Pei Zhu

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EDUCATION

Boston University QS Top100 — Sep 2022 - Jan 2024

Mathematical Finance and Financial Technology Master — Boston

GPA： 3.45 / 4.00

Curriculum: Financial Risk Management, Credit Risk Management, Dynamic Portfolio Management, Crypto Currency, Deep Learning, Stochastic Calculus, Fixed Income, Econometircs, Portfolio Theory, Machine Learning

The Chinese University of Hong Kong (Shen Zhen) QS Top100 — Sep 2021 - Aug 2022

Financial Engineering Master — Shen Zhen

GPA： 3.24 / 4.00

Curriculum： Financial Derivatives, Financial Data Analysis , Stochastics Process Theory , Fixed Income and Term Structure Theory, Machine Learning, Investment Science

Honor： EY NextGen Women Chinese Honored Price

Central South University 985 211 Double 1st-Class — Sep 2014 - Jun 2018

Statistics Bachelor — Chang Sha

GPA： 3.75 / 4.00

Curriculum： Time Series Analysis , Regression Analysis , Mathematical Analysis , Stochastic Process , Mathematical Statistics , Probability Theory , Statistics , Economy , Statistical Inference

Honor： Second Honor Scholarship, "Challenge Cup" National College Student Curricular Academic Science and Technology Works Competition National First Price, FLTRP Cup English Public Speaking Contest

PROFESSIONAL EXPERIENCE

Abama Capital Management Co., ltd — Jan 2024 - May 2024

Quantative Researcher - Investment — Guangzhou - Base

Research Focus: Explored and developed 71 factors, with the construction of the large control ability factor achieved through the three-distribution separation under the t-distribution to characterize the investment behavior characteristics of investors in the market, resulting in a maximum long-short return of 53%. Overflow factors and peak factors, starting from the perspective of financial behavior, characterized investors' trading behavior, resulting in a maximum long-short return of 115%. Quadratic variation jumps, starting from the perspective of stochastic integration, decomposed the jump characteristics of intraday returns, resulting in a maximum long-short return of 62% under cumulative factor accumulation. Technical factors referenced Huatai Securities' "attention is all indeed" report, utilizing fundamental data and intraday data to construct 43 feature factors for deep learning lightweight models and large models for yield prediction, resulting in a maximum long-short return of 96% under cumulative factor accumulation.

Strategy Construction: Mainly employed two types of models: 1. Econometric models, selecting technical factors through forward and backward methods, and using various models for weighted combination, resulting in a maximum cumulative long-short return of 45%; 2. Deep learning multi-task learning models, utilizing 21 technical factors, 22 fundamental factors, and consensus expected factors as features, outputting returns for the past 21 days and past 11 days, applying dynamic weighting to calculate loss values, resulting in a maximum cumulative long-short return of 71%, or 44% after fees.

Financial Forecasting Special Topic: Studied the characterization of GB2, BR3, BR12, and GAMMA-GAMMA functions on the distribution of intraday returns, and utilized distribution forecasts for the remaining time of the day or the next day's returns and other relevant indicators, resulting in a maximum cumulative long-short return of 46%, with a drawdown of -6%.

INTERNSHIP EXPERIENCE

ANXIN TRUST&INVESTMENT Co.,ltd — Jan 2024 - Jan 2024

Fixed Income Quantative Researcher Capital Management — Beijing - Base

(1) Integrated the SABR process into the standardized Libor market model framework, establishing the non-standardized

SABR stochastic volatility Libor market model (SABR-LMM).

(2) Conducted market calibration and simulation estimation of model parameters using interest rate cap options, interest rate swaption options, and Metropolis-Hastings Markov Chain Monte Carlo (MCMC) simulation method.

(3) Evaluated and compared the practical performance of the three types of Libor market models through empirical simulation calculations and comparative analysis. The research findings suggest that, based on simulated spread calculation results, for short-term Libor rate simulation, the SABR-LMM model with the addition of the SABR volatility term exhibits smaller simulation errors compared to the LMM and Heston-LMM models, thereby demonstrating better simulation performance.

(4) Designed callable cumulative reverse floating rate floor options, incorporating the interest rate prediction results obtained through empirical simulation calculations into the calculation of issuance yields, resulting in an annualized yield of 8.5%.

FCF Advisors Sep 2023 - Nov 2023

Portfolio Implementation Analyst - Financial Engineering Department New York - Remote

(1) Enhance trading and execution practices to maximize transfer efficiency from model portfolio to actual investment.
(2) Develop short-term trading models to enhance the market timing of active funds.
(3) Provide short-term trading signals as a value-added service to clients.
(4) Contribute to alternative alpha research and modeling, such as tax alpha and contextual alpha.

Sinolink Securities Co., Ltd., Research Division Sep 2023 - Dec 2023

Financial Engineering Analyst - Financial Engineering Research Group Shanghai - Remote

(1) Developed high-frequency factors from tick snapshot and trade-by-trade data, achieving excess returns of up to 9.8% with the highest slope convexity factor.
(2) Enhanced multi-factor risk prediction models, refining covariance matrices, and idiosyncratic risk matrices using advanced techniques like Newey-West autocorrelation, eigenvalues and others. Achieved close alignment between predicted and actual volatility trends.
(3) Optimized monthly portfolio weights to minimize expected risk, resulting in significantly lower actual risk for the Global Minimum Variance (GMV) portfolio compared to the benchmark and boosting the Sharpe ratio.

Fullgoal Fund Management Co.,ltd Jun 2023 - Aug 2023

Financial Algorithm Engineer - Intern Investment Research Group Shanghai - Base

(1) Utilized Google's pre-trained Tiny-Clue-Chinese model and fine-tuned it with jieba-scored texts. Subsequently, inputted text data from Chaoyang Yongxu Database into the large model, calculating the probability of positive sentiment for each summary sentence of the report.

(2) Applied negative adjustment, computed adjusted sentiment score, and weighted it with a 90-day rolling window to obtain the sentiment factor and its adjustment factor for each stock daily.

(3) Research findings indicate that the adjustment factor better reflects the incremental information of sentiment factor. Constructed long-short portfolios using this factor, resulting in a 35% return from 2016 to 2023.

(4) Established efficient enterprise-level financial data warehouse using Oracle, SQL, and other data tools. Implemented multithreading and multiprocessing principles in handling valuation and portfolio data insertion, along with storage and insertion separation strategy.

PROJECT EXPERIENCE

Index-Enhanced Asset Portfolio Construction Using Random Forest Sep 2023 - Sep 2023

(1) Preprocessed data from constituents of the CSI 500 Index, deriving 25 fundamental factors. Standardized and industry-market neutralized these factors to obtain new residual factor exposures. Utilized a Random Forest-based model for stock trade categorization (Buy, Sell, Hold) and executed daily trades within an equally weighted portfolio based on the CSI 500.
(2) Factor importance scores revealed a significant influence of market capitalization factors on the Random Forest model. The model exhibited sensitivity to parameters, noise, and environmental changes, indicating room for improving its generalization ability. Future research will delve into addressing these issues.