

FF

FAMA-FRENCH FACTORS DATABASE

USER GUIDE

(20191231)

CSMAR

Shenzhen CSMAR Data Technology Co., Ltd.



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Shenzhen CSMAR Data Technology Co., Ltd.

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|-------------|--|
| Address | 4/F, Block A4, Nanshan I Park, 1001 Xueyuan Road, Nanshan District, Shenzhen |
| Postal Code | 518052 |

I. How to Use this Guide

The User Guide is for the Fama-French Factors Database (the FF Database).

The data of the 3-factor model range from 1990 to the present, and those of the 5-factor model date from 1994.

1. Target Users

The information and data provided by the FF Database are intended mainly for financial research. Target users include finance, economics and management teachers, students and scholars of higher learning institutes, and individuals or organizations who are engaged in research work on China financial industry, such as securities companies, fund companies, and investment banks.

2. Components of this Guide

This Guide comprises 3 parts. They are:

User License Agreement Statement of Copyright and All Other Rights; Statement on User License Agreement; Terms of the License Agreement; After-sale Guarantee; Termination of the User License; Governing Laws of the Agreement; and Disclaimer

How to Use This Guide, Product Development Description, Introduction to the Product, Description of the Database, Data Structure and Descriptions

Appendix Code Description

II. Product Development Description

Asset pricing has been the core issue in the financial sector. And the Fama-French 3-factor model could be claimed as one of the most important pricing models after the CAPM. It holds that the rate of return on a portfolio is decided by three factors, namely, market risk, market capitalization scale, and P/B ratio. This model has been widely applied in financial and economic research, and has exerted profound influence upon the development of asset pricing. To extend the 3-factor model, Fama-French put forward a 5-factor model in 2015.

In consideration of the wide application of Fama-French factor model in all sectors, the CSMAR research team have strictly adhered to the design philosophy and method of the original authors (Fama and French, 1993&2015) and worked out a factor model index based on the Chinese market for the use of all researchers.

III. Introduction to the Product

1. Content

The database mainly covers a FAMA 3-factor model (since 1990) and a 5-factor model (since 1994).

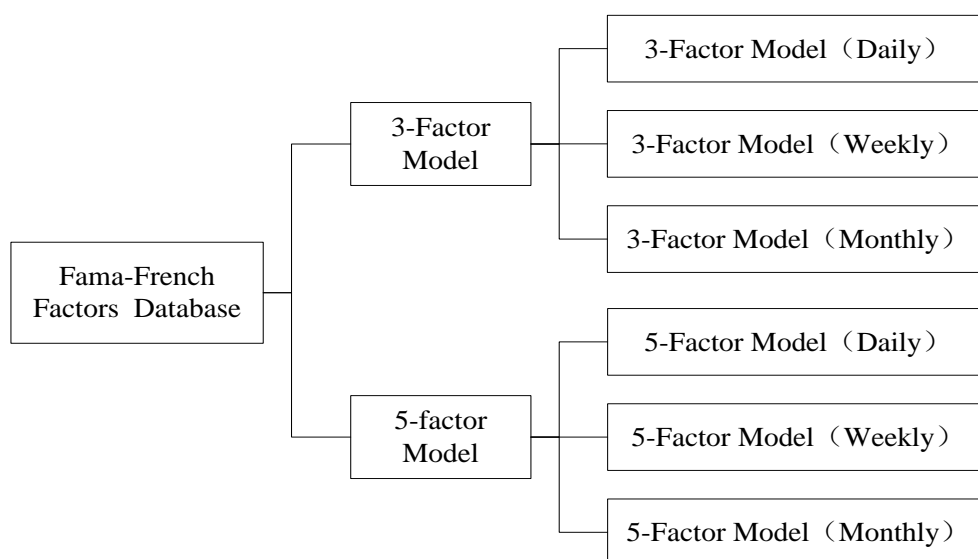
The data files of this database are as follows:

- 3-Factor Model
 - 3-Factor Model Index (Daily)
 - 3-Factor Model Index (Weekly)
 - 3-Factor Model Index (Monthly)
- 5-Factor Model
 - 5-Factor Model Index (Daily)
 - 5-Factor Model Index (Weekly)
 - 5-Factor Model Index (Monthly)

2. Data Source

All files in the Fama-French Factors Database are derived from the daily trading data of stocks, balance sheets, income statements and other related files. The daily trading data of stocks are obtained from the Shanghai and Shenzhen stock exchanges, while the balance sheets and income statements come from companies' annual reports. The data sources are timely and of great authority and accuracy.

