MCP SERVER | NO CODE | CLOUD HOSTED

Sharpe Ratio Calculator MCP

Grade investments using advanced risk metrics instantly.

Sharpe Ratio Calculator MCP lets you analyze investment risk and return using advanced metrics like Sharpe, Sortino, and Calmar ratios. It calculates performance for single assets or entire portfolios by incorporating current market data from regions including the USA, Europe, and Brazil.

A+ Quality Score 100/100

sharpe-ratio | sortino-ratio | calmar-ratio | risk-management | investment-analysis | portfolio-metrics

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vinkius.com/mcp/sharpe-ratio-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.

Sharpe Ratio Calculator MCP

3 tools available
Cloud-hosted on Vinkius

Evaluating an investment isn't just about looking at raw gains; it's about understanding risk-adjusted returns. This MCP provides precise financial tools to grade asset quality using industry-standard metrics. You can start by getting the current annualized risk-free rate for any major market—USA, Europe, or Brazil—using a simple request. Then, you analyze specific assets: give it a series of periodic returns and it calculates whether that single investment was poor, good, or excellent based on Sharpe, Sortino, and Calmar ratios. If you're managing multiple holdings, you can run the entire portfolio through the system to get weighted aggregate metrics in one go. Vinkius makes this possible by connecting these specialized financial tools directly into your favorite AI client, so you don't have to jump between separate terminals or spreadsheets.

Core Capabilities

01 — Check current risk-free market rates

Get the annualized risk-free rate for a selected major market (USA, Europe, or Brazil).

02 — Grade individual asset performance

Calculate Sharpe, Sortino, and Calmar ratios for any single series of investment returns.

03 — Analyze weighted portfolio metrics

Compute aggregate risk-adjusted performance metrics across a collection of assets based on specific weightings.

One Click on Vinkius — From Prompt to Execution

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

01 First, you ask your agent for the current market context, like the risk-free rate for the USA.

02 Next, you provide the data: either a list of returns for one asset or the returns and weights for an entire portfolio.

03 Finally, the MCP runs all calculations, returning specific ratios (Sharpe, Sortino, Calmar) and a performance rating.

The bottom line is that you get actionable risk metrics and grades on your investments without manually running formulas in multiple tabs.

Built For

Asset managers, quantitative analysts, and wealth advisors need this. They spend hours calculating performance ratios across different markets and asset classes. This MCP lets them get a full picture of risk-adjusted returns instantly.

Portfolio Manager

Uses the tool to compare the aggregate metrics of several client portfolios against market benchmarks.

Quantitative Analyst (Quant)

Calculates and verifies complex ratios for single assets or simulated returns, ensuring models are accurate before deployment.

Financial Advisor

Determines if a client's current investment mix is performing well relative to the risk taken, giving clear performance grades.

What Changes When You Connect

01 Determine performance quality for single assets. Just feed the returns into `calculate_asset_metrics` and get a clear grade: Poor, Good, or Excellent.

02 Handle multi-asset analysis efficiently. Use `calculate_portfolio_metrics` to model how a weighted collection of holdings performs as one unit.

03 Stay current on risk benchmarks. Before calculating anything, use `get_market_benchmark` to fetch the latest annualized risk-free rates for USA, Europe, or Brazil.

04 Consolidate your reporting. Instead of running three separate calculations (single asset, portfolio, market rate), you do it all in one agent call.

05 Improve model accuracy. You get standard ratios like Sharpe and Sortino calculated against real-world risk data, not just theoretical inputs.

Real-World Applications

Comparing a new fund vs. the index

A portfolio manager needs to know if Fund X is better than the S&P 500 benchmark. They ask their agent to run both sets of returns through `calculate_portfolio_metrics`, getting an aggregate Sharpe Ratio and comparing it directly against the market's risk-free rate from `get_market_benchmark`.

Stress testing a single holding

A quant needs to know if their new tech stock holds up. They input several months of returns into `calculate_asset_metrics`. The agent immediately tells them the asset's Calmar Ratio and whether its performance tier is 'Good' or worse.

Global portfolio review

An advisor manages clients with holdings across different continents. They ask the agent to get benchmarks for both Europe and Brazil using `get_market_benchmark`, then run the full, weighted global portfolio through `calculate_portfolio_metrics`.

Identifying underperforming assets

The team has a large basket of investments. Instead of manually checking each one, they use `calculate_asset_metrics` on groups of returns to quickly pinpoint which holdings fall into the 'Poor' performance tier.

Patterns to Avoid

Using general data sheets

✗ AVOID

Trying to calculate portfolio metrics by simply averaging asset returns and manually plugging in a risk-free rate found elsewhere.

✓ INSTEAD

Use `calculate_portfolio_metrics` to handle weighted averages correctly. Always start by calling `get_market_benchmark` to ensure your rates are current.

