



CRSP CALCULATIONS AND INDEX METHODOLOGIES

US STOCK & INDEXES DATABASE FLAT FILE FORMAT 2.0 (CIZ)

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IN SECURITY PRICES**
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CHAPTER 1: INTRODUCTION

Since 1960, CRSP has been curating data for scholarly researchers and investment practitioners. With more than 95 years of data in our US Stock Database and planned future data products, CRSP found it imperative to invest in back-office processes that will continue to serve our subscribers for the decades ahead. CRSP's multi-year reengineering investment has impacted every aspect of our research data products — from extracting, transforming, and loading data from our sources to quality review and clean-up to delivery and access of end-user data products.

This guide contains formulas and methodologies used to derive CRSP variables in the stock and index files and generated by the CRSP data utilities.

As communicated previously, CRSP is migrating to a new back office. This requires that subscribers migrate to the Stock & Indexes Flat File Format 2.0 (CIZ), which was made available in summer 2022. The December 2024 data which will be released in January 2025, is scheduled to be the last CRSP US Stock & Indexes release produced in the Legacy (FIZ) and Flat File Format 1.0 (SIZ) formats.

In addition to this CRSP Calculations and Index Methodologies Guide, subscribers may refer to several documents to become familiar with the Flat File Format 2.0 (CIZ) files:

[Executive Summary of Differences](#) - summarizes differences between Flat File Format 1.0 (SIZ) and Flat File Format 2.0 (CIZ), including easier and faster tabulation, file restructuring, new data items, new flag items for delists, distributions, and share codes, and metadata files.

[Flat File Format 2.0 User Guide](#) - provides a table-by-table listing of data items in Flat File Format 2.0 (CIZ) and short definitions.

[Cross Reference Guide](#) - assists in transitioning from Flat File Format 1.0 (SIZ) and access tools through a high-level description of files and tables drawing relationships between SIZ and CIZ data items.

[CRSP Metadata Guide](#) - There are 10 metadata files included in Flat File Format 2.0 (CIZ) including schema information, flag files, coverage files, and calendar files, and SIZ to CIZ mapping information.

[Release Notes](#) - summarize monthly, quarterly and annual data updates

Please contact support@crsp.org with questions.

CHAPTER 2: CRSP CALCULATIONS

ADJUSTED DATA

Price, dividend, shares, and volume data are historically adjusted for split events to make data directly comparable at different times during the history of a security. CRSP provides unadjusted price, dividend, shares, and volume data. Cumulative adjustment factors can be used to adjust data at different times to the same basis.

An adjustment base date is chosen as the anchor date. All data on this date are unadjusted, and other data are converted based on the split events between the base date and the time of that data. The adjustment base date is usually chosen to be the last available day of trading.

Split events always include stock splits, stock dividends, and other distributions with price factors such as spin-offs, stock distributions, and rights. Shares and volumes are only adjusted using stock splits and stock dividends. Split events are applied on the Ex-Distribution Date.

Price and dividend data are adjusted with the calculation:

$$A(t) = P(t) / C(t),$$

where $A(t)$ is the adjusted value at time t , $P(t)$ is the raw value at time t , and $C(t)$ is the cumulative adjustment factor at time t .

Share and volume data are adjusted with the calculation:

$$A(t) = P(t) * C(t),$$

where $A(t)$ is the adjusted value at time t , $P(t)$ is the raw value at time t , and $C(t)$ is the cumulative adjustment factor at time t .

In both cases, where C_0 is the adjustment base date, the cumulative adjustment factor is:

if $t = C_0$,

$$C(t) = 1.0$$

if $t > C_0$ and no split events since $t-1$,

$$C(t) = C(t-1)$$

if $t > C_0$ and a split event with factor f since $t-1$,

$$C(t) = C(t-1) * f$$

if $t > C_0$ and split event change

$$C(t-1)/f$$

if $t < C_0$ and a split event change

$$C(t+1) * f$$

Where factor is typically the Factor to Adjust Price variable + 1

If there is a gap in trading where possible split events are not known, all adjusted values are set to missing when the gap is between the observation and the adjustment base date.

Monthly: If monthly summary data (id or Low Price, Ask or High Price, and Volume Traded) are adjusted, the adjustment factor cannot take into account adjustments that take place in the middle of the month. Therefore, the result assumes all adjustment events occur on the last trading day of the month. A more accurate monthly adjusted value can be derived by adjusting and resummarizing the underlying daily data.

ANNUALIZED RETURN

Annualized Return is the constant annual return applied to each period in arrays that would result in the actual compounded return over that range. An Annualized Return is a special case of a Geometric Average Return where the time periods are expressed in terms of years.

ASSOCIATED PORTFOLIO RETURN

Associated Portfolio Returns are a composite of a group of portfolio index series based on a time-dependent portfolio assignment for a security. They are built for each security based on assignments within the specified portfolio type. The associated portfolio return at any time is the return of the portfolio to which the security belongs at that time. If the security is not assigned to a portfolio of that type at the time, the associated portfolio return is set to a missing value.

CUMULATIVE RETURN

A Cumulative Return is a compounded return from a fixed starting point. Each period in a time series of Cumulative Returns contains the compounded return from the first period in the time series to the end of that period.

DELISTING RETURN

Delisting Return is the return of security after it is delisted. It is calculated by comparing a value after delisting against the price on the security's last trading date. The value after delisting can include a price on another exchange or the total value of distributions to shareholders. If there is no opportunity to trade a stock after delisting before it is declared worthless, the value after delisting is zero. Delisting Returns are calculated similarly to total returns except that the value after delisting is used as the current price.

Valid delisting payment information is either a valid price with at least a bid and ask quote within ten trading periods, or a complete set of payments received for the shares. If information after delisting is insufficient to generate a return a missing value is reported.

Monthly: The monthly Delisting Return is calculated from the last month ending price to the last daily trading price if no other delisting information is available. In this case the delisting payment date is the same as the delisting date. If the return is calculated from a daily price, it is a partial-month return. The partial-month returns are not truly Delisting Returns since they do not represent values after delisting, but allow the researcher to make a more accurate estimate of the Delisting Returns. The change to use daily compounded returns rather than monthly also applies to delisting returns (dlret). See Cross Reference Guide for more information.

When valuing a portfolio, the Delisting Return or other representation can be used to assign a value to the delisted security. The researcher must decide whether to assign alternate estimated values based on the Delisting Code when delisting payment information is unavailable. If using monthly data and an alternate estimate for Delisting Return is used, partial month returns should also be adjusted by this factor.

DAILY ORDINARY DIVIDEND AMOUNT (DlyOrdDivAmt) AND DAILY NON-ORDINARY DIVIDEND AMOUNT (DlyNonOrdDivAmt)

The dividend amounts are the cash amounts used in a holding period return time period to calculate returns. They are an adjusted summation of all distribution cash amounts available in the distribution history with Ex-distribution dates after the previous period and up to and including the current period, adjusted to the basis at the end of the previous period.

The dividend amounts include non-ordinary and ordinary types. Non-ordinary dividends include return of capital distributions. Ordinary dividends are excluded from capital appreciation returns calculations.

**TS_Print item names are Odivamt and TDivamt*

EXCESS RETURN

An Excess Return is defined as the return in excess of a comparable benchmark. The benchmark can be a single associated index series or a composite of a group of portfolio index series based on security and time-dependent portfolio assignments.

If an Excess Return is based on a single index series, the Excess Return for a period is $E(t) = R(t) - I(t)$,

where $E(t)$ is the Excess Return at time t , $R(t)$ is the security return at time t , and $I(t)$ is the index return at time t . If the security return $R(t)$ is based on a previous price t' that is not the previous time period, $I(t)$ is the compounded index return from $t' + 1$ to t .

If an Excess Return is based on associated portfolios, the Excess Return for a period is $E(t) = R(t) - I(p(t), t)$

where $E(t)$ is the Excess Return at time t , $R(t)$ is the security return at time t , $p(t)$ is the portfolio assignment of the security at time t , and $I(p(t), t)$ is the return of that portfolio at time t . If the security return $R(t)$ is based on a previous price t' that is not the previous time period, $I(p(t), t)$ is the compounded return of the security's portfolio return from $t' + 1$ to t . If the security is not assigned a portfolio assignment of the given type at time t , $E(t)$ is set to a missing value.