3. Database Diagram



4. Features

Comprehensiveness

The database records all the information from authoritative sources, relevant research subjects and fields. It has comprehensiveness unmatched by other similar domestic databases. The data items are comprehensive and complete, leaving design space for future needs on the basis of reasonable predication.

Accuracy

Designed and developed for the purpose of academic research, the database offers a high degree of accuracy. We have performed entry- by-entry, meticulous proofreading and checking. On top of that, we have also conducted rigorous verification and confirmation in various ways, thus eliminating the occurrence of errors and ensuring the data are accurate. Besides, we abide strictly by the model method of the original authors in terms of the derivative calculation.

Timeliness

The database will be updated daily or quarterly to ensure its timeliness and continuity.

Convenience

The database has an open data structure and can be retrieved as a FoxPro, Excel, or TXT file with specialized CSMAR data software system. It can also be directly accessed through statistical software such as SAS and SPSS, and the computer languages such as Fortran, C and Pascal. Data classification is logical and well defined, making the searching for research data according to certain selection criteria fast and convenient.

5. Use Type

To meet different needs of various users, we provide two types of services:

After accessing the CSMAR Solution (us.gtadata.com) website and logging in successfully, users can set time, code, and field for data tables in the module of [Single-table Query] to obtain specific research data, and export multiple data formats such as Excel, CSV, and TXT for research and use.

We provide to a user only those parts of the database that answer the particular needs of the user. This kind of service has the advantage that a user does not need to be familiar with the data structure and retrieval procedures, which is in the charge of specialized customer service department of CSMAR.

IV. Description of the Database

1. General Structure

The general structure of the database is as follows:

| File Name | Physical Name | Description | Field Number | Range | Frequency |
|--------------------------------|----------------------|----------------------------------|--------------|-------|-----------|
| 3-Factor Model Index (Daily) | STK_MKT_ThrfacDay | FAMA 3-factor model daily data | 8 | 1990- | Daily |
| 3-Factor Model Index (Weekly) | STK_MKT_ThrfacWeek | FAMA 3-factor model weekly data | 8 | 1990- | Weekly |
| 3-Factor Model Index (Monthly) | STK_MKT_ThrfacMonth | FAMA 3-factor model monthly data | 8 | 1990- | Monthly |
| 5-Factor Model Index (Daily) | STK_MKT_FivefacDay | FAMA 5-factor model daily data | 13 | 1994- | Daily |
| 5-Factor Model Index (Weekly) | STK_MKT_FivefacWeek | FAMA 5-factor model weekly data | 13 | 1994- | Weekly |
| 5-Factor Model Index (Monthly) | STK_MKT_FivefacMonth | FAMA 5-factor model monthly data | 13 | 1994- | Monthly |

2. Product Statistics

There are 6 files and 63 fields in the database.

3. Calculation Method

3.1 3-Factor Model Index

(1) Dividing Portfolios (2*3)

Following portfolios are updated on July 1st every year.

- Dividing into S and B groups by market value (ME)

For portfolios from July of year t to June of year $t+1$, we rank all stocks on the main board according to ME on June 30th in year t . Then use the median to allocate stocks in a single market to two groups: big group (B) with ME greater than or equal to the median to and small group (S) with ME smaller than the median.

- Dividing into H, M, and L groups by book-to-market ratio (BE/ME)

For portfolios from July of year t to June of year $t+1$, we calculate the BE/ME of year $t-1$ first. BE equals stockholders' equity plus deferred income tax liability, minus deferred income tax assets, minus book value of preferred stock. These values are derived from the consolidated statement at the end of fiscal year $t-1$. Take the market equity on December 31st of year $t-1$ as ME (excluding stocks with negative BE).

Next, group the stocks. We rank all stocks on the main board according to the value of BE/ME on December 31st in year $t-1$. Then we use two breakpoints 30% and 70% to group stocks in a single market for the top 30% (H), the middle 30%-70% (M) and the bottom 30% (L) of the ranked value of BE/ME.

