

JPMaQS Cheat Sheet

MACROSYNERGY

KEY DEFINITIONS

What is JPMaQS

JPMaQS stands for J.P. Morgan Macrosynergy Quantamental System. It is a service that makes it easy to use quantitative-fundamental (“quantamental”) information for trading, be it algorithmic strategies or discretionary trader support. It allows quick and cost-efficient backtesting.

Macro quantamental indicators

Macro quantamental indicators are time series of macroeconomic information states designed for the development and backtesting of financial markets trading strategies.

Information state

Information state is the latest instance of a quantamental indicator based on its concurrent vintage assigned to the date at which it was available to the market.

Vintage

A **vintage** is an instance of a full economic time series; economic history is recorded in vintages, i.e., time series of time series. Vintages allow replicating what markets knew at any day in recent history, which is critical for backtesting algorithmic strategies. Disregarding vintages leads to **survivorship and look-ahead biases** in evaluating trading ideas.

Macro quantamental categories

Macro quantamental categories are sets of comparable quantamental indicators across multiple countries, currency areas, or markets, also called data panels.

Themes

The theme is a broad set of category groups designed to facilitate browsing and discovery of categories for strategy research projects

<https://macrosynergy.com/academy/quantamental-indicators-on-jpmaqs>

Economic trends	daily categories designed to capture actual fundamental developments and to de-emphasize data volatility and distortions
Macroeconomic balance sheets	categories of changes in economic conditions designed to capture actual fundamental development as opposed to data volatility
Financial conditions	categories that track the conditions of the broader financial system and its impact on the economy
Shock and risk measures	categories of changes in expectations, uncertainty, and risk aversion.
Stylized trading factors	generic categories of basic trading strategy ideas based on macro quantamental indicators and conventional trading factors.
Generic returns	approximate daily profit and loss series of stylized derivatives positions in percent of notional or risk capital.

Category Group

Within each theme, JPMaQS macro quantamental indicators are organised across multiple category groups (e.g. Theme: Economic trends, Category: Consistent core CPI trends). Notebooks available for each on J.P. Morgan Markets

CONTACTS J.P. MORGAN

JPMaQS_support@jpmorgan.com

CONTACTS MACROSYNERGY

info@macrosynergy.com

KEY SUPPORT WEBSITES

JPMaQS Site:

The official JPMaQS Site on J.P. Morgan Markets (requires password)

<https://markets.jpmorgan.com/#jpmaqs>

Quantamental Academy (free access)

<https://macrosynergy.com/academy>

Understanding of quantamental indicators:

<https://macrosynergy.com/academy/what-are-macro-quantamental-indicators>

<https://macrosynergy.com/academy/introductory-tutorials>

Quantamental indicators:

<https://macrosynergy.com/academy/quantamental-indicators-on-jpmaqs>

Examples of trading strategies and use of data science:

<https://macrosynergy.com/academy/examples-macro-trading-factors>

<https://macrosynergy.com/academy/statistics-packages-with-quantamental-indicators>

Kaggle - free limited dataset with notebooks:

www.kaggle.com/datasets/macrosynergy/fixed-income-returns-and-macro-trends

ACCESS TO JPMAQS DATA

JPMaQS data are downloaded through J.P.Morgan DataQuery. APIs are available from J.P. Morgan and the Macrosynergy package. Free trials are available. Data excluding the last few months are available free for research. Please contact J.P. Morgan sales for trial ID and password. For download guide please visit

<https://docs.macrosynergy.com>

ATTRIBUTES OF DATA

real date	The date of the information state as observed by the markets
value	Value of the macro quantamental indicator
grading	Grading of indicator in terms of point-in-time information content
eop_lag	Days passed since the last date of the observation period for the underlying data
mop_lag	Days passed since the median date of the observation period for the underlying data

JPMAQS TICKERS

Every timeseries has a unique ticker with the same structure:

USD_INTRGDPv5Y_NSA_P1M1ML12_3MMA

Market	USD	currency area or market
Base category	INTRGDP	basic concept, for example GDP growth
Adjustment	_NSA	seasonal and other adjustment, else NSA
Trend	v5Y	reference to past aggregate, for example versys 5-year average
Change	P1M1ML12	type and paramer of change, for example % last month over a previous month 12 months ago
Filters	3MMA	averages medians etc., for example 3-month moving average