When cumulating Excess Return, the security returns and the index returns are cumulated separately before subtracting the difference.

DAILY FACTOR TO ADJUST PRICES IN PERIOD (DlyFacPr)

Factor to Adjust Prices in Period is the amount the current price is multiplied by in returns calculations so that current and previous prices are on the same split-adjusted basis. Factor to Adjust Prices in Period is derived from the Factor to Adjust Price field of distributions with Ex-Distribution Dates after the previous period and up to and including the current period. In simple stock splits, Factor to Adjust Prices in Period is distribution Factor to Adjust Price plus one.

**TS_Print item name is Facprc*

GEOMETRIC AVERAGE RETURN

A Geometric Average Return is the constant return applied to each period in a range that would result in the compounded return over that range.

The Geometric Average Return is calculated using the formula below:

$$g_n = (1 + r_c)^{1/n} - 1$$

Where

g_n = the Geometric Average Return applicable on each subset period n

r_c = the cumulative return over the entire period

n = the number of equal subset periods to average the return

INCOME RETURN

Income Return is the return on the ordinary dividends paid to shareholders of a security. It is the ratio of the amount of ordinary dividends since the end of the previous period up to and including the end of the period of interest to the price at the end of the previous period. It is similar to a dividend yield.

Income Return is calculated by CRSP as the difference of the Total Return and Capital Appreciation Return, as follows.

$DlyIncRet_t = DlyTotRet_t - aRet_t$ where:

$DlyIncRet_t$ is the income return for time t

$DlyTotRet_t$ is the total return for time t ,

$DlyPrcRet_t$ is the capital appreciation return for time t

INDEX COUNT

Index Count is the count in an index for a time period is the number of securities in the portfolio during the time period (time

period depends on period type e.g., daily, monthly). Rules are based on the specific index or portfolio methodology. See Total and Used Counts for more details.

INDEX LEVEL

Index Level is the value of an investment relative to its value at one fixed point in time. Index Levels allow convenient comparison of the relative performance of the different portfolios or asset classes. Differences arise when indexes are based on different underlying databases such as daily and monthly CRSP stock products.

The initial date and value are set arbitrarily, but must be consistent if comparing multiple indexes. The Index Level for any series at any time after the initial point indicates the value at that time of the initial value invested at the initial point. The Index Level for any series at any time before the initial point, indicates the value invested at that time that will result in the initial value at the initial point. The Index Level of a series missing prior to its first available return. Let:

- I_t = Index Level for any series at time t
- R_t = return for the period t-1 to t
- F = First Return. The time of the first non-missing return of the series
- D = Initial Date. An arbitrary date where the level is set to the initial value
- L = Initial Level. An arbitrary value the level is set to on the initialization date

then

- if $t = D$, then $I_t = L$
- if $t > D$, then $I_t = I_{t-1} \cdot (1 + R_t)$
- if $t < D$, then $I_t = \frac{I_{t+1}}{1 + R_{t+1}}$
- if $t-1 < F$ then I_t is set to missing- *Note: Missing values are file format specific.*

Defined CRSP indexes use the following initial dates and levels:

CRSP Stock File Indexes

initial level 100.00

initial date December 29, 1972

CRSP Cap-Based Portfolios

initial level 1.00

initial date December 31, 1925

CRSP US Government Treasury and Inflation Indexes

initial level 100.00

initial date December 29, 1972

Publicly available indexes such as for the S&P 500 Composite and NASDAQ Composite have initial values set by their creators and differ from the CRSP initializations.

INDEX RETURN

An Index Return is the change in value of a portfolio over some holding period. The return on an index (R_t) is calculated as the weighted average of the returns for the individual securities in the index:

$$R_t = \frac{\sum(w_{i,t} * r_{i,t})}{\sum(w_{i,t})}$$

where:

- R_t is the index return
- $w_{i,t}$ is the weight of security i at time t

- $r_{i,t}$ is the return of security i at time t

In a value-weighted index, the weight ($w_{i,t}$) assigned is its total market value; see **Index Weight** below. In an equally-weighted index, the weight is equal and by convention $w_{i,t}$ is set to one for every stock. Such an index would consist of n stocks, with the same dollar amount invested in each stock.

The security returns can be total returns or capital appreciation (returns without dividends). This determines whether the index is a total return index or a capital appreciation index.

In an index where the individual components are not known, but an index level is available from an external source, such as the Standard & Poor's 500 Composite Index, the return R_t is calculated as follows:

$$R_t = \frac{I_t}{I_{t-1}} - 1$$

R_t is the index return for time t

I_t is the index level at time t

I_{t-1} is the index level at end of the previous period (time t-1)

INDEX WEIGHT

The weight of an index for a time period is the total market value of the securities in the index at the end of the previous trading period. $V_t = \sum(w_{i,t}) = \sum(v_{i,t})$ where: $v_{i,t} = p_{i,t-1} * s_{i,t-1}$ in which:

- $v_{i,t}$ is value of security i at time t
- $p_{i,t-1}$ is the price of security i at the end of the previous trading period (time t-1).
- $s_{i,t-1}$ is the number of shares outstanding of security i at the end of the previous trading period (time t-1).

MARKET CAPITALIZATION

Market Capitalization (in 1000s) is a measurement of the size of a security defined as the price multiplied by the number of shares outstanding. CRSP uses the closing price or the absolute value of the bid/ask average from the Price or Bid/Ask Average variable and the applicable shares observation from the Shares Outstanding Observation Array for each calendar period to calculate Market Capitalization.

REBASING INDEX LEVELS

It is possible to rebase an index to make index levels of two index level series comparable. To rebase an index, choose a new initial date and value, find the current index level on the new initial date, and multiply the levels on all dates by the new initial value divided by the old initial date index level:

$$N_t = I_t * \frac{L}{I_D}$$

where:

- I_t = Original Index Level for the series at time t
- N_t = New Index Level for the series at time t
- D = New Initial Date
- I_D = Original Index Level for the series on the new initial date
- L = New Initial Level.

RETURN

A Return is the change in the total value of an investment in a security over some period of time per dollar of initial investment. Total Return is the Holding Period Total Return for a sale of a security on the given day, taking into account and reinvesting all

distributions to shareholders. It is based on a purchase on the most recent time previous to this day when the security had a valid price. Usually, this time is the previous calendar period, but may be up to ten calendar periods prior to the calculation.

Returns are calculated as follows:

For time t (a holding period), let

- ♦ t' = time of last available price < t
- ♦ $r(t)$ = return on purchase at t' , sale at t
- ♦ $p(t)$ = last sale price or closing bid/ask average at time t
- ♦ $d(t)$ = dividend amount for t
- ♦ $f(t)$ = factor to adjust price in period t
- ♦ $p(t')$ = last sale price or closing bid/ask average at time of last available price < t

$$r(t) = \frac{p(t)f(t) + d(t)}{p(t')} - 1$$

t' is usually one period before t , but t' can be up to ten periods before t if there are no valid prices in the interval. If there is a trading gap with unknown status between t and t' , the previous price is considered invalid.

In daily databases, dividends are reinvested in the security on the Ex-Distribution Date. In monthly databases, the returns are holding period returns from month-end to month-end, not compounded daily returns, and dividends are reinvested in the security at month-end.

The Factor to Adjust Prices in Period is derived from the distribution history Factor to Adjust Price using all distributions with Ex-Distribution dates after the previous period and up to the end of the current period. The dividend amount is derived from the distribution history Dividend Cash Amount and Factor to Adjust Price in the same range. For example, if a 2-for-1 split is the only distribution event in the time range, Factor to Adjust Price is 1.0, Factor to Adjust Prices in Period is 2.0, and Dividend Cash Amount is 0.0. If a one dollar dividend is the only distribution event in the time range, both Dividend Cash Amount and dividend amount are 1.0.

