MCP SERVER | NO CODE | CLOUD HOSTED

Portfolio Concentration Calculator MCP

Pinpoint hidden risk across every asset and sector.

Portfolio Concentration Calculator measures investment risk using the Herfindahl-Hirschman Index (HHI). It instantly computes concentration metrics across your assets, sectors, and geographies. If you need to know where your portfolio is over-weighted—and what to do about it—this MCP gives you precise, actionable analysis.

A+ Quality Score 100/100

hhi | portfolio | diversification | investment | risk

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vinkius.com/mcp/portfolio-concentration-calculator

SCAN TO VIEW

The connectivity layer between AI and the world's software.

Vinkius sits between AI and every application. All communication passes through Vinkius Cloud via the Model Context Protocol (MCP) — with governance, observability, and security at every layer.

Your AI Connections Run Through Vinkius Cloud

The world's largest managed MCP catalog

Vinkius is the connectivity layer where AI connects to the software your business already runs. We handle the hosting, the security, the credentials, the uptime — you get agents that actually do things.

We operate the world's largest managed MCP catalog. Major SaaS platforms, CRMs, databases, and cloud providers — running, monitored, production-ready. This MCP server is hosted and maintained by the Vinkius Cloud for AI Agents.

> *The agent doesn't manage credentials, doesn't manage uptime, doesn't manage security. Vinkius does.*
>
> — Architecture principle

Four Pillars of the Vinkius Runtime

01 — Security by design

Credentials stay encrypted at rest via AES-256. The AI agent never touches raw keys — they're injected into a sandboxed V8 isolate at runtime. Actions are logged, and connections have an emergency kill switch.

02 — Built on MCP Fusion

This MCP server was built with **MCP Fusion**, the open-source framework (Apache 2.0) that powers the entire Vinkius catalog. Schema-as-firewall strips undeclared fields, compiled PII redaction runs at zero overhead, and cryptographic lockfiles produce git-diffable audit trails.

03 — Deterministic observability

Eight immutable metrics per endpoint: request volume, p95 latency, error rate, active connections, cost attribution. A live payload feed logs every tool call with mutation detection.

04 — Autonomous operations

Servers are deployed, monitored, and patched autonomously. New capabilities and security patches ship weekly. Zero-downtime deployments ensure continuous availability across all managed MCP servers.

AES-256	Ed25519	24h TTL	V8 Isolate
Encryption at rest	PKI vault signatures	Ephemeral session keys	Sandboxed execution

One Token. Instant Access.

Every MCP server on Vinkius is accessed through a **Connection Token**. Tokens are generated in the cloud dashboard and produce a unique MCP endpoint URL. Paste this URL into any MCP-compatible client — no SDK required.

A single token can serve **multiple AI clients simultaneously**, or you can issue separate tokens per client for granular access control. Each token tracks its own request count, last activity timestamp, and can be individually enabled or revoked.

MCP ENDPOINT

```
https://edge.vinkius.com/{token}/mcp
```

Claude · Cursor · VS Code · Windsurf · Grok · Gemini

Security Is the Architecture

Security in Vinkius is not a feature — it's the foundation of the runtime. The gateway enforces multiple independent protection layers between AI agents and third-party APIs.

01 — Ed25519 PKI Vault

Every workspace has an Ed25519 Master Key. Session keys are generated ephemerally (24h TTL) and signed by the Master Key. Credentials never leave the vault boundary.

02 — V8 Isolate Sandboxing

Tool code runs inside isolated-vm V8 isolates with 64 MB memory caps and per-request timeouts. No filesystem access, no network access except through the SSRF-guarded fetch bridge.

03 — SSRF Guard

All outbound HTTP requests are DNS-resolved and validated before execution. Private IP ranges (10.x, 172.16-31.x, 192.168.x, AWS metadata 169.254.x) are blocked at the network layer.

04 — DLP & PII Redaction

A ResponseGuard pipeline intercepts every tool response. Configurable redaction patterns strip sensitive fields (emails, SSNs, card numbers) before data reaches the AI agent.

05 — Cryptographic Audit Trail

Every request is signed into a SHA-256 hash chain with Ed25519 signatures. Events form a tamper-proof, SIEM-exportable forensic record.