Note: The median and the percentiles above refer to: the median ME and the percentiles of BE/ME of all the stocks on the market, if the market type is ChiNext (P9705) and Aggregate B share (P9707); the median ME and the percentiles of BE/ME of all the stocks on the main board, if the market type is Aggregate A share (P9706) or Aggregate A share and ChiNext (P9709) and Aggregate A & B share and ChiNext (P9710).

(2) Definitions of Factors

- Market Risk Premium Factor

Market risk premium factor of a single stock market is calculated as follows:

Market Risk Premium Factor = Market Return with Cash Dividend Reinvested – Interest Rate of 3-month Deposit

- Market Value Factor (SMB)

The equation for calculating the market value factor of a single market is:

$$SMB = (SH + SM + SL)/3 - (BH + BM + BL)/3$$

Where SH, SM, SL, BH, BM, and BL are weighted returns of portfolios based on intersections of S and B groups and H, M, and L groups, respectively.

- Book-to-Market Ratio Factor (HML)

The equation for calculating the book-to-market ratio factor of a single market is:

$$HML = (SH + BH)/2 - (SL + BL)/2$$

Where SH, BH, SL, and BL are weighted returns of portfolios based on the intersections of S and B groups and H and L groups, respectively.

3.2 5-factor Model Index

The 5-factor model index (daily)/(weekly)/(monthly) is calculated on the basis of all A-share markets, including Shanghai and Shenzhen A-share markets and ChiNext stock market. Financial stocks and ST stocks are excluded from the sample.

(1) Dividing Portfolios

Following portfolios are updated on July 1st every year.

➤ Portfolio Types (2*3)

- Dividing into S and B groups by market value (ME)

Please refer to Calculation Method/3-factor Model Index/Dividing Portfolios (2*3).

- Dividing into H, M, and L groups by book-to-market ratio (BE/ME)

Please Refer to Calculation Method/3-factor Model Index/Dividing Portfolios (2*3).

- Dividing into R, N, and W groups by operating profitability (OP)

For portfolios from July of year t to June of year $t+1$, first calculate the OP of year $t-1$. OP equals annual revenues minus cost of goods sold, interest expense, and selling, general, and administrative expenses, all divided by BE at the end of fiscal year $t-1$.

Next, group the stocks. We rank all stocks on the main board according to the value of OP on December 31st in year $t-1$. Then we use two breakpoints 30% and 70% to group stocks in the A-share market for the top 30% (R), the middle 30%-70% (N) and the bottom 30% (W) of the ranked value of OP.

- Dividing into C, N, and A groups by investment pattern (INV)

For portfolios from July of year t to June of year $t+1$, first calculate the INV of year $t-1$. INV equals total assets at the end of year $t-1$ minus total assets at the end of year $t-2$, all divided by total assets at the end of year $t-2$, where related values are from the consolidated statements at the end of fiscal year $t-1$ and year $t-2$.

Next, group the stocks. We rank all stocks on the main board according to the value of INV on December 31st in year $t-1$. Then we use two breakpoints 30% and 70% to group stocks in the

A-share market for the top 30% (C), the middle 30%-70% (N) and the bottom 30% (A) of the ranked value of INV.

➤ Portfolio Types (2*2 and 2*2*2*2)

Like portfolio types (2*3), stocks are divided into groups by market value, book-to-market ratio, operating profitability, and investment pattern, respectively, but in a different way. Stocks are divided into 2 types by the median of the four indexes from the main board.

- Dividing into S and B groups by market value (ME)
- Dividing into H and L groups by book-to-market ratio (BE/ME)
- Dividing into R and W groups by operating profitability (OP)
- Dividing into C and A groups by investment pattern (INV)

Note: The percentiles of dividing portfolios mentioned above are all derived from the main board.

(2) Definitions of Factors

➤ Portfolio Types (2*3)

- Market Risk Premium Factor (the calculation method for each portfolio type is the same with 3-factor)
- Market Value Factor

$$SMB = (SMB_{B/M} + SMB_{op} + SMB_{INV})/3$$

Where

$$SMB_{B/M} = (SH + SN + SL)/3 - (BH + BN + BL)/3$$

$$SMB_{op} = (SR + SN + SW)/3 - (BR + BN + BW)/3$$

$$SMB_{INV} = (SC + SN + SA)/3 - (BC + BN + BA)/3$$

Where SH, SN, and SL are weighted returns of portfolios based on intersections of S and B groups and other groups.