A series of special return codes specify the reason a return is missing:

Not Applicable	NA
Missing Price	MP
Not Tracked	NT
Gap Between Prices Too Large	GP
New Security	NS
Missing Corporate Action Value	MV
Delisting Price/Amount Missing	DM
Delisting Price is more than 10 periods from the...	DG
Return after Not Tracked period	RA
Delisting Pending	DP

New calculation summary flags allow efficient filtering and grouping of data. DlyDistRetFlg (Daily Distribution Return Flag) provides information about the summary distribution values so that returns with specific categories of distributions (e.g.,

No distribution, ordinary cash only, stock split only, etc.) can be easily identified for further analysis. DlyRetDurFlg (Daily Return Duration Flag) provides information about the number of periods and days between the prices used to calculate the daily return, whether there were any missing prices, and if there were no missing prices, whether they were adjacent days or intervening weekends or holidays.

SCHOLES-WILLIAMS BETA

Beta is a statistical measurement of the relationship between two time series, and has been used to compare security data with benchmark data to measure risk in financial data analysis. CRSP provides annual betas computed using the methods developed by Scholes and Williams (Myron Scholes and Joseph Williams, “Estimating Betas from Nonsynchronous Data,” Journal of Financial Economics, vol 5, 1977, 309-327).

$$\beta_i = \frac{\sum (lr_{i,t} * M3_t) - \left(\frac{1}{n_i}\right) * (\sum lr_{i,t}) * (\sum M3_t)}{\sum (lM_t * M3_t) - \left(\frac{1}{n_i}\right) * (\sum lM_t) * (\sum M3_t)} \quad \text{where:}$$

- β_i is the Beta for security i for the year being calculated
- $r_{i,t}$ is the return of security i at day t
- $lr_{i,t} = \ln(1+r_{i,t})$ is the natural log of the return of security i at time t+1 or the continuously compounded return
- M_t is the value-weighted market return at time t
- $lM_t = \ln(1+M_t)$ is the natural log of the value-weighted market return at time t+1 or the continuously compounded return
- $M3_t = lM_{t-1} + lM_t + lM_{t+1}$ is the three-day moving window of the above market return
- n_i is the number of non-missing returns for security i during the year

where the summations are over t and include all days on which security i traded, beginning with the first trading day of the year and ending with the last trading day of the year. There are two index families based on Scholes- Williams Beta calculations: NYSE/NYSE American and NASDAQ-only.

In the NYSE/NYSE American family, only trading prices are considered in the beta calculation, and a security must have traded half the days in a year to be given a non-missing beta for that year. The index used in the calculation is the total returns on the Trade-only NYSE/NYSE American Value-Weighted Market Index.

Betas for the NASDAQ family do not use the standard Scholes-Williams trade-only data restriction, since most NASDAQ securities were not required to report transactions until 1992. Removing bid/ask averages would restrict NASDAQ data to only NASDAQ National Market securities after 1982. NASDAQ returns based on bid/ask averages have different characteristics from trade-based returns, and betas are provided for comparison. NASDAQ betas are based on the total returns on the NASDAQ Value-Weighted Market Index.

STANDARD DEVIATION

Standard Deviation is a statistical measurement of the volatility of a series. CRSP provides annual standard deviations of daily returns using the following calculations:

$$\sigma_i = \sqrt{\frac{\sum (r_{i,t}^2) - \left(\frac{1}{n_i}\right) * (\sum r_{i,t})^2}{n_i - 1}}$$

where:

- σ_i is the standard deviation for security i for the year being calculated
- $r_{i,t}$ is the return of security i at time t
- n_i is the number of non-missing returns for security i during the year

where the summations are over t and include all days on which security i had a non-missing return, beginning with the first trading day of the year and ending with the last trading day of the year. A security must have valid returns for eighty percent

of the trading days in a year to have a Standard Deviation calculated. There are two families of indexes provided by CRSP with annual standard deviations as the statistic, the NYSE/NYSE American Standard Deviation Portfolios and the NASDAQ Standard Deviation Portfolios.

TOTAL COUNTS (DlyTotCnt/ MthTotCnt) AND USED COUNTS (DlyUsdCnt/MthUsdCnt)

Total Counts and Used Counts are provided for all indexes and portfolios. The following table identifies differences.

TOTAL COUNT	USED COUNT
Current Day closing price required for inclusion	Previous day & current day closing prices required for inclusion
On same date the Total Count will always be greater than or equal to the Used Count. The difference will be the number of securities with missing prices on the previous day (usually adds)	The Total Count on Day t will be greater than or equal to the Used Count on Day t+1. The difference will be the number of securities with missing prices on t+1 (usually the drops)
Total Count will fluctuate throughout the year.	Used Count will fluctuate throughout the year.

TOTAL VALUE (DlyTotVal/ MthTotVal) AND USED VALUE (DlyUsdVal/MthUsdVal)

Total Value and Used Value are provided for all CRSP stock indexes. The following table identifies differences.

TOTAL VALUE	USED VALUE
Current Day market value of eligible securities - price and shares for the current day are required for inclusion	For value-weighted indexes, this is the Index weight - market value of eligible securities with - price for the current day and price and shares for the previous day are required for inclusion
On same date the Total Value will always be greater than or equal to the Used Value.	

TRADE-ONLY DATA

CRSP provides Price or Bid/Ask Average as the standard daily price field, and derives returns from this field. Bid/ask averages are marked as negative numbers by convention. A trade-only price is derived from Price or Bid/Ask Average by setting all bid/ask average prices to missing. Trade-only returns are calculated using trade-only prices. A trade-only index is calculated using trade-only prices and returns.

UNADJUSTED DATA

Unadjusted Data is price, dividend, shares, and volume data reported in the amounts reported at the time of the observations. All CRSP data are provided unadjusted. However, the distribution history can be used to generate Adjusted Data from the raw data.

WEIGHTED RETURN

Weighted Return is the relative weight of a security within a portfolio or index multiplied by its return. In a value-weighted portfolio, Weighted Return is the capitalization at the end of the previous period multiplied by the return for the period.

CHAPTER 3: INDEX METHODOLOGIES

I. STOCK FILE INDEXES

The CRSP Stock File Indexes are a set of Market Indexes and Fractile Portfolio Indexes provided daily, monthly, quarterly, and annually for five market groups of securities. The market groups of securities for which indexes are calculated are the individual NYSE, NYSE American, NASDAQ and Arca markets, the NYSE/NYSE American, NYSE/NYSE American/NASDAQ, and the NYSE/NYSE American/NASDAQ/Arca market combinations. Published S&P 500 and NASDAQ Composite Index Data are also included.

The ranges for individual exchange data are listed below. The series containing combinations of exchanges begin at the earliest point that data for any of the exchanges is available.

- The New York Stock Exchange (NYSE) all series begins December 31, 1925
- NYSE American all series begins July 2, 1962
- The NASDAQ Stock Market (NASDAQ) all series begins December 14, 1972
- The Arca Exchange (Arca) all series begins March 8, 2006

NOTE: Quarterly and annual index returns are not available for the series including Arca.

Daily and monthly index returns are calculated based on daily and monthly security holding period returns respectively. Quarterly and annual frequency index returns are calculated by compounding monthly index returns.

A. CRSP MARKET INDEXES

An Equal-Weighted Index and a Value-Weighted Index are calculated for each market group. Each index contains index returns with and without dividends, index weights and counts.

The Equal-Weighted Index is an Equal-Weighted Portfolio built each calendar period from all issues listed on the selected exchanges with valid prices on the current and previous periods.

The Value-Weighted Index is a Value-Weighted Portfolio built each calendar period using all issues listed on the selected exchanges with available shares outstanding and valid prices in the current and previous periods, excluding American Depositary Receipts. Issues are weighted by their Market Capitalization at the end of the previous period.

An additional daily trade-only value-weighted index is available for NYSE/NYSE American. This index uses the same methodology as the NYSE/NYSE American Value-Weighted Market Index, but only includes non-ADR securities with trades on current and previous trading days.

Index Levels of CRSP Market Indexes are set to 100.0 on December 29, 1972.

The NYSE/NYSE American/NASDAQ/Arca Market Indexes are available in Daily and Monthly Stock Files. Other exchange combinations are available in the CRSP US Index Database and Security Portfolio Assignment Module.

B. PUBLISHED S&P 500 AND NASDAQ COMPOSITE INDEX DATA

The S&P 500 Composite Index is a value-weighted index created by Standard & Poor's. Since March 1957, the index contains 500 securities. Prior to that time the index contained 90 securities. These have been combined into a single time series. S&P Composite levels are collected from public sources such as the Dow Jones New Service, the Wall Street Journal and the Standard & Poor's Statistical Service.