06 — Honeytoken Trap System

Phantom credentials are injected into isolated environments. If a honeytoken is used outside Vinkius infrastructure, the server is quarantined instantly.

Emergency Kill Switch

EU AI Act Art. 14(1) Compliant

The kill switch is an **emergency halt** mechanism — not a simple toggle. When triggered, it executes three actions atomically:

01 — Server deactivated

The MCP server is immediately taken offline across the entire cluster.

02 — All tokens revoked

Every connection token is invalidated. Total lockout — reconnection blocked until new tokens are issued.

03 — WebSocket connections killed

Active connections terminated via Redis pubsub broadcast. Propagates to every runtime node in the cluster.

Full Visibility. Zero Guesswork.

The Vinkius cloud dashboard includes a full MCP Governance suite — real-time analytics and security controls for production AI operations.

Control Plane

KPI dashboard with request volume, latency, success rate, token consumption, and AI-generated operational briefings.

Agent Activity

Which AI clients are connecting, how often, and what they're doing — real-time session tracking.

FinOps

Cost tracking per tool, payload compression savings, budget optimization signals, and consumption trends.

Tool Health

Slowest and most error-prone tools, with actionable root-cause insights and performance baselines.

Firewall & DLP

PII redaction activity, sensitive data protection counters, and security event timeline.

Incident Log

Error trends, failure rates, status-code breakdowns, and forensic audit trail access.

> Get started at **cloud.vinkius.com** — connect your AI agent in under 60 seconds.

Portfolio Concentration Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Running a complex investment portfolio means managing more than just asset allocation; you're managing risk. This connection provides an engine to calculate the Herfindahl-Hirschman Index (HHI), which pinpoints exactly where your holdings are too concentrated. You can check concentration metrics by breaking down risks across three dimensions: the specific assets you own, the sectors they belong to, and the geographic regions. It's not enough to know *that* a risk exists; you need to know how bad it is and what to do next. The MCP also validates your input data first, ensuring any calculations are mathematically sound before generating results. If you connect this through Vinkius, your AI client can handle the entire process—from initial data check to providing concrete rebalancing advice based on industry best practices.

Core Capabilities

01 — Identify Concentration Risk

Calculates the Herfindahl-Hirschman Index (HHI) across your portfolio's holdings, sector breakdown, and geographic spread.

02 — Validate Input Data Integrity

Checks your raw investment data to ensure all weights are mathematically valid before running complex metrics.

03 — Receive Rebalancing Advice

Generates specific, actionable recommendations on how and where to rebalance highly concentrated areas of the portfolio.

One Click on Vinkius — From Prompt to Execution

Available at **vinkius.com/mcp/portfolio-concentration-calculator** — connect your AI agent in three steps.

01 First, you provide your raw investment data (weights, sectors, geographies) to validate it using the MCP's built-in checks.

02 Next, the system calculates concentration metrics across asset, sector, and geography dimensions, returning specific HHI values for each area of concern.

03 Finally, the MCP uses those high-risk readings to generate a tailored recommendation, telling you where to shift capital to reduce overall risk.

The bottom line is your agent takes raw investment data and converts it into clear, measurable risk scores and an immediate action plan.

Built For

Portfolio Managers or Financial Analysts who spend time manually calculating risk metrics across multiple dimensions. They need to move beyond simple ratios and pinpoint the exact source of over-concentration in a portfolio.

Portfolio Manager

Uses this MCP to stress-test new investment strategies, identifying hidden concentration risks in sectors or geographies before making any trades.

Financial Analyst

Employs the tool to audit client accounts, providing precise HHI metrics and concrete advice on necessary rebalancing actions for quarterly reviews.

Investment Advisor

Connects this MCP to help clients understand their personal risk profile by visualizing concentration across assets versus sectors.

What Changes When You Connect

01 Instantly quantify structural risk. Instead of guessing where a portfolio is weak, the `calculate_concentration_metrics` tool delivers the HHI score for assets, sectors, and geographies, telling you exactly how concentrated your holdings are.

02 Ensure data accuracy first. Before running any complex analysis, use `validate_portfolio_data`. This prevents calculation failures by catching invalid inputs like negative weights or missing sector assignments.