- Book-to-Market Ratio Factor

$$HML = (SH + BH)/2 - (SL + BL)/2$$

Where SH, BH, SL, and BL are weighted returns of portfolios based on intersections of H and L groups and S and B groups.

- Operating Profitability Factor

$$RMW = (SR + BR)/2 - (SW + BW)/2$$

Where SR, BR, SW, and BW are weighted returns of portfolios based on intersections of R and W groups and S and B groups.

- Investment Pattern Factor

$$CMA = (SC + BC)/2 - (SA + BA)/2$$

Where SC, BC, SA, and BA are weighted returns of portfolios based on intersections of C and A groups and S and B groups.

➤ Portfolio Types (2*2)

- Market Value Factor

$$SMB = (SH + SL + SR + SW + SC + SA)/6 - (BH + BL + BR + BW + BC + BA)/6$$

Where SH, SL, BH, and BL are weighted returns of portfolios based on intersections of S and B groups and other groups.

- Book-to-Market Ratio Factor, Operating Profitability Factor, and Investment Pattern Factor

The equations are the same as those of portfolio types (2*3).

➤ Portfolio Types (2*2*2*2)

- Market Value Factor

$$SMB = (SHRC + SHRA + SHWC + SHWA + SLRC + SLRA + SLWC + SLWA)/8 - (BHRC + BHRA + BHWC + BHWA + BLRC + BLRA + BLWC + BLWA)/8$$

Where SHRC and so on are weighted returns of portfolios based on the intersections of four different groups.

- Book-to-Market Ratio Factor

$$HML = (SHRC + SHRA + SHWC + SHWA + BHRC + BHRA + BHWC + BHWA)/8 - (SLRC + SLRA + SLWC + SLWA + BLRC + BLRA + BLWC + BLWA)/8$$

- Operating Profitability Factor

$$RMW = (SHRC + SHRA + SLRC + SLRA + BHRC + BHRA + BLRC + BLRA)/8 - (SHWC + SHWA + SLWC + SLWA + BHRC + BHRA + BLRC + BLRA)/8$$

- Investment Pattern Factor

$$CMA = (SHRC + SHWC + SLRC + SLWC + BHRC + BHCW + BLRC + BLWC)/8 - (SHRA + SHWA + SLRA + SLWA + BHRA + BHWA + BLRA + BLWA)/8$$

V. Data Structure and Descriptions

1. 3-Factor Model Index (Daily) (STK_MKT_ThrfacDay)

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|--------------|---|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| 1 | MarketTypeID | Market Type Code | C | 6 | | | P9705:ChiNext; P9706:Aggregate A share (excluding STAR Market, ChiNext); P9707:Aggregate B share; P9709:Aggregate A share and ChiNext; P9710:Aggregate A & B share and ChiNext; P9711:SSE STAR Market; P9712:Aggregate A share and SSE STAR Market; P9713:Aggregate A & B share and SSE STAR Market; P9714:Aggregate A share and ChiNext and SSE STAR Market; P9715:Aggregate A & B share and ChiNext and SSE STAR Market. |
| 2 | TradingDate | Trading Date | C | 10 | | | In the format of YYYY-MM-DD |
| 3 | RiskPremium1 | Market Risk Premium Factor (Weighted Average Market Value of Negotiable Shares) | N | 20 | 6 | | The difference of the daily market return with cash dividend reinvested (Weighted Average Market Value of Negotiable Shares) and daily risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 4 | RiskPremium2 | Market Risk Premium Factor (Weighted Average | N | 20 | 6 | | The difference of the daily market return with cash dividend reinvested (Weighted Average of Total Market Value) and daily |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| | | of Total Market Value) | | | | | risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 5 | SMB1 | Market Value Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the daily returns of small-cap and large-cap portfolios which are divided on the basis of the FAMA 2*3 division methods (The daily returns of these portfolios are calculated by the Weighted Average Value of Negotiable Shares.) |
| 6 | SMB2 | Market Value Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the daily returns of small-cap and large-cap portfolios which are divided on the basis of the FAMA 2*3 division methods (The daily returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 7 | HML1 | Book-to-Market Ratio Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the daily returns of high book-to-market ratio and low book-to-market ratio portfolios which are divided on the basis of the FAMA 2*3 division methods (The returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 8 | HML2 | Book-to-Market Ratio Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the daily returns of high book-to-market ratio and low book-to-market ratio portfolios which are divided on the basis of the FAMA 2*3 division methods (The returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |

2. 3-Factor Model Index (Weekly) (STK_MKT_Thrfac Week)

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|---------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| 1 | MarketttypeID | Market Type Code | C | 6 | | | P9705:ChiNext; P9706:Aggregate A share (excluding STAR Market, ChiNext); P9707:Aggregate B share; P9709:Aggregate A share and ChiNext; P9710:Aggregate A & B share and ChiNext; P9711:SSE STAR Market; P9712:Aggregate A share and SSE STAR Market; P9713:Aggregate A & B share and SSE STAR Market; P9714::Aggregate A share and ChiNext and SSE STAR Market; P9715:Aggregate A & B share and ChiNext and SSE STAR Market. |
| 2 | TradingWeek | Trading Week | C | 10 | | | In the format of YYYY-WW. WW represents a certain week of the year. |
| 3 | RiskPremium1 | Market Risk Premium Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the weekly market return with cash dividend reinvested (Weighted Average Market Value of Negotiable Shares) and weekly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 4 | RiskPremium2 | Market Risk Premium Factor (Weighted Average | C | 20 | 6 | | The difference of the weekly market return with cash dividend reinvested (Weighted Average of Total Market Value) and |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| | | of Total Market Value) | | | | | weekly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 5 | SMB1 | Market Value Factor (Weighted Average Value of Negotiable Shares) | C | 20 | 6 | | The difference of the weekly returns of small-cap and large-cap portfolios which are divided on the basis of the FAMA 2*3 division methods (The weekly returns of these portfolios are calculated by the Weighted Average Value of Negotiable Shares.) |
| 6 | SMB2 | Market Value Factor (Weighted Average of Total Market Value) | C | 20 | 6 | | The difference of the weekly returns of small-cap and large-cap portfolios which are divided on the basis of the FAMA 2*3 division methods (The weekly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 7 | HML1 | Book-to-Market Ratio Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the weekly returns of high book-to-market ratio and low book-to-market ratio portfolios which are divided on the basis of the FAMA 2*3 division methods. (The returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 8 | HML2 | Book-to-Market Ratio Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the weekly returns of high book-to-market ratio and low book-to-market ratio portfolios which are divided on the basis of the FAMA 2*3 division methods. (The returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |

3. 3-Factor Model Index (Monthly) (STK_MKT_ThrfacMonth)

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|---------------|--|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| 1 | MarketttypeID | Market Type Code | C | 6 | | | P9705:ChiNext; P9706:Aggregate A share (excluding STAR Market, ChiNext); P9707:Aggregate B share; P9709:Aggregate A share and ChiNext; P9710:Aggregate A & B share and ChiNext; P9711:SSE STAR Market; P9712:Aggregate A share and SSE STAR Market; P9713:Aggregate A & B share and SSE STAR Market; P9714:Aggregate A share and ChiNext and SSE STAR Market; P9715:Aggregate A & B share and ChiNext and SSE STAR Market. |
| 2 | TradingMonth | Trading Month | C | 10 | | | In the format of YYYY-MM. |
| 3 | RiskPremium1 | Market Risk Premium Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly market return with cash dividend reinvested (Weighted Average Market Value of Negotiable Shares) and monthly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 4 | RiskPremium2 | Market Risk Premium Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly market return with cash dividend reinvested (Weighted Average of Total Market Value) and monthly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| 5 | SMB1 | Market Value Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly returns of small-cap and large-cap portfolios which are divided on the basis of the FAMA 2*3 division methods (The monthly returns of these portfolios are calculated by the Weighted Average Value of Negotiable Shares.) |
| 6 | SMB2 | Market Value Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly returns of small-cap and large-cap portfolios which are divided on the basis of the FAMA 2*3 division methods (The monthly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 7 | HML1 | Book-to-Market Ratio Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly returns of high book-to-market ratio portfolios and low book-to-market ratio portfolios which are divided on the basis of the FAMA 2*3 division methods. (The returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 8 | HML2 | Book-to-Market Ratio Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly returns of high book-to-market ratio portfolios and low book-to-market ratio portfolios which are divided on the basis of the FAMA 2*3 division methods. (The returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |

4. 5-Factor Model Index (Daily) (STK_MKT_FivefacDay)