The NASDAQ Composite Index is a value-weighted index created by the NASDAQ Stock Market.

Published S&P 500 and NASDAQ Composite Index Data are provided with the daily and monthly CRSPAccess Stock Files. Index levels and returns exclude dividends. As a result, the Return with Dividends variable, returns a missing value for both indexes. Total returns and membership data for the S&P 500 are available to subscribers of the CRSPAccess Index Files.

C. CRSP STOCK FILE CAPITALIZATION FRACTILE INDEXES

CRSP Stock File Capitalization Fractile Indexes are calculated for each of the Stock File Indexes market groups. All securities excluding American Depositary Receipts on a given exchange or combination of exchanges are ranked according to capitalization and then divided into ten equal parts each rebalancing period.

The portfolios are rebalanced each year, using the security market capitalization at the end of the previous year to rank the securities. If a security starts trading in the middle of a year, its first capitalization of the year is used in the ranking. The largest securities are placed in portfolio 10 and the smallest in portfolio 1. A security not assigned to a portfolio is not used in the index and has its Portfolio Assignment set to 0.

Value-Weighted Index Returns including all dividends are calculated on each of the ten portfolios. Index levels are calculated based on an initial value of 100.0 on December 29, 1972.

Each set of decile indexes represents one Index Group of index results and one Portfolio Type of portfolio assignments and statistics. Ten Index Series are created for each Portfolio Type.

D. CRSP STOCK FILE RISK-BASED FRACTILE INDEXES

CRSP Stock File Risk-Based Fractile Indexes are created for the daily NYSE/NYSE American and NASDAQ market combinations for two risk-based criteria. In these Market Segment Indexes, portfolios are created by ranking securities according to a measurement of the risk of their returns. One ranking uses beta values computed using the methods developed by Scholes and Williams (Myron Scholes and Joseph Williams, "Estimating Betas from Nonsynchronous Data", Journal of Financial Economics, vol 5, 1977, 309-327). The other ranking uses the annual standard deviation of the daily returns for its ranking.

The methodologies used to calculate these statistics are described in the CRSP Calculations section under Scholes- Williams Beta and Standard Deviation.

CRSP Stock File Risk-Based Fractile Indexes are rebalanced each year by ranking the statistics at the end of the previous year. If there are no data for the previous year for an issue but a valid statistic can be calculated for the current year, that statistic is used in the rankings.

CRSP Beta Fractiles are ranked with Portfolio 1 containing the securities with the largest positive betas and 10 containing securities with the smallest and most negative.

CRSP Standard Deviation Fractiles are ranked with Portfolio 1 containing the securities containing the largest standard deviations and portfolio 10 containing securities with the lowest. Once securities are assigned to portfolios, an equal-weighted total return index is calculated for each portfolio each calendar period. Trade-only security total returns are used for the NYSE/NYSE American Beta Portfolios only. Index levels are calculated based on an initial value of 100.0 on December 29, 1972.

Each set of fractile indexes represents one Index Group of index results and one Portfolio Type of portfolio assignments and statistics. Ten Index Series are created for each Portfolio Type.

II. CRSP CAP-BASED PORTFOLIOS

CRSP Cap-Based Portfolio Index data are a monthly series based on portfolios that are rebalanced quarterly. The methodology used to calculate the series differs from the CRSP Stock File Capitalization Fractile Indexes.

The universe includes all common stocks listed on the NYSE, NYSE American, and NASDAQ National Market excluding Unit Investment Trusts, Closed-End Funds, REITs, Americus Trusts, foreign stocks and American Depositary Receipts. Eligible companies with primary listings on the NYSE are ranked into equally populated fractiles. The largest capitalizations in each fractile serve as the breakpoints that are applied to various exchange groupings of the universe.

Fractile results are created for three exchange groups:

- NYSE only
- NYSE and NYSE American. NYSE American data are added beginning July 1962
- NYSE, NYSE American and the NASDAQ National Market. The NASDAQ National Market data are added beginning April 1982

CIZ includes a new index family 1180xxx (INDNOs 1080xxx). This index family is used to calculate and create the breakpoints for all issuer cap-based indexes.

This NYSE Breakpoint Issuer Statistics series contains the issuer cap statistics values used to determine breakpoints for Issuer Cap indexes (the statistic values of this series are not used for issuer cap portfolio assignment). CIZ includes both the rebalancing and membership data of this index family.

The rebalancing and membership data for INDNOs that are created as combinations of other cap-based fractiles (index family type = 'C') will be included in the CIZ product as well.

In CIZ we distinguish between monthly Security Cap INDNOs and daily Security Cap INDNOs using different INDFAMs (11004XX) for the monthly version. Please see CRSP Index Series table for details.

CIZ also includes additional CRSPMI indexes. Please see set of index families 1101xxx (INDNOs 1001xxx).

Individual Fractile portfolios are created for each exchange group, the largest being in fractile 1 and the smallest in fractile 10. In addition to each fractile portfolio, returns are calculated for the following: CRSP 1-2, CRSP 3-5, CRSP 6- 8, CRSP 9-10, CRSP 6-10 and CRSP 1-10.

Companies becoming eligible or ineligible during a quarter are handled with the following rules:

- Previous period market capitalizations are used for assigning fractiles and weights.
- Securities added during a quarter are assigned to appropriate portfolios when two consecutive month-end prices are available.
- When a security's last price is a month-end price, its month's return is included in the portfolios' quarterly return.
- When the month-end price is missing, a replacement month-end value is derived from the delisting return including merger terms, regional exchanges, etc. If the derived replacement month-end price is not available, the last available daily price is used.
- If an issue becomes ineligible for an index in the middle of a quarter but is still active, such as after an exchange change or because the issue is leaving the NASDAQ National Market, the issue is considered held until the end of the month and then dropped.
- Index Total Returns, Index Capital Appreciation, and Index Income Returns are calculated from a value-weighted portfolio of securities in the portfolio each period. Index Levels are calculated for each of these returns series based on an investment of one dollar on December 25, 1925.
- Only monthly indexes and portfolio assignments are calculated for the Cap-Based Portfolios. Each of the three sets of Cap-Based Indexes represents one Index Group of index results and one Portfolio Type of portfolio assignments and statistics. Seventeen Index Series, one for each fractile and each composite, are created for each Portfolio Type.

III. CRSP INDEXES FOR THE S&P 500 UNIVERSE

CRSP Indexes for the S&P 500® Universe are standard CRSP Market Indexes derived from CRSP Stock Files but include only issues from the CRSP stock data that are in the S&P 500® universe.

The CRSP Indexes for the S&P 500® series contain value- and equal-weighted returns with and without dividends for a market of stocks in the S&P 500® universe. Daily and monthly data beginning December 25, 1925 are provided. The published S&P

500® index and returns are also included for comparison. For a security to be included in the CRSP indexes for the S&P 500 Universe, it must have a price at the end of the current period, a price at the end of the previous period, and it must be a member of the S&P 500 Universe at the end of the current period. See CRSP Market Indexes for the variables calculated and the methodology used.

Prior to March, 1957, the index contains 90 issues. CRSP does not have data for two securities between 1925 and 1931 as follows.

COMPANY NAME	START DATE	END DATE
INT'L MERCANTILE MARINE PFD	31-dec-1925	22-jul-1929
STANDARD POWER & LIGHT "B"	06-feb-1930	16-nov-1931

Due to differences in handling mergers, reorganizations, and other major corporate actions, CRSP data and the S&P 500® universe do not always have a one-to-one mapping. In some cases this results in a short period where CRSP is missing prices or has multiple prices per company listed by S&P.

The Count of Securities Used is not always 500 (90 prior to March 1957) due to missing prices. Known reasons for missing prices are when-issued trading, halts, and suspensions.

A. CRSP PORTFOLIOS FOR THE S&P 500 UNIVERSE

The CRSP Portfolios for the S&P 500 Universe include an alternate value- and equal-weighted version of the CRSP indexes for the S&P 500 Universe. The methodology differences are:

- Issues are selected based on membership in the S&P 500 at the end of the previous period instead of the end of the current period.
- Delisting returns are used to evaluate the value of securities that delist before the end of a period they were selected.