03 Get actionable next steps. If the metrics show a problem, don't just look at the number. The MCP uses `get_diversification_recommendation` to advise on specific weight shifts needed for rebalancing.

04 Compare risk dimensions easily. You can run calculations and immediately see if your portfolio is more heavily concentrated in one sector (e.g., Tech) or one geography (e.g., USA), giving you a holistic view of exposure.

05 Save hours on due diligence. Your agent handles the entire sequence: data validation, metric calculation, and recommendation generation—all without you needing to manage multiple spreadsheets.

Real-World Applications

Client Portfolio Review

A financial analyst needs to review a client's portfolio quarterly. They run the MCP using `calculate_concentration_metrics` and discover the HHI for the Energy sector is too high. The agent then uses `get_diversification_recommendation` to suggest reducing exposure in that sector and increasing weight in underrepresented industries like Healthcare.

Stress-Testing a New Strategy

A portfolio manager builds a theoretical strategy using highly weighted tech stocks. They use the MCP to calculate concentration metrics, which immediately flag an excessive Tech sector HHI score. This prevents them from submitting a high-risk plan that might fail in a downturn.

Cleaning Up Bad Data

A junior analyst copies portfolio data and includes one record with a negative weight. Before running the main analysis, they run `validate_portfolio_data` and get an immediate error message pointing out the invalid entry, saving hours of failed calculations.

Understanding Geographic Drift

An investment advisor notices their client's portfolio has drifted heavily toward US-based assets. They use `calculate_concentration_metrics` to confirm a high geographic HHI for the USA, and then use the recommendation tool to suggest diversifying into international markets.

Patterns to Avoid

Ignoring Data Integrity

✗ AVOID

Running the concentration calculator on raw spreadsheet data that contains negative weights or non-standard sector labels. The system spits out a number, but it's mathematically meaningless.

✓ INSTEAD

Always run `validate_portfolio_data` first. This confirms your input is clean before you attempt to calculate metrics with `calculate_concentration_metrics`. It's the required safety step.

Treating Metrics as Final Answers

✗ AVOID

Seeing a high HHI score and simply cutting weights equally across all sectors. This approach ignores which specific areas need attention.

✓ INSTEAD

After calculating concentration metrics, always run `get_diversification_recommendation`. It tells you precisely where to shift weight—not just that you should diversify.

Focusing Only on Asset Class

✗ AVOID

Only checking the overall asset class HHI and ignoring sector or geography. This gives a misleadingly low-risk picture.

✓ INSTEAD

Use the MCP to calculate concentration metrics across all three dimensions (asset, sector, AND geography) to get a complete risk picture.

The Right Fit

Use this MCP if your primary concern is systemic, structural over-exposure. If you need to know *how* concentrated an investment is—not just that it's 'risky'—this tool is essential. You use it when a high HHI score means the risk isn't just about asset performance; it's about too much of one thing (one sector, one region). Don't use this

if you simply need to calculate standard correlation coefficients between two assets, or if your data quality is questionable; in those cases, run `validate_portfolio_data` first. If you are only checking basic returns versus benchmarks, a simpler comparison tool might suffice, but for true risk measurement, this MCP is necessary.

The headache of tracking portfolio concentration by hand.

Today, assessing if your portfolio is too heavy in one sector or region means opening spreadsheets, cross-referencing asset lists against sector codes, and manually calculating HHI values. You copy data from the performance tab to the risk model, then run dozens of pivot tables just to see a general 'risk score.' It's slow, highly prone to formula errors, and you spend more time clicking than actually analyzing.

With this MCP, your agent handles all that grunt work. You feed it clean data, and it immediately calculates the HHI across every dimension. The result isn't just a number; it’s a clear, quantified risk assessment for your entire investment mix.

The Portfolio Concentration Calculator reveals hidden over-exposure.

Manual analysis forces you to look at the overall portfolio weight. You might miss that while Tech is okay generally, a specific combination of US Mega-Cap tech assets creates an extreme, unmanaged concentration risk. It’s easy to overlook these multi-layered dependencies.

