolio leaves your desk.

FIG. I · TIMING

OUR SIDE	ON DEMAND	YOUR SIDE
Overnight	**≤ 120ms**	**Seconds**
• 3,000+ symbols	• Ticker → id match	• Apply weights locally
• Hierarchical L1 / L2 / L3 decomposition	• Return β · HR · ER · RR	• Aggregate to portfolio
• β · HR · ER refreshed every EOD	• Batched up to 1k tickers	• Inspect · compare · iterate
• Zarr SSOT → Postgres	• $0.005 / position	• Your agent gains risk context

The hard work is **already done**. The API is the **match**. The portfolio math stays **local**.

III FACTOR ENGINE · CRWD CASCADE

Live 2026·04·23 · L1 β_{mkt} = 1.31 · $ER_{L1} + ER_{L2} + ER_{L3} + RR = 1.00$

LVL	EQUATION	ETF	ORTHOGONALITY	INCREMENTAL ER	CUMULATIVE ER	FINAL L3 HR
L1	$r_s = \beta_m \cdot r_m + \varepsilon_1$	SPY	Gross return *raw market exposure*	0.24	0.24	+1.97
L2	$\varepsilon_1 = \beta_s \cdot r_s^* + \varepsilon_2$	XLK*	Sector tilt *net of market*	0.10	0.34	−0.17
L3	$\varepsilon_2 = \beta_u \cdot r_u^* + \varepsilon_3$	IGV*	Subsector tilt *net of market + sector*	0.22	0.56	−1.16
R	ε_3 · *residual return*	–	**Residual return · the bet** ***net of market + sector + subsector***	0.44	1.00	–

IV AGENT LOOP · TALK TO YOUR BOOK

Inspect · compare · analyze · iterate

Use directly in your **agent workflow** — Claude · Cursor · MCP.

INSPECT → COMPARE → ANALYZE → ITERATE

YOU Compare AAPL, NVDA, CRWD — all XLK, how different?

AGENT AAPL **decoupled** (55% R) · NVDA market + semis (49% L1, 21% L2) · CRWD **subsector-heavy** (22% L3, IGV). Same sector, three different bets.

YOU Isolate CRWD's software-cohort bet. Strip market + sector.

AGENT CRWD L3 hedge: `SPY +1.97` · `XLK −0.17` · `IGV −1.16`. **Residual preserved.** Ready to stage.

V SDK · SHIP IT IN YOUR WORKFLOW

Python SDK · CLI · MCP · REST · DataFrames, plots, PDFs, LLM-ready

LOAD IT ANYWHERE

Python SDK
install once · auth from env

CLI
batch jobs · local workflows

RISK & HEDGES

`c.batch_analyze(tickers)`
ER · HR · RR per ticker

`c.analyze_portfolio(positions)`
weighted L1 / L2 / L3 roll-up

OUTPUTS & AGENTS

`c.visuals.save_portfolio_risk_cascade_png(…)`
variance waterfall

`c.post_portfolio_risk_snapshot_pdf(…)`
R1 tear sheet PDF

UNIVERSE	LATENCY	DECOMP.	AUTH
Time-safe simulation · U.S. equities · 15k+ coverage · since 2006	< 120 ms	MKT · SEC · SUB · RES	OAuth2

INSTALL `pip install riskmodels-py` DOCS RISKMODELS.APP/DOCS TRUST Positions stay local.

DATA & EXAMPLES AS OF 2026-04-23

RISKMODELS, INC.