JPMaQS Cheat Sheet

MACROSYNERGY

MACROSYNERGY PACKAGE

<https://github.com/macrosynergy/macrosynergy>, docs.macrosynergy.com

Download - download required JPMaQS time series

JPMaQSDownload facilitates JPMaQS indicator download

Management - data availability - start years and missing info

check_availability visualizes start years and the number of missing values

missing_in_df displays missing categories and cross-sections

update_df concatenates two JPMaQS data frames

Panel - new time series calculations, correlations, and visualizations

view_ranges overview of long-term series distributions in a panel

view_timelines displays a facet grid of timeline charts of one or more categories

view_heatmap_grades displays a colored table of grading quality of indicators

make_blacklist creates a standardized dictionary of blacklist periods, i.e., periods that affect the validity of indicators. This list can be passed to macrosynergy package functions

make_relative_value generates a data frame of relative values for a given list of categories. "relative" means that the original value is compared to a basket average

panel_calculator simplifies applying transformations to each panel cross-section using a string-based formula

make_zn_scores normalizes values across different categories

linear_composite calculate linear combinations of different categories

categoryRelations visualization and analysis of two categories, two time-series panels

correl_matrix visualizes two types of Pearson correlations: within category across cross-sections and across categories

historic_vol estimate historic annualized standard deviations of asset returns

Signal - accuracy and the strength of selected signals calculations

SignalReturnRelations analyze, visualize, and compare the relationships between panels of trading signals and panels of subsequent returns

signals_table produces table on relations of various signals with the target return

accuracy_bars plot bar chart for the overall and balanced accuracy metrics

correlation_bars plot correlation coefficients and significance

multiple_relations_table statistics for each return and signal category specified with each frequency and aggregation method

Learning - machine learning solutions subpackage

panel_time_series_split produce, visualize and use walk-forward validation splits across panels

visualise_splits method to visualize the splits created according to the parameters

metrics collection of non-standard scikit-learn performance metrics for evaluation of machine learning model predictions

signal_optimizer calculation of quantamental predictions based on adaptive hyperparameter and model selection

PnL - calculation, evaluation and plotting PnLs

make_pnl calculates a daily PnL for a specific signal category

make_long_pnl calculates daily long-only PnL, used for comparison

plot_pnl plot a line chart of cumulative PnL

evaluate_pnl returns a small dataframe of key PnL statistics

signal_heatmap creates a heatmap of signals for a specific PnL across time and sections

plot_pnl plot a line chart of cumulative PnL

create_results_dataframe outputs table with relevant performance statistics for selected signals

MACRO INVESTMENT INSPIRATIONS

Macro trading signals collected here: <https://macrosynergy.com/academy/examples-macro-trading-factors>

Every notebook has the same structure. Here is the example of *Inflation as equity trading signal*

Summary and main ideas

Adding inflation sensitivity to a hypothetical long-only portfolio resulted in reduced or fully avoided draw-downs during the most turbulent periods and bolstered post-crisis performance without significantly reducing performance during normal periods.

Get packages and JPMaQS data

imports standard Python packages and macrosynergy package

currency lists define required currencies

categories lists required lists of categories, such as inflation, and returns

download code using client_id and client_secret and download module from macrosynergy package access JPMaQS and download earlier defined categories for earlier defined currencies

availability check data for gaps, limitations, missing data, etc.

Transformations and checks

simple calculations and transformations to derive relevant signals and targets, such as creating difference between categories, z-scores, relative values etc.

