EMPIRICO

Enabling systematic investment in portfolio based strategies

Any strategy is better than no strategy

Problems and solutions

Pain points solved

Access to relevant data

Several data sources, access to pro-level information

Treatment of relevant data

Organize and prepare the data.

Elaborate relevant data

Manage big datasets, lack of computational power, poor instruments.

Validate relevant data

Get high-quality and complete outputs to inform a conscious decision.

Value proposition - different value for different users

For Retail
Un-mediated investors

Empirico provides **access to data** and powerful computational and **analytical tools**, to enable users applying **unbiased investment strategies** that may turn to be better than any mediated and unvalidated alternative solution.

For B2B
Wealth managers

Empirico is a **shortcut** and **time-saving** tool to organize, elaborate and make investment decisions aligned with **superior professional standards**.

For B(2B)2C
Financial advisors

Empirico provides **pro-level elaborations** and validations of complex portfolio strategies, that strengthen, support, and provide arguments to **boost trust in the proposal** of investment solutions.

Same value for all users

Powerful and unbiased analysis

Empirico enables users to run multiple strategies on thousands of instruments in a fraction of a time. Besides, it provides users with unbiased results, as it does not require any predefined set of instruments to run.

Detailed reporting

Empirico provides users with in-depth insights to analyze their backtest and check how their strategy performed at the deepest level of granularity.

Reduced time and repeatability

Empirico considerably reduces the effort to create and compare investment strategies and put assumptions under testing.

Active investment follow-up

Empirico goes beyond simple backtesting. It enables users to apply selected strategies to portfolios' rebalancing.

A rewarding user experience

Empirico is a complex tool designed to be easy to use, providing it users with carefully crafted interfaces and interactions.

What is Empirico

Empirico is a **cloud based end-to-end** tool thought to backtest **systematic strategies** and to potentially **facilitate investment**.

It has a unique ability to enable investment strategy configurations, **unbiased historical selection** of instruments, **powerful backtesting**, **portfolio generation** and **rebalancing over time** according to the user strategy.

It also provides **professional grade reporting** out of the box and allows to run multiple strategies with multiple underlyings in a fraction of a time.

Empirico can turn a backtested strategy into an **active investment**, providing the user with live indications on how to follow the strategy in a **real market scenario**.

Why Empirico

Let's go straight to the **motivation behind** Empirico and the real-world problem it wants to solve.

The investment sector is populated by professionals who **spend their days** trying to make clients happy. And they wanna to that in a professional, replicable and efficient way.

We also observe an emerging and **fast-growing market** of **Retail Investors**, who have powerful and easy to use instruments but often need guidance for their investments.

Investors, advisors, fund managers would like to make their **managed clients happy**, looking for a r**eplicable system/ strategy** that minimizes their effort.

Retail investors would like to **make money**, getting low-cost investment guidance.

These **questions** are pertinent **for both Professional** and **Retail investors**. However, they both face several **pains**.

01 – What **results** would I have obtained applying a certain investment strategy?

02 – Besides **historical performance**, what other **factors** should I consider as **relevant** to inform my investment decision?

Core features

How it works

Empirico wants to **make easy** and accessible the configuration, execution, testing, and comparison of systematic investment strategies.

Unlike alternative tools, it is **powerful** enough to run the strategy across a universe of investable instruments, and to generate a portfolio which is then **automatically rebalanced** for the timespan of the **user-defined simulation**.

1. **Configure strategy parameters and investable universe**
2. **Run strategy backtesting**
3. **Analyze advanced reporting**
4. **Compare strategies**
5. **Optimize your strategy**
6. **Invest live**

1. Configure strategy parameters and investable universe

When you create a new simulation, Empirico guides you through the definition of relevant parameters that **define the investable universe** and other relevant criteria. This information essentially **tells the algorithm what criteria to apply when running the simulation**, what constraints to consider and any foreseeable cost.

Capital / Duration

Set the initial capital you want to to invest in the simulation, and the timespan of its backhistory.

Rebalance

Define how frequently you want to rebalance your portfolio in the backhistory. You can also specify a specific rebalancing day of the week.

Set fees

Configure the fees and transaction costs, to make the simulation account for these frictions. You can also set a realistic slippage to emulate real-case scenarios where you want to preserve some liquidity.

Market filtering

Bound your investable universe by providing filters on the Market of reference for the simulation. Several macro (e.g. Country, Market Cap) and micro (e.g. Sector or Industry) attributes can be configured to reflect the universe you have in mind.

Strategy configuration

Set all relevant parameters that define your systematic investment strategy, such as technical indicators, ranking and distribution strategy of securities in your generated portfolio.

Benchmark

Select a benchmark to allow comparison among your strategy performance and the benchmark performance across the lifespan of the simulation.
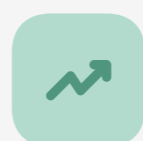
Minds behind

Empirico is a product led by the **Swiss Software House WellD**.
It is the result of the joint effort of **financial specialists**, **software engineers**, **data scientists**, and **design professionals**.