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|---------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| 1 | MarketttypeID | Market Type Code | N | 20 | 6 | | P9709:Aggregate A share and ChiNext; P9713:Aggregate A & B share and SSE STAR Market; P9714: Aggregate A share and ChiNext and SSE STAR Market. Note: Comprehensive A Share (excluding STAR Market, ChiNext); |
| 2 | TradingDate | Trading Date | N | 20 | 10 | | In the format of YYYY-MM-DD. |
| 3 | Portfolios | Portfolio Type | N | 20 | 1 | | 1 represents 2*3 portfolio division method; 2 represents 2*2 portfolio division method; 3 represents 2*2*2*2 portfolio division method. |
| 4 | RiskPremium1 | Market Risk Premium Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the daily market return with cash dividend reinvested (Weighted Average Market Value of Negotiable Shares) and daily risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 5 | RiskPremium2 | Market Risk Premium Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the daily market return with cash dividend reinvested (Weighted Average of Total Market Value) and daily risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 6 | SMB1 | Market Value Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the daily returns of small-cap and large-cap portfolios (The daily returns of these portfolios are calculated by the Weighted Average Value of Negotiable Shares.) |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|--|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| 7 | SMB2 | Market Value Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the daily returns of small-cap and large-cap portfolios (The daily returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 8 | HML1 | Book-to-Market Ratio Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the returns of high book-to-market ratio and low book-to-market ratio portfolios (The returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 9 | HML2 | Book-to-Market Ratio Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the returns of high book-to-market ratio and low book-to-market ratio portfolios (The returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 10 | RMW1 | Profitability Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the returns of high profitability stock portfolios and low profitability stock portfolios (The returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 11 | RMW2 | Profitability Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the returns of high profitability stock portfolios and low profitability stock portfolios. (The returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 12 | CMA1 | Investment Pattern Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the returns of conservative stock portfolios and aggressive stock portfolios (The returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| 13 | CMA2 | Investment Pattern Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the returns of conservative stock portfolios and aggressive stock portfolios (The returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |

5. 5-Factor Model Index (Weekly) (STK_MKT_FivefacWeek)

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|--------------|---|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| 1 | MarkettpeID | Market Type Code | N | 6 | | | P9709:Aggregate A share and ChiNext; P9713:Aggregate A & B share and SSE STAR Market; P9714: Aggregate A share and ChiNext and SSE STAR Market. Note: Comprehensive A Share (excluding STAR Market, ChiNext); |
| 2 | TradingWeek | Trading Week | N | 7 | | | In the format of YYYY-WW. WW represents a certain week of the year. |
| 3 | Portfolios | Portfolio Type | N | 1 | | | 1 represents 2*3 portfolio division method; 2 represents 2*2 portfolio division method; 3 represents 2*2*2*2 portfolio division method. |
| 4 | RiskPremium1 | Market Risk Premium Factor (Weighted Average Value of | N | 20 | 6 | | The difference of the weekly market return with cash dividend reinvested (Weighted Average Market Value of Negotiable Shares) and weekly risk-free interest rate (PBOC benchmark |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|--------------|---|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| | | Negotiable Shares) | | | | | interest rate of 3-month deposit) |
| 5 | RiskPremium2 | Market Risk Premium Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the weekly market return with cash dividend reinvested (Weighted Average of Total Market Value) and weekly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 6 | SMB1 | Market Value Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the weekly returns of small-cap and large-cap portfolios (The weekly returns of these portfolios are calculated by the Weighted Average Value of Negotiable Shares.) |
| 7 | SMB2 | Market Value Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the weekly returns of small-cap and large-cap portfolios (The weekly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 8 | HML1 | Book-to-Market Ratio Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the weekly returns of high book-to-market ratio portfolios and low book-to-market ratio portfolios (The weekly returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 9 | HML2 | Book-to-Market Ratio Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the weekly returns of high book-to-market ratio portfolios and low book-to-market ratio portfolios (The weekly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 10 | RMW1 | Profitability Factor (Weighted Average Value of Negotiable | N | 20 | 6 | | The difference of the weekly returns of high profitability stock portfolios and low profitability stock portfolios (The weekly returns of these portfolios are calculated by the Weighted |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|--|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| | | Shares) | | | | | Average Market Value of Negotiable Shares.) |
| 11 | RMW2 | Profitability Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the weekly returns of high profitability stock portfolios and low profitability stock portfolios (The weekly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 12 | CMA1 | Investment Pattern Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the weekly returns of conservative stock portfolios and aggressive stock portfolios (The weekly returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 13 | CMA2 | Investment Pattern Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the weekly returns of conservative stock portfolios and aggressive stock portfolios (The weekly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |

6. 5-Factor Model Index (Monthly) (STK_MKT_FivefacMonth)

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|-------------|------------------|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| 1 | MarkettpeID | Market Type Code | N | 6 | | | P9709:Aggregate A share and ChiNext; P9713:Aggregate A & B share and SSE STAR Market; P9714: Aggregate A share and ChiNext and SSE STAR Market. |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|--------------|--|------------|--------|----------------|------|--|
| | | | Type | Length | Decimal Digits | | |
| | | | | | | | Note: Comprehensive A Share (excluding STAR Market, ChiNext); |
| 2 | TradingMonth | Trading Month | N | 7 | | | In the format of YYYY-MM. MM represents a certain month of the year. |
| 3 | Portfolios | Portfolio Type | N | 1 | | | 1 represents 2*3 portfolio division method; 2 represents 2*2 portfolio division method; 3 represents 2*2*2*2 portfolio division method. |
| 4 | RiskPremium1 | Market Risk Premium Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly market return with cash dividend reinvested (Weighted Average Market Value of Negotiable Shares) and monthly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 5 | RiskPremium2 | Market Risk Premium Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly market return with cash dividend reinvested (Weighted Average of Total Market Value) and monthly risk-free interest rate (PBOC benchmark interest rate of 3-month deposit) |
| 6 | SMB1 | Market Value Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly returns of small-cap and large-cap portfolios (The monthly returns of these portfolios are calculated by the Weighted Average Value of Negotiable Shares.) |
| 7 | SMB2 | Market Value Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly returns of small-cap and large-cap portfolios (The monthly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 8 | HML1 | Book-to-Market Ratio | N | 20 | 6 | | The difference of the monthly returns of high book-to-market |

| SN | Field Name | Field Content | Field Type | | | Unit | Description |
|----|------------|---|------------|--------|----------------|------|---|
| | | | Type | Length | Decimal Digits | | |
| | | Factor (Weighted Average Value of Negotiable Shares) | | | | | ratio portfolios and low book-to-market ratio portfolios (The monthly returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 9 | HML2 | Book-to-Market Ratio Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly returns of high book-to-market ratio portfolios and low book-to-market ratio portfolios (The monthly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 10 | RMW1 | Profitability Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly returns of high profitability stock portfolios and low profitability stock portfolios (The monthly returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 11 | RMW2 | Profitability Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly returns of high profitability stock portfolios and low profitability stock portfolios (The monthly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |
| 12 | CMA1 | Investment Pattern Factor (Weighted Average Value of Negotiable Shares) | N | 20 | 6 | | The difference of the monthly returns of conservative stock portfolios and aggressive stock portfolios (The monthly returns of these portfolios are calculated by the Weighted Average Market Value of Negotiable Shares.) |
| 13 | CMA2 | Investment Pattern Factor (Weighted Average of Total Market Value) | N | 20 | 6 | | The difference of the monthly returns of conservative stock portfolios and aggressive stock portfolios (The monthly returns of these portfolios are calculated by the Weighted Average of Total Market Value.) |

References

- [1] Fama E F, French K R., 1993. Common risk factors in the returns on stocks and bonds. *Journal of Financial Economics*, 33, 3-56.
- [2] Fama E F, French K R., 2013. A five-factor asset pricing model. *Journal of Financial Economics*, 116, 1-22.

Appendix Code Description

Market Type Code

| Code | Code Description |
|-------|---|
| P9705 | ChiNext |
| P9706 | Aggregate A share |
| P9707 | Aggregate B share |
| P9709 | Aggregate A share and ChiNext |
| P9710 | Aggregate A & B share and ChiNext |
| P9711 | SSE STAR Market |
| P9712 | Aggregate A share and SSE STAR Market |
| P9713 | Aggregate A & B share and SSE STAR Market |
| P9714 | Aggregate A share and ChiNext and SSE STAR Market |
| P9715 | Aggregate A & B share and ChiNext and SSE STAR Market |