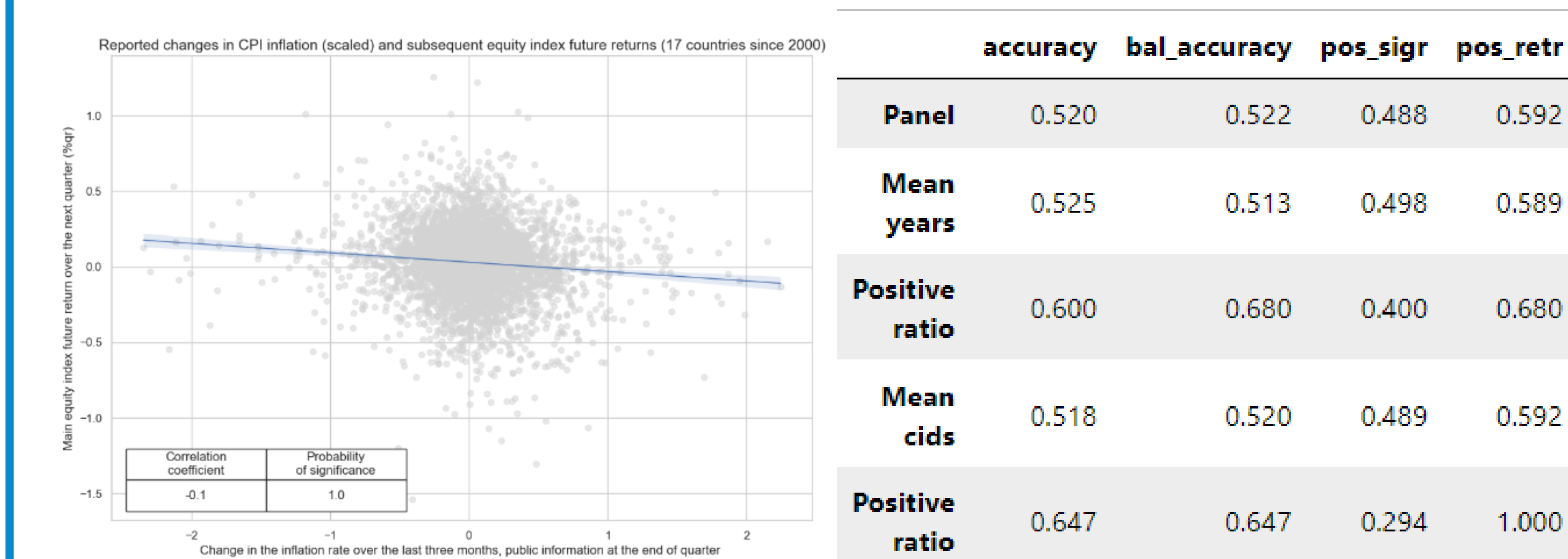
Features Create and display excess inflation, relative inflation, zn-scores

Targets define target - either directional or relative

Value checks

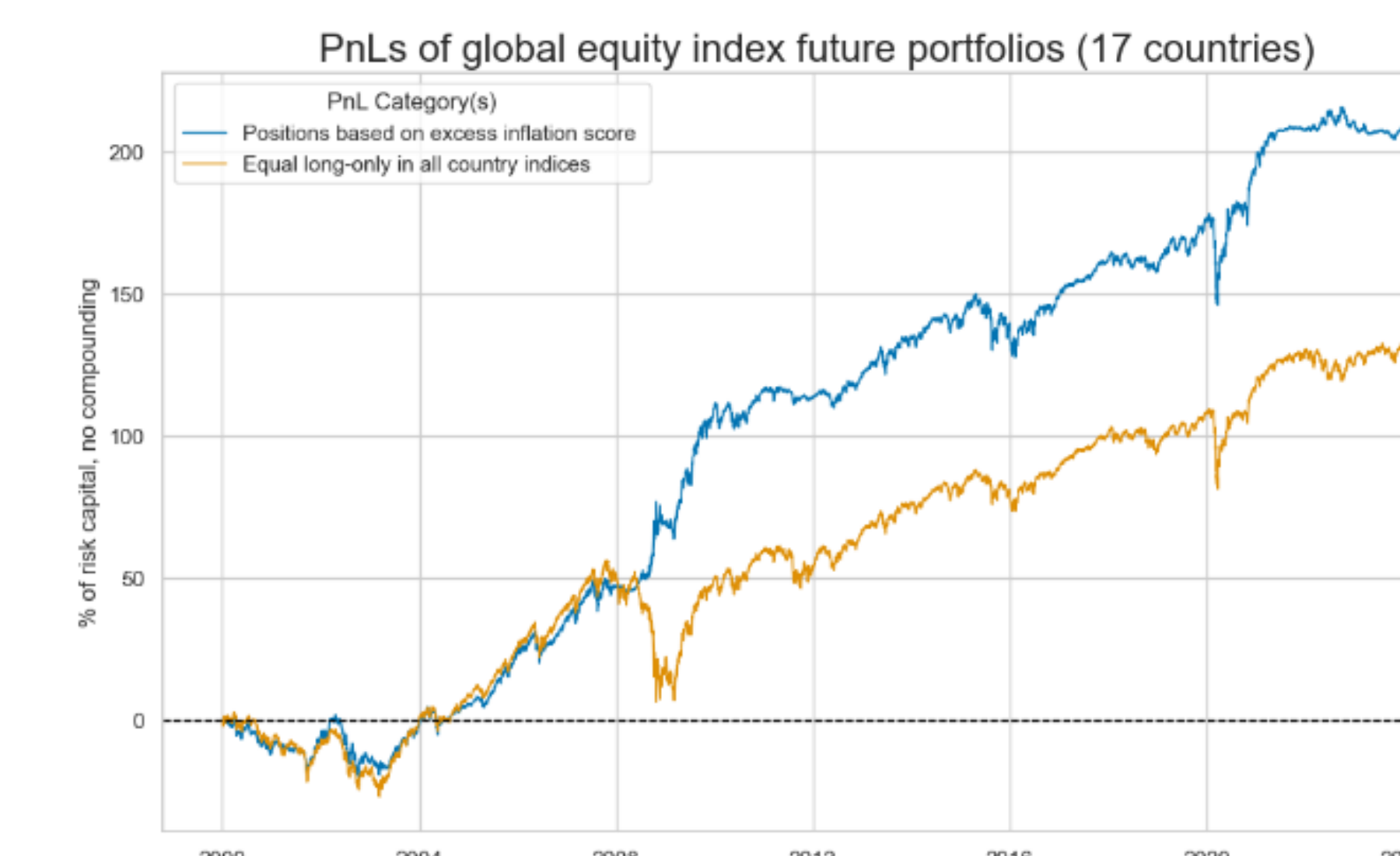
crucial part of any notebook: evaluates performance of suggested strategies, based on economic theory, formulated in summary

Correlation and accuracy - check for indicator/ subsequent target and signal accuracy



Performance Ratios and Naive PnL comparisons for the long only and selected macro strategies

	xcat	CPIH_SA_P1M1ML12vIET_NEGDIG	CPIH_SA_P1M1ML12vIET_NEGPZN
Return (pct ar)		3.506915	4.748684
St. Dev. (pct ar)		10.0	10.0
Sharpe Ratio		0.350692	0.474868
Sortino Ratio		0.51324	0.714222
Max 21-day draw		-19.013308	-17.759751
Max 6-month draw		-15.879885	-17.550105
Traded Months		290	290



JPMaQS Disclaimer

This material has been prepared by Macrosynergy Limited (“Macrosynergy”), a company incorporated in the UK (Company number 06994336), and J.P. Morgan. It is provided for information purposes and intended for your use only and does not constitute an invitation or offer to subscribe for or purchase any investment product or service. This material has been provided specifically for the use of the recipient only and must be treated as proprietary and confidential. It may not be passed on, nor reproduced in whole or in part under any circumstances without express written consent from Macrosynergy and J.P. Morgan. The material provided is not intended to provide a sufficient basis on which to make an investment decision.

The information and opinions contained in this material are for background purposes only and do not purport to be full or complete. No reliance may be placed for any purpose on the information or opinions contained in this material or their accuracy or completeness. No representation, warranty or undertaking, express or implied, is given as to the accuracy or completeness of the information or opinions contained in this material by Macrosynergy or J.P. Morgan and no liability is accepted by Macrosynergy or J.P. Morgan for the accuracy or completeness of any such information or opinions. Macrosynergy and J.P. Morgan believe that the sources of this material are reliable. However, they cannot and do not guarantee, either expressly or implicitly, and accept no liability for, the accuracy, validity, timeliness, merchantability or completeness of any information or data (whether prepared by Macrosynergy, J.P. Morgan or a third party) for any particular purpose or use or that the information or data will be free from error.

Relevant information in respect of Macrosynergy’s compliance with the EU General Data Protection Regulation (Regulation (EU) 2016 679, including our updated privacy notice, is available on our website.

Past performance is not necessarily indicative of future results. This communication may include returns for various indices.

This material is not a research report of J.P. Morgan. J.P. Morgan research analysts may independently use the data services described herein in connection with publishing J.P. Morgan research. The Macrosynergy asset management advisory services described herein are separate from any business of J.P. Morgan.

J.P. Morgan is a marketing name for investment banking businesses of JPMorgan Chase & Co. and its subsidiaries and affiliates worldwide.