Financial team

Professionals with years of experience in market analysis, portfolio management and investment strategies, who bring into the product their domain knowledge.

Coding team
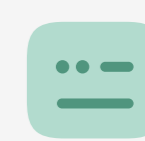
Skilled developers with strong expertise in data-intensive applications and complex IT architectures, who take care of the algorithms and the infrastructure of the tool.

Data expert

People with both statistical and programming background, who provide expertise in data processing and optimization and make the tool able to handle high complexity.

Design experts

A team dedicated to the product design, with strong experience in User Interface and User Experience definition, maximizing the interactions between the user and the tool.

2. Run strategy backtesting

Once your strategy is set up, you can let Empirico run its backtesting algorithm on it.
In this step, Empirico will generate an **initial portfolio out of your universe and then rebalance it according to the criteria** you specified.

Unbiased security selection

Empirico applies your systematic strategy to a universe of instruments bound with your criteria and **selects securities that match the strategy attributes**, such as ranking per technical indicator.

Systematic selection ✓

Empirico systematically applies the technical indicators to all securities in the universe and selects them using your specified ranking and distribution / weighting criteria.

Powerful algorithm ✓

Empirico runs your strategy on your investable universe, across all securities ever listed in the full lifespan of your simulation history.
Its cloud-based algorithm enables data-intensive cloud computation that would otherwise be impossible.

Rebalance

Empirico rebalances your portfolio **at intervals you define by applying your strategy** to the investable universe, alongside any fees, slippage or specific parameters you defined.

Real scenario simulation ✓

When Empirico rebalances your portfolio in the past, it applies the same operations that you would do in live scenarios.
This includes accounting for fees and slippage effects. This way, the simulation perfectly resembles the actualization of a potential past investment.

Listings & Delistings ✓

Listed securities change over time, and a good backtester should account for this.
Empirico's high-quality data provide a comprehensive knowledge about listed and delisted securities, making sure that your portfolio is always consistent with these events.

3. Analyze advanced reporting

For each simulation you run, Empirico provides you with **professional level reporting** over its outcome. You are able to grasp into the **little details** of what happened over time, **compare results** with a selected **benchmark**, and even look at securities one-by-one.

Set metrics

Performance over time, Drawdown and Runup Charts, Volatility and more. You can easily activate and get immediate metrics to grasp insights over the simulation outcome.

Portfolio composition

You can easily get an overview of pie charts with portfolio composition distribution across several securities attributes.

Daily constituents and stock history

Empirico lets you explore your portfolio composition day-by-day in the lifespan of the backtest. You can easily focus on rebalancing days or on specific time intervals. Furthermore, you can check all transactions for every single security that entered your portfolio.

Market orders

You can easily check all the market orders generated to rebalance your portfolio at each rebalancing day, and access the generated turnover alongside other aggregated indicators.

Monthly and yearly performance

Overview of monthly and yearly performance generated by the simulation, including benchmark comparison or benchmark performance difference.

Simulation results

Empirico provides several aggregated indicators to analyze the goodness of the simulation, such as CAGR, MDD, average returns, max-min returns, Sharpe Ratio, longest positive and negative stripes. They can all be assessed daily to yearly and compared with the selected benchmark.

4. Optimize your strategy

Any strategy is better than no strategy. But an optimized strategy is even better.

Empirico's powerful backtesting engine allows you to run several simulations varying individual parameters, to **enable the fine-tuning of your investment strategy before going live to market**.

Define and run a strategy as explained above, **clone it, change your parameters of interest and repeat**. Empirico helps you get a full understanding of what can make a real difference and what might not be relevant for your desired investment style.

5. Compare strategies

You can easily clone a strategy in Empirico, **adjust some configuration parameters and then compare** the resulting simulations to check what makes an impact and what doesn't.

We are **working to make strategy comparison even more powerful**, by adding advanced reporting comparing every relevant strategy parameters in a single view.

6. Invest live

Once you have refined your strategy, Empirico can **help you use it for active investment**.

When you activate this feature, an Investment View is generated from your strategy. You will get access to your first portfolio and order list, and **you will be able to adjust the list to the actual trades you make**.

This way, at any given rebalancing period, Empirico will generate, display and even send you via **email the Market Order list** to impement according to your defined strategy.

Please note that Empirico **is not a trading or brokerage system**, and you will have to pass real orders on your **third-party platform of choice**. The Empirico team is currently working on some direct intergations with the most known trading and brokerage platforms.

Activate investment view ✓	**Adjust your portfolio** ✓	**Get a strategy-based market order list** ✓
Given a simulated strategy, you can make it "live" and generate an Investment Views that applies the strategy in real-time.	You can correct the trades in your investment view anytime before rebalancing, so tha Empirico knows the current situation of your portfolio.	At each rebalancing period, Empirico will generate a Market Order list to apply to your portfolio to apply your strategy over time.

Delivery modes

How to exploit Empirico

1. **Directly:** under an end-user license agreement
2. **Indirectly:** exploiting an advisory service

www.empirico.finance

in   empiricofinance

🐦   @empiricofinance

🤖   EmpiricoFinance