IV. CRSP TREASURY AND INFLATION INDEXES

The CRSP US Treasury and Inflation Series (CTI) Files are provided on a monthly frequency. The series contains returns adapted from the CRSP US Treasury Fixed Term Index Series, the CRSP Risk Free Rates File, and the US Government Consumer Price Index. These derived files offer 10 groups of indexes: 30 year, 20 year, 10 year, 7 year, 5 year, 2 year, 1 year, 90 day, and 30 day target maturity indexes, as well as the Consumer Price Index.

For fixed-term series with maturities of one year or greater, a representative Treasury bond or note for each series is selected. Available issues are filtered on the basis of their characteristics. Each month, the most recent non-callable, non-flower, and fully taxable issue closest to the target maturity is selected. If none are found, a second pass allows flower bonds. Note that all these series begin in 1941 or 1942 due to the lack of suitable issues in the early history.

For thirty and ninety day risk-free series, a representative Treasury bill for each series is selected. Each month the issue maturing closest to the target duration, as measured from the end of the previous month, is selected. Bills must have at least thirty days to their maturity date to be selected for the thirty day series. However, for ninety day series, bills with less than ninety days to maturity may be selected. Due to the lack of data, the selection process in periods prior to 1942 is somewhat subjective and the maturities of the selected issues may deviate more than several days from the thirty and ninety day targets. Where bills were not available, certificates or notes may have been used. Exclusions may include:

- suspicious quotes,
- issues that did not mature on their next coupon payment data, or
- bid quotations that implied negative yields.

Each monthly return is calculated as price change plus interest, divided by last month's price. The returns and corresponding index values are set to -99 for months in which a return cannot be calculated, i.e. if the price is missing for either this month or last month, or if no valid issue was available.

The issue chosen for the 30, 20, 10, 7, 5, 2, and 1 year Fixed Term Index series for a given date was selected based on its

length to maturity as of the date. The returns contained in these series are calculated under the assumption that the relevant issue is bought one month prior to the quote date and sold on the date.

The issue chosen for the 90 and 30 day Treasury Bill series on a given date was selected based on its length to maturity as of the month immediately prior to the date. The 90 and 30 day series returns were calculated on the basis of buying the relevant issue one month prior to the date and selling it on the date. For example, a 90 day bill return is calculated between a date approximately 90 days prior to the bill's maturity, and the date which is a month after this date. Likewise, a 30 day bill return is calculated between a date approximately 30 days prior to the bill's maturity, and the date which is a date one month later. In cases where the date chronologically approached or exceeded the maturity date, thereby making a final price unavailable, the return was calculated based on a final price of \$100.

The associated index levels of the CRSP US Treasury and Inflation Series all have been initialized so that December 29, 1972 (19721229) equals 100. This facilitates comparison between the CTI Indexes and Stock File Indexes.

V. CRSP SELECT FILE SPECIFICATIONS

A. LONG TERM BOND SELECTION

1. Select the 20-year bond that is the closest to having a term of at least 19.5 years to maturity at the beginning of the year. If more than one exists, choose the bond with the most current dated date (i.e. most recently issued).
2. If a 20-year bond does not meet the above criteria, choose the 25-year bond with at least 19.7 years to maturity at the beginning of the year. If more than one exists, choose the bond closest to 20 years to maturity.
3. If a 25-year bond does not meet the above criteria, choose the 30-year bond with at least 19.7 years to maturity at the beginning of the year. If more than one exists, choose the bond closest to 20 years to maturity on the quote date.

The bond chosen under any of the categories above cannot be dated any later than December 1st of the previous year for which the bond is being considered for inclusion in the index (i.e. dated date + one month < = quote date). Before 1942, only partially tax-exempt bonds (itax=2) are chosen because of the limited number of fully taxable bond issues. After 1942, only fully taxable issues are chosen (itax=1).

The bond is held for one full year in the index. Bonds chosen for this index are either non-callable or callable Treasury bonds with a type of Bond or Callable Bond. A 20-year bond can be selected from a universe of bonds that were issued as having a term to maturity of 7305-7693 days, a 25-year bond from an issue of 8766-9892 days, and a 30-year bond from an issue of 10955-11288 days.

B. INTERMEDIATE TERM BOND SELECTION

1. Select the most currently issued 5 year bond with at least 5 years to maturity at the beginning of the calendar year.
2. If a 5-year bond does not meet the above criteria select the next shortest maturity that is closest to 5 years to maturity on the quote date. For example, if a 7-year bond exists, choose the 7-year closest to 5 years to maturity. If a 7-year bond does not exist move up to the next highest maturity and so forth.

For the period 1934-1942, always choose a non-flower bond (iflwr of 1) and preference is given to a bond that is partially tax-exempt (itax of 2). If a partially tax-exempt bond does not meet the above criteria, choose a wholly taxexempt bond (itax of 3). After 1942 only fully taxable non-flower bonds are chosen.

Callable and non-callable U.S. Treasury bonds and notes are considered for index inclusion. The issues are chosen from a universe of bonds issued with a term to maturity between 1000 to 7000 days to maturity.

SHORT TERM BOND SELECTION

Choose the Treasury Bill closest to 90 days to maturity on the quote date. A bill can be within 4 days of target maturity, i.e. 90 days plus or minus 4 days. If a bill is not available use a certificate or a note.

VI. CRSP INDEX SERIES

A. CRSP INDEX SERIES

The following table lists all CRSP Index Series by INDNO.

DAILY INDNO	DAILY INDFAM	MONTHLY INDNO	MONTHLY INDFAM	INDEX NAME	PRODUCT
1000000	1100000	1000000	1100000	CRSP NYSE Value-Weighted Market Index	Stock and Index
1000001	1100000	1000001	1100000	CRSP NYSE Equal-Weighted Market Index	Stock and Index
1000002	1100012	1000402	1100412	CRSP NYSE Market Capitalization Decile 1	Stock and Index
1000003	1100012	1000403	1100412	CRSP NYSE Market Capitalization Decile 2	Stock and Index
1000004	1100012	1000404	1100412	CRSP NYSE Market Capitalization Decile 3	Stock and Index
1000005	1100012	1000405	1100412	CRSP NYSE Market Capitalization Decile 4	Stock and Index
1000006	1100012	1000406	1100412	CRSP NYSE Market Capitalization Decile 5	Stock and Index
1000007	1100012	1000407	1100412	CRSP NYSE Market Capitalization Decile 6	Stock and Index
1000008	1100012	1000408	1100412	CRSP NYSE Market Capitalization Decile 7	Stock and Index
1000009	1100012	1000409	1100412	CRSP NYSE Market Capitalization Decile 8	Stock and Index
1000010	1100012	1000410	1100412	CRSP NYSE Market Capitalization Decile 9	Stock and Index
1000011	1100012	1000411	1100412	CRSP NYSE Market Capitalization Decile 10	Stock and Index
1000020	1100020	1000020	1100020	CRSP NYSE American Value-Weighted Market Index	Stock and Index
1000021	1100020	1000021	1100020	CRSP NYSE American Equal-Weighted Market Index	Stock and Index
1000022	1100032	1000422	1100432	CRSP NYSE American Market Capitalization Decile 1	Stock and Index
1000023	1100032	1000423	1100432	CRSP NYSE American Market Capitalization Decile 2	Stock and Index
1000024	1100032	1000424	1100432	CRSP NYSE American Market Capitalization Decile 3	Stock and Index
1000025	1100032	1000425	1100432	CRSP NYSE American Market Capitalization Decile 4	Stock and Index
1000026	1100032	1000426	1100432	CRSP NYSE American Market Capitalization Decile 5	Stock and Index
1000027	1100032	1000427	1100432	CRSP NYSE American Market Capitalization Decile 6	Stock and Index
1000028	1100032	1000428	1100432	CRSP NYSE American Market Capitalization Decile 7	Stock and Index
1000029	1100032	1000429	1100432	CRSP NYSE American Market Capitalization Decile 8	Stock and Index
1000030	1100032	1000430	1100432	CRSP NYSE American Market Capitalization Decile 9	Stock and Index
1000031	1100032	1000431	1100432	CRSP NYSE American Market Capitalization Decile 10	Stock and Index
1000040	1100040	1000040	1100040	CRSP NYSE/NYSE American Value-Weighted Market Index	Stock and Index
1000041	1100040	1000041	1100040	CRSP NYSE/NYSE American Equal-Weighted Market Index	Stock and Index
1000042	1100052	1000442	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 1	Stock and Index
1000043	1100052	1000443	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 2	Stock and Index
1000044	1100052	1000444	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 3	Stock and Index
1000045	1100052	1000445	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 4	Stock and Index
1000046	1100052	1000446	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 5	Stock and Index
1000047	1100052	1000447	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 6	Stock and Index
1000048	1100052	1000448	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 7	Stock and Index
1000049	1100052	1000449	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 8	Stock and Index
1000050	1100052	1000450	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 9	Stock and Index
1000051	1100052	1000451	1100452	CRSP NYSE/NYSE American Market Capitalization Decile 10	Stock and Index
1000051	1100052	1000451	1100452	CRSP NYSE/NYSE American Trade-Only Value-Weighted Market Index	Stock and Index
1000053	1100053	-	-	CRSP NYSE/NYSE American Trade-Only Value-Weighted Market Index	Stock and Index
1000060	1100060	1000060	1100060	CRSP NASDAQ Value-Weighted Market Index	Stock and Index
1000061	1100060	1000061	1100060	CRSP NASDAQ Equal-Weighted Market Index	Stock and Index
1000062	1100072	1000462	1100472	CRSP NASDAQ Market Capitalization Decile 1	Stock and Index
1000063	1100072	1000463	1100472	CRSP NASDAQ Market Capitalization Decile 2	Stock and Index

DAILY INDNO	DAILY INDFAM	MONTHLY INDNO	MONTHLY INDFAM	INDEX NAME	PRODUCT
1000064	1100072	1000464	1100472	CRSP NASDAQ Market Capitalization Decile 3	Stock and Index
1000065	1100072	1000465	1100472	CRSP NASDAQ Market Capitalization Decile 4	Stock and Index
1000066	1100072	1000466	1100472	CRSP NASDAQ Market Capitalization Decile 5	Stock and Index
1000067	1100072	1000467	1100472	CRSP NASDAQ Market Capitalization Decile 6	Stock and Index
1000068	1100072	1000468	1100472	CRSP NASDAQ Market Capitalization Decile 7	Stock and Index
1000069	1100072	1000469	1100472	CRSP NASDAQ Market Capitalization Decile 8	Stock and Index
1000070	1100072	1000470	1100472	CRSP NASDAQ Market Capitalization Decile 9	Stock and Index
1000071	1100072	1000471	1100472	CRSP NASDAQ Market Capitalization Decile 10	Stock and Index
1000080	1100080	1000080	1100080	CRSP NYSE/NYSE American/NASDAQ Value-Weighted Market Index	Stock and Index
1000081	1100080	1000081	1100080	CRSP NYSE/NYSE American/NASDAQ Equal-Weighted Market Index	Stock and Index
1000082	1100092	1000482	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 1	Stock and Index
1000083	1100092	1000483	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 2	Stock and Index
1000084	1100092	1000484	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 3	Stock and Index
1000085	1100092	1000485	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 4	Stock and Index
1000086	1100092	1000486	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 5	Stock and Index
1000087	1100092	1000487	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 6	Stock and Index
1000088	1100092	1000488	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 7	Stock and Index
1000089	1100092	1000489	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 8	Stock and Index
1000090	1100092	1000490	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 9	Stock and Index
1000091	1100092	1000491	1100492	CRSP NYSE/NYSE American/Nasdaq Market Capitalization Decile 10	Stock and Index
1000102	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 1	Stock and Index
1000103	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 2	Stock and Index
1000104	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 3	Stock and Index
1000105	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 4	Stock and Index
1000106	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 5	Stock and Index
1000107	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 6	Stock and Index
1000108	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 7	Stock and Index
1000109	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 8	Stock and Index
1000110	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 9	Stock and Index
1000111	1100112	-	-	CRSP NYSE/NYSE American Beta Decile 10	Stock and Index
1000122	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 1	Stock and Index
1000123	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 2	Stock and Index
1000124	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 3	Stock and Index
1000125	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 4	Stock and Index
1000126	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 5	Stock and Index
1000127	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 6	Stock and Index
1000128	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 7	Stock and Index
1000129	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 8	Stock and Index
1000130	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 9	Stock and Index
1000131	1100132	-	-	CRSP NYSE/NYSE American Standard Deviation Decile 10	Stock and Index
1000142	1100152	-	-	CRSP NASDAQ Beta Decile 1	Stock and Index
1000143	1100152	-	-	CRSP NASDAQ Beta Decile 2	Stock and Index
1000144	1100152	-	-	CRSP NASDAQ Beta Decile 3	Stock and Index
1000145	1100152	-	-	CRSP NASDAQ Beta Decile 4	Stock and Index
1000146	1100152	-	-	CRSP NASDAQ Beta Decile 5	Stock and Index
1000147	1100152	-	-	CRSP NASDAQ Beta Decile 6	Stock and Index

DAILY INDNO	DAILY INDFAM	MONTHLY INDNO	MONTHLY INDFAM	INDEX NAME	PRODUCT
1000148	1100152	-	-	CRSP NASDAQ Beta Decile 7	Stock and Index
1000149	1100152	-	-	CRSP NASDAQ Beta Decile 8	Stock and Index
1000150	1100152	-	-	CRSP NASDAQ Beta Decile 9	Stock and Index
1000151	1100152	-	-	CRSP NASDAQ Beta Decile 10	Stock and Index
1000162	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 1	Stock and Index
1000163	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 2	Stock and Index
1000164	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 3	Stock and Index
1000165	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 4	Stock and Index
1000166	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 5	Stock and Index
1000167	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 6	Stock and Index
1000168	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 7	Stock and Index
1000169	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 8	Stock and Index
1000170	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 9	Stock and Index
1000171	1100172	-	-	CRSP NASDAQ Standard Deviation Decile 10	Stock and Index
1000180	1100180	1000180	1100180	CRSP Arca Value-Weighted Market Index	Stock and Index
1000181	1100180	1000181	1100180	CRSP Arca Equal-Weighted Market Index	Stock and Index
1000200	1100200	1000200	1100200	CRSP NYSE/NYSE American/NASDAQ/Arca Value-Weighted Market Index	Stock only, Stock and Index
1000201	1100200	1000201	1100200	CRSP NYSE/NYSE American/NASDAQ/Arca Equal-Weighted Market Index	Stock only, Stock and Index
-	-	1000300	1100300	CRSP NYSE Cap-Based Portfolio 1	Stock and Index
-	-	1000301	1100300	CRSP NYSE Cap-Based Portfolio 2	Stock and Index
-	-	1000302	1100300	CRSP NYSE Cap-Based Portfolio 3	Stock and Index
-	-	1000303	1100300	CRSP NYSE Cap-Based Portfolio 4	Stock and Index
-	-	1000304	1100300	CRSP NYSE Cap-Based Portfolio 5	Stock and Index
-	-	1000305	1100300	CRSP NYSE Cap-Based Portfolio 6	Stock and Index
-	-	1000306	1100300	CRSP NYSE Cap-Based Portfolio 7	Stock and Index
-	-	1000307	1100300	CRSP NYSE Cap-Based Portfolio 8	Stock and Index
-	-	1000308	1100300	CRSP NYSE Cap-Based Portfolio 9	Stock and Index
-	-	1000309	1100300	CRSP NYSE Cap-Based Portfolio 10	Stock and Index
-	-	1000310	1100310	CRSP NYSE Cap-Based Portfolio 1-2	Stock and Index
-	-	1000311	1100310	CRSP NYSE Cap-Based Portfolio 3-5	Stock and Index
-	-	1000312	1100310	CRSP NYSE Cap-Based Portfolio 6-8	Stock and Index
-	-	1000313	1100310	CRSP NYSE Cap-Based Portfolio 9-10	Stock and Index
-	-	1000314	1100314	CRSP NYSE Cap-Based Portfolio 1-5	Stock and Index
-	-	1000315	1100314	CRSP NYSE Cap-Based Portfolio 6-10	Stock and Index
-	-	1000316	1100316	CRSP NYSE Cap-Based Portfolio Market	Stock and Index
-	-	1000320	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 1	Stock and Index
-	-	1000321	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 2	Stock and Index
-	-	1000322	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 3	Stock and Index
-	-	1000323	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 4	Stock and Index
-	-	1000324	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 5	Stock and Index
-	-	1000325	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 6	Stock and Index
-	-	1000326	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 7	Stock and Index
-	-	1000327	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 8	Stock and Index
-	-	1000328	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 9	Stock and Index
-	-	1000329	1100320	CRSP NYSE/NYSE American Cap-Based Portfolio 10	Stock and Index
-	-	1000330	1100330	CRSP NYSE/NYSE American Cap-Based Portfolio 1-2	Stock and Index