The MCP exposes this depth. By using `calculate_concentration_metrics`, you see the HHI breakdown by asset *and* sector *and* geography simultaneously. You finally know exactly where your portfolio is brittle.

Portfolio Concentration Calculator: 3 Tools

These tools let you check data validity, calculate advanced HHI risk scores, and get concrete rebalancing advice for your investment portfolio.

#	TOOL	DESCRIPTION
01	`calculate_concentration_metrics`	Computes the Herfindahl-Hirschman Index (HHI) and other metrics to measure portfolio risk by asset, sector, and geography.
02	`get_diversification_recommendation`	Provides specific advice on how to rebalance a portfolio when one or more dimensions show signs of high concentration.
03	`validate_portfolio_data`	Checks your input data set for mathematical soundness, catching issues like negative weights before calculations run.

See It in Action

Real prompts you can use once this MCP is connected to your AI agent through Vinkius Cloud.

U Calculate the concentration metrics for a portfolio with 50% Apple (Tech, USA), 30% Microsoft (Tech, USA), and 20% Tesla (Auto, USA).

The analysis shows a high concentration in the Technology sector (HHI: 0.34) and the USA geography (HHI: 1.0). The Sector rating is 'Concentrated'.

U What should I do to diversify my portfolio if my sector concentration is too high?

To reduce risk, you should redistribute weight from your most concentrated sectors into underrepresented industries like Healthcare or Energy.

U Check if my portfolio data is valid: [{'weight': 0.5, 'sector': 'Tech', 'geography': 'USA'}, {'weight': -0.1, 'sector': 'Energy', 'geography': 'UK'}]

The validation failed because the asset with weight -0.1 has an invalid negative value.

Frequently Asked Questions

01 **How does the Portfolio Concentration Calculator MCP work with raw data?**

It first uses `validate_portfolio_data` to check weights and sector assignments, ensuring all inputs are mathematically clean before calculating any risk metrics.

02 **What is HHI, and what does the Portfolio Concentration Calculator MCP tell me about it?**

HHI (Herfindahl-Hirschman Index) measures market concentration. A higher score means a smaller number of assets or sectors make up a larger percentage of your total portfolio weight.

03 **Can I use the Portfolio Concentration Calculator MCP if my data is incomplete?**

No. The tool requires complete, valid data for all dimensions (asset, sector, geography). Always check inputs using `validate_portfolio_data` first.

04 **Does the Portfolio Concentration Calculator MCP just tell me I'm risky?**

Not at all. After calculating metrics with `calculate_concentration_metrics`, you run `get_diversification_recommendation`. This provides specific, actionable advice on where to reallocate capital.

05 **Is the Portfolio Concentration Calculator MCP better than standard risk reports?**

Yes. Standard reports often give a single overall score. This MCP breaks down that risk into three separate dimensions (asset, sector, and geography), allowing you to target precise areas of weakness.

Go Live in 60 Seconds

Get your connection token from **cloud.vinkius.com**, then paste the endpoint URL into any MCP-compatible client.

YOUR MCP ENDPOINT

```
https://edge.vinkius.com/[TOKEN]/mcp
```

CLIENT	WHERE TO CONFIGURE
Claude AI	Profile → Customize → Connectors → "+" → Add custom connector → Paste endpoint
Cursor	Settings → Features → MCP Servers → "+ Add New MCP Server" → Type: SSE → Paste endpoint
VS Code	Ctrl/Cmd+Shift+P → "MCP: Add Server" → add `"portfolio-concentration-calculator": { "url": "…" }`
Windsurf	MCP Settings → `mcp_settings.json` → Add endpoint URL
ChatGPT	Settings → Tools & plugins → Add MCP server → Paste endpoint
Gemini	Extensions → Add MCP Server → Paste endpoint URL

ASK AN AI ABOUT THIS

Let your preferred AI explain this MCP server

- Ask ChatGPT
- Ask Claude
- Ask Perplexity
- Ask Gemini
- Ask Grok

READY TO CONNECT

Portfolio Concentration Calculator is live on Vinkius Cloud.

Get your connection token, paste it into your AI agent, and start building. No SDK. No deployment. Just results.

Start at cloud.vinkius.com →

vinkius.com · support@vinkius.com

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