Comparing ratios without context

✗ AVOID

Getting a Sharpe Ratio number but having no idea if that ratio is good or bad for the asset class or market right now.

✓ INSTEAD

Always pair your analysis with `get_market_benchmark` first. This gives you the required risk-free rate to properly contextualize every calculated ratio.

Ignoring return weighting

✗ AVOID

Calculating performance for a basket of assets by treating all returns equally, regardless of how much capital is actually invested in them.

✓ INSTEAD

For multi-asset views, you must use `calculate_portfolio_metrics`. This tool requires asset weights to generate accurate aggregate metrics.

The Right Fit

Use this MCP if your goal involves risk-adjusted return analysis. Specifically, if you need to grade assets using Sharpe, Sortino, or Calmar ratios, or if you must account for the proportional weight of multiple holdings in a portfolio. You should use it when comparing an asset's performance against current market conditions (USA, Europe, Brazil benchmarks). Don't use this if you only need simple descriptive statistics, like calculating just the average return over time; that requires a different data tool. Also, don't use it if your analysis doesn't require weighting assets by their capital allocation —if all inputs are equally important, simpler tools might suffice.

The Difficulty of Standardizing Performance Grades

Right now, comparing performance across different holdings is a messy process. You pull raw returns from one spreadsheet, get the risk-free rate from another, and then you spend time in Excel manually running formulas for Sharpe or Sortino. If you change one number—say, updating the market benchmark—you have to re-do half your calculations just to see if your grade changed.

With this MCP, that manual comparison vanishes. You simply tell your agent what you want to analyze. The system fetches the necessary risk-free rates and runs all the required performance metrics in a single pass. You get instant grades for assets or entire portfolios.

Calculate Performance with `calculate_portfolio_metrics`

Today, to analyze an entire portfolio, you have to list every asset's returns and then manually calculate the weighted average for each metric. This process is prone to errors because the formulas are complex and must account for varying capital weights.

Now, simply provide the full set of assets and their corresponding weights. The MCP handles the aggregation automatically via `calculate_portfolio_metrics`, giving you a single, accurate view of the entire portfolio's risk-adjusted performance.

Sharpe Ratio Calculator: 3 Tools

These tools allow you to calculate market benchmarks and assess performance metrics for individual or aggregated investment holdings.

#	TOOL	DESCRIPTION
01	`calculate_asset_metrics`	Calculates Sharpe, Sortino, and Calmar ratios for a single stream of periodic returns.
02	`calculate_portfolio_metrics`	Computes aggregated performance metrics across multiple assets using specific weightings.
03	`get_market_benchmark`	Retrieves the current annual risk-free rate for a selected geographic market (USA, Europe, or Brazil).

See It in Action

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

U What is the risk-free rate for the USA market?

The annualized risk-free rate for the USA market is 5.33%.

U Calculate metrics for these monthly returns in Brazil: [0.02, -0.01, 0.03, 0.01, -0.02]

For the provided returns in Brazil, the Sharpe Ratio is 1.45, the Sortino Ratio is 1.82, and the Calmar Ratio is 2.10, resulting in a Good performance tier.

U Analyze a portfolio with two assets: Asset A (returns [0.05, 0.02], weight 0.6) and Asset B (returns [0.01, -0.01], weight 0.4) in the Europe market.

The aggregate portfolio metrics for the Europe market are: Sharpe Ratio: 1.25, Sortino Ratio: 1.40, and Calmar Ratio: 1.85.

Frequently Asked Questions

01 **How does Sharpe Ratio Calculator handle different global markets?**

The MCP supports three major markets: USA, Europe, and Brazil. You first use `get_market_benchmark` to retrieve the specific annualized risk-free rate for whichever region your returns belong to.

02 **Do I need to provide asset weights for all analyses?**

You only need weights when analyzing multiple assets together. If you are calculating metrics for a single stock, you just need the series of periodic returns using `calculate_asset_metrics`.

03 **What is the difference between `calculate_asset_metrics` and `calculate_portfolio_metrics`?**

`calculate_asset_metrics` treats a single set of returns as one entity. `calculate_portfolio_metrics` takes multiple assets, each with its own returns and weightings, to give you an aggregate metric.

04 **Can I get the risk-free rate for a market not listed in Sharpe Ratio Calculator?**

No, this MCP is limited to USA, Europe, or Brazil markets. If your region isn't supported, you'll need an MCP that covers that specific geography.

05 **Does the calculator give a performance grade?**

Yes, after running the ratios through `calculate_asset_metrics` or `calculate_portfolio_metrics`, the result includes a clear performance tier: Poor, Good, or Excellent.

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 `"sharpe-ratio-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

Sharpe Ratio 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 →

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