DAILY INDNO	DAILY INDFAM	MONTHLY INDNO	MONTHLY INDFAM	INDEX NAME	PRODUCT
-	-	1000331	1100330	CRSP NYSE/NYSE American Cap-Based Portfolio 3-5	Stock and Index
-	-	1000332	1100330	CRSP NYSE/NYSE American Cap-Based Portfolio 6-8	Stock and Index
-	-	1000333	1100330	CRSP NYSE/NYSE American Cap-Based Portfolio 9-10	Stock and Index
-	-	1000334	1100334	CRSP NYSE/NYSE American Cap-Based Portfolio 1-5	Stock and Index
-	-	1000335	1100334	CRSP NYSE/NYSE American Cap-Based Portfolio 6-10	Stock and Index
-	-	1000336	1100336	CRSP NYSE/NYSE American Cap-Based Portfolio Market	Stock and Index
-	-	1000340	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 1	Stock and Index
-	-	1000341	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 2	Stock and Index
-	-	1000342	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 3	Stock and Index
-	-	1000343	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 4	Stock and Index
-	-	1000344	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 5	Stock and Index
-	-	1000345	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 6	Stock and Index
-	-	1000346	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 7	Stock and Index
-	-	1000347	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 8	Stock and Index
-	-	1000348	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 9	Stock and Index
-	-	1000349	1100340	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 10	Stock and Index
-	-	1000350	1100350	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 1-2	Stock and Index
-	-	1000351	1100350	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 3-5	Stock and Index
-	-	1000352	1100350	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 6-8	Stock and Index
-	-	1000353	1100350	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 9-10	Stock and Index
-	-	1000354	1100354	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 1-5	Stock and Index-Index
-	-	1000355	1100354	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio 6-10	Stock and Index
-	-	1000356	1100356	CRSP NYSE/NYSE American/NASDAQ National Market Cap-Based Portfolio Market	Stock and Index
1000500	1100500	1000500	1100500	CRSP Value-Weighted Index of the S&P 500 Universe	Stock and Index
1000501	1100500	1000501	1100500	CRSP Equal-Weighted Index of the S&P 500 Universe	Stock and Index
1000502	1100502	1000502	1100502	S&P 500 Composite	Stock only, Stock and Index
1000503	1100503	1000503	1100503	NASDAQ Composite	Stock only, Stock and Index
1000510	1100510	1000510	1100510	CRSP Value-Weighted Portfolios of the S&P 500 Universe	Stock and Index
1000511	1100510	1000511	1100510	CRSP Equal-Weighted Portfolios of the S&P 500 Universe	Stock and Index
-	-	1000700	1100700	CRSP 30-Year Bond Returns	Stock and Index
-	-	1000701	1100701	CRSP 20-Year Bond Returns	Stock and Index
-	-	1000702	1100702	CRSP 10-Year Bond Returns	Stock and Index
-	-	1000703	1100703	CRSP 7-Year Bond Returns	Stock and Index
-	-	1000704	1100704	CRSP 5-Year Bond Returns	Stock and Index
-	-	1000705	1100705	CRSP 2-Year Bond Returns	Stock and Index
-	-	1000706	1100706	CRSP 1-Year Bond Returns	Stock and Index
-	-	1000707	1100707	CRSP 90-Day Bill Returns	Stock and Index
-	-	1000708	1100708	CRSP 30-Day Bill Returns	Stock and Index
-	-	1000709	1100800	Consumer Price Index	Stock and Index
1001330	1101330	-	-	CRSP US Total Market Index	Stock and Index
1001451	1101451	-	-	CRSP US Mega Cap Index	Stock and Index
1001452	1101452	-	-	CRSP US Mid Cap Index	Stock and Index
1001453	1101453	-	-	CRSP US Small Cap Index	Stock and Index
1001454	1101454	-	-	CRSP US Micro Cap Index	Stock and Index
1001455	1101455	-	-	CRSP US Large Cap Index	Stock and Index
1001456	1101456	-	-	CRSP US Small/Mid Cap Index	Stock and Index

DAILY INDNO	DAILY INDFAM	MONTHLY INDNO	MONTHLY INDFAM	INDEX NAME	PRODUCT
1001630	1101630	-	-	CRSP US Technology Index	Stock and Index
1001631	1101630	-	-	CRSP US Telecommunications Index	Stock and Index
1001632	1101630	-	-	CRSP US Health Care Index	Stock and Index
1001633	1101630	-	-	CRSP US Financials Index	Stock and Index
1001634	1101630	-	-	CRSP US Real Estate Index	Stock and Index
1001635	1101630	-	-	CRSP US Consumer Discretionary Index	Stock and Index
1001636	1101630	-	-	CRSP US Consumer Staples Index	Stock and Index
1001637	1101630	-	-	CRSP US Industrials Index	Stock and Index
1001638	1101630	-	-	CRSP US Basic Materials Index	Stock and Index
1001639	1101630	-	-	CRSP US Energy Index	Stock and Index
1001640	1101630	-	-	CRSP US Utilities Index	Stock and Index
1001642	1101640	-	-	CRSP US Small Cap ex-Real Estate Index	Stock and Index
1001706	1101706	-	-	CRSP US Large ESG Prime Index	Stock and Index
1001707	1101706	-	-	CRSP US Large ESG Non-Prime Index	Stock and Index
1001726	1101726	-	-	CRSP US Large ESG Index	Stock and Index
1001727	1101726	-	-	CRSP US Large ESG Remainder Index	Stock and Index
1001746	1101746	-	-	CRSP US Large ESG Industry Balanced Index	Stock and Index
1001747	1101746	-	-	CRSP US Large ESG Industry Balanced Remainder Index	Stock and Index
1001820	1101820	-	-	CRSP US Mega Cap Value Index	Stock and Index
1001821	1101820	-	-	CRSP US Mega Cap Growth Index	Stock and Index
1001822	1101822	-	-	CRSP US Mid Cap Value Index	Stock and Index
1001823	1101822	-	-	CRSP US Mid Cap Growth Index	Stock and Index
1001824	1101824	-	-	CRSP US Small Cap Value Index	Stock and Index
1001825	1101824	-	-	CRSP US Small Cap Growth Index	Stock and Index
1001826	1101826	-	-	CRSP US Large Cap Value Index	Stock and Index
1001827	1101826	-	-	CRSP US Large Cap Growth Index	Stock and Index
1001828	1101828	-	-	CRSP US Small/Mid Cap Value Index	Stock and Index
1001829	1101828	-	-	CRSP US Small/Mid Cap Growth Index	Stock and Index
-	-	1080300	1180300	CRSP NYSE Cap-Based Portfolio 1 Breakpoints	Stock and Index
-	-	1080301	1180300	CRSP NYSE Cap-Based Portfolio 2 Breakpoints	Stock and Index
-	-	1080302	1180300	CRSP NYSE Cap-Based Portfolio 3 Breakpoints	Stock and Index
-	-	1080303	1180300	CRSP NYSE Cap-Based Portfolio 4 Breakpoints	Stock and Index
-	-	1080304	1180300	CRSP NYSE Cap-Based Portfolio 5 Breakpoints	Stock and Index
-	-	1080305	1180300	CRSP NYSE Cap-Based Portfolio 6 Breakpoints	Stock and Index
-	-	1080306	1180300	CRSP NYSE Cap-Based Portfolio 7 Breakpoints	Stock and Index
-	-	1080307	1180300	CRSP NYSE Cap-Based Portfolio 8 Breakpoints	Stock and Index
-	-	1080308	1180300	CRSP NYSE Cap-Based Portfolio 9 Breakpoints	Stock and Index
-	-	1080309	1180300	CRSP NYSE Cap-Based Portfolio 10 Breakpoints	Stock and Index
-	-	1080310	1180310	CRSP NYSE Cap-Based Portfolio 1-2 Breakpoints	Stock and Index
-	-	1080311	1180310	CRSP NYSE Cap-Based Portfolio 3-5 Breakpoints	Stock and Index
-	-	1080312	1180310	CRSP NYSE Cap-Based Portfolio 6-8 Breakpoints	Stock and Index
-	-	1080313	1180310	CRSP NYSE Cap-Based Portfolio 9-10 Breakpoints	Stock and Index
-	-	1080314	1180314	CRSP NYSE Cap-Based Portfolio 1-5 Breakpoints	Stock and Index
-	-	1080315	1180314	CRSP NYSE Cap-Based Portfolio 6-10 Breakpoints	Stock and Index
-	-	1080316	1180316	CRSP NYSE Cap-Based Portfolio Market Combination 1-10 Breakpoints	Stock and Index

B. CRSP INDEX FAMILIES

The following table lists all CRSP Index Families by INDNO.

INDEX FAMILY	DAILY INDFAM	MONTHLY INDFAM	REBALANCING CALENDAR	STAT TYPE DAILY	STAT TYPE MONTHLY
CRSP NYSE Market Index	1100000	1100000	N/A	N/A	N/A
NYSE Market Capitalization Deciles (1 smallest to 10 largest)	1100012	1100412	Annual	Security Cap (SC)	Security Cap Monthly (SCM)
CRSP NYSE American Market Index	1100020	1100020	N/A	N/A	N/A
NYSE American Market Capitalization Deciles (1 smallest to 10 largest)	1100032	1100432	Annual	Security Cap (SC)	Security Cap Monthly (SCM)
CRSP NYSE/NYSE American Market Index	1100040	1100040	N/A	N/A	N/A
NYSE/NYSE American Market Capitalization Deciles (1 smallest to 10 largest)	1100052	1100452	Annual	Security Cap (SC)	Security Cap Monthly (SCM)
CRSP NYSE/NYSE American Trade-Only Market Index	1100053	-	N/A	N/A	N/A
CRSP Nasdaq Market Index	1100060	1100060	N/A	N/A	N/A
Nasdaq Market Capitalization Deciles (1 smallest to 10 largest)	1100072	1100472	Annual	Security Cap (SC)	Security Cap Monthly (SCM)
CRSP NYSE/NYSE American/Nasdaq Market Index	1100080	1100080	N/A	N/A	N/A
NYSE/NYSE American/Nasdaq Market Capitalization Deciles (1 smallest to 10 largest)	1100092	1100492	Annual	Security Cap (SC)	Security Cap Monthly (SCM)
NYSE/NYSE American Beta Deciles (1 most positive betas to 10 most negative)	1100112	-	Annual	Trade Only Beta (TOB)	N/A
NYSE/NYSE American Standard Deviation Deciles(1 highest sdev to 10 lowest)	1100132	-	Annual	Standard Deviation (SD)	N/A
Nasdaq Beta Deciles (1 most positive betas to 10 most negative)	1100152	-	Annual	Beta (B)	N/A
Nasdaq Standard Deviation Deciles (1 highest sdev to 10 lowest)	1100172	-	Annual	Standard Deviation (SD)	N/A
CRSP Arca Market Index	1100180	1100180	N/A	N/A	N/A
CRSP NYSE/NYSE American/Nasdaq/Arca Market Index	1100200	1100200	N/A	N/A	N/A
Cap-Based NYSE Portfolios (1 largest caps to 10 smallest)	-	1100300	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE Portfolios (1-2 largest caps, 3-5, 6-8, 9-10 smallest)	-	1100310	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE Portfolios (1-5 largest caps and 6-10 smallest)	-	1100314	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE Portfolios (Entire Market Combination)	-	1100316	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American Portfolios (1 largest caps to 10 smallest)	-	1100320	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American Portfolios (1-2 largest caps, 3-5, 6-8, 9-10 smallest)	-	1100330	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American Portfolios (1-5 largest caps and 6-10 smallest)	-	1100334	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American Portfolios (Entire Market Combination)	-	1100336	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American/NASDAQ-Global Portfolios (1 largest caps to 10 smallest)	-	1100340	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American/NASDAQ-Global Portfolios (1-2 largest caps, 3-5, 6-8, 9-10 smallest)	-	1100350	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American/NASDAQ-Global Portfolios (1-5 largest caps and 6-10 smallest)	-	1100354	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE/NYSE American/NASDAQ-Global Portfolios (Entire Market Combination)	-	1100356	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
CRSP Index of the S&P 500 Universe	1100500	1100500	N/A	N/A	N/A
S&P 500 Universe	1100502	1100502	N/A	N/A	N/A
Nasdaq Composite	1100503	1100503	N/A	N/A	N/A
CRSP Portfolio of the S&P 500 Universe - new	1100510	1100510	N/A	N/A	N/A
CRSP 30-Year Bond Returns	-	1100700	N/A	N/A	N/A
CRSP 20-Year Bond Returns	-	1100701	N/A	N/A	N/A
CRSP 10-Year Bond Returns	-	1100702	N/A	N/A	N/A
CRSP 7-Year Bond Returns	-	1100703	N/A	N/A	N/A
CRSP 5-Year Bond Returns	-	1100704	N/A	N/A	N/A
CRSP 2-Year Bond Returns	-	1100705	N/A	N/A	N/A

INDEX FAMILY	DAILY INDFAM	MONTHLY INDFAM	REBALANCING CALENDAR	STAT TYPE DAILY	STAT TYPE MONTHLY
CRSP 1-Year Bond Returns	-	1100706	N/A	N/A	N/A
CRSP 90-Day Bill Returns	-	1100707	N/A	N/A	N/A
CRSP 30-Day Bill Returns	-	1100708	N/A	N/A	N/A
Consumer Price Index	-	1100800	N/A	N/A	N/A
CRSP US Total Market Index	1101330	-	N/A	N/A	N/A
CRSP US Mega Cap Index	1101451	-	N/A	N/A	N/A
CRSP US Mid Cap Index	1101452	-	N/A	N/A	N/A
CRSP US Small Cap Index	1101453	-	N/A	N/A	N/A
CRSP US Micro Cap Index	1101454	-	N/A	N/A	N/A
CRSP US Market Large Cap (mega/mid combo) Index	1101455	-	N/A	N/A	N/A
CRSP US Market Small/Mid Cap Index	1101456	-	N/A	N/A	N/A
CRSP US Sector Index	1101630	-	N/A	N/A	N/A
CRSP US Small Cap Sector ex-Real Estate Index	1101640	-	N/A	N/A	N/A
CRSP ESG US Large (Prime/Non-Prime) Index	1101706	-	N/A	N/A	N/A
CRSP ESG US Large (top half/remainder) Index	1101726	-	N/A	N/A	N/A
CRSP ESG US Large Industry Balanced (top half by sector/remainder) Index	1101746	-	N/A	N/A	N/A
CRSP US Mega Cap Value Growth Index	1101820	-	N/A	N/A	N/A
CRSP US Mid Cap Value Growth Index	1101822	-	N/A	N/A	N/A
CRSP US Small Cap Value Growth Index	1101824	-	N/A	N/A	N/A
CRSP US Large Cap Value Growth Index	1101826	-	N/A	N/A	N/A
CRSP US Small/Mid Cap Value Growth Index	1101828	-	N/A	N/A	N/A
Cap-Based NYSE Portfolios Breakpoints (1 largest caps to 10 smallest)	-	1180300	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE Portfolios Breakpoints (1-2 largest caps, 3-5, 6-8, 9-10 smallest)	-	1180310	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE Portfolios Breakpoints (1-5 largest caps and 6-10 smallest)	-	1180314	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)
Cap-Based NYSE Portfolios Breakpoints (Entire Market Combination)	-	1180316	Quarterly	N/A	Issuer Cap - NYSE Breakpointing (IC2)