



# CRSP US Treasury Database Guide

for SAS, ASCII, Excel & R

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## Chapter 1: Introduction

### Overview

The CRSP US Treasury and Inflation Series is comprised of 1.7 million end-of-day price observations for roughly 7000 US Treasury bills, notes, and bonds, as well as supplemental files including fixed-term indexes, maturity portfolios, discount bonds, term structure and CPI files. The database begins in 1925 for month-end data, and in 1961 for daily data.

The database is updated monthly and is provided as a CRSPAccess database for use with the CRSPSift interface for Windows, and as flat files that are supported on Excel, SAS, ASCII, and R formats.

In 2010, CRSP began a modernization of the CRSP US Treasuries Data files. The daily and monthly files were synchronized to ensure consistency between the files and precision was increased. CRSP began the process of creating daily versions of the monthly supplemental files with the release of a daily Risk-Free Series.

In 2014, CRSP ceased production of a set of legacy files. This guide addresses the Treasuries CRSPAccess database, TRZ, and all versions of the flat files.

### Sources

Prior to January 1962, treasury data were obtained from a number of different sources. These sources include the Wall Street Journal, Salomon Brothers, Inc., and the Bank and Quotation Record.

Beginning with January of 1962, the majority of prices came from the Composite Closing Quotations for US Government Securities compiled by the Federal Reserve Bank of New York (FRBNY). In 1984, the quotation sheets were renamed the "Composite 3:30 P.M. Quotations for US Government Securities". The time at which the quotes were compiled was related to the fedwire deadline the FRBNY set for the transfer of securities. The deadline was set for 2:30 p.m. Eastern Time, but was regularly extended as much as three-quarters of an hour. The FRBNY trading desk began a "closing run" at 3:00 p.m. The reference to "closing quotations" from 1962 to 1984 probably refers to the "closing run" at the FRBNY. With the close of the day on October 15, 1996 the FRBNY discontinued publication of composite quotations.

At the start of the day, October 16, 1996, our source for daily and monthly price quotations, maturity dates, and coupon rates changed to GovPX, Inc. GovPX receives its data from five inter-dealer bond brokers. Live, intra-day bids, offers and transactions in the active over-the-counter markets among these primary dealers are the source of GovPX's 5 P.M. End-of-day US Treasury prices.

GovPX was acquired by ICAP in 2008. Beginning in February 2009, CRSP released its daily and monthly treasury databases using the ICAP data.

At the start of the day, September 3rd 2024, our source for daily and monthly price quotations, maturity dates, and coupon rates changed to a 4pm ET snapshot of ICE Data Services' Continuous Evaluated Pricing (CEPTM). Their evaluated prices are market-based measurements that are processed through a rules-based pricing system. ICE evaluated prices for U.S. government fixed income securities are overseen by a team of evaluators who monitor applicable markets in order to provide evaluations throughout the trading day.

## Bid and Ask Quotes

The FRBNY described its listed bid price as “...the most widely quoted price from the range of quotations received”. The ask price was determined by the FRBNY based on what they expect a typical bid-ask spread to be. The rule used to make this derivation was not public domain.

GovPX described its listed bid and ask prices as the “best price”. To determine their “best price” they observe the prices from the five inter-dealer brokers and report the bid and ask prices that produce the smallest bid-ask spread.

A further distinction must be made after the acquisition of the GovPX data by ICAP. The two data sources handle bid and ask quotes differently. ICAP provides the actual bid and ask quotes, thus calculated spreads will fluctuate daily. GovPX imputed quotes from their available data. When looking at a time series of spreads, using GovPX data prior to February 2009, for the most part, they are constant. Beginning in February 2009 with the actual quotes from ICAP operations reported in their 5P.M. file, fluctuation in the spreads may be observed. In both cases the midpoints of the real and imputed spreads are very close.

ICE Data Services uses T+1 settlement for U.S. Treasury notes, bonds, TIPS, STRIPS, and U.S. Treasury bills. This is different from the T+ 0 settlement used by GovPX. The most notable difference in the data will be seen where U.S. Treasury bills reach a value of 100 on the day before maturity.

## Debt Outstanding

The total amount outstanding (TMTOTOUT, TDTOTOUT) is obtained from the *Monthly Statement of the Public Debt of the United States* published by the Treasury Department. The amount publicly held (TMPUBOUT, TDPUBOUT) is obtained from the quarterly US Treasury Bulletin up through 20110930. Beginning 20111230, data for the amount publicly held is obtained from Federal Reserve Bank of New York System Open Market Account Holdings (SOMA). The following non-derived data: issue date, coupon payable dates, bank eligibility, tax status and call status are obtained from the US Treasury Department.

## CUSIP

Prior to 1990, CUSIP was obtained from Standard & Poor's CUSIP Directory. From January, 1990 through October 15, 1996, the CUSIP was obtained from the Composite 3:30 P.M. quotations for US Government Securities. GovPX, as of October 16, 1996, provided the CUSIP number. Since February 2009, ICAP provides CUSIP. When in question, the CUSIP is verified by *Standard & Poor's CUSIP Directory*.

## Accuracy

All data are checked for internal consistency with each release of the file. Secondary sources, such as the *Wall Street Journal*, are used to check suspect prices.

Considerable resources are expended in checking and improving the quality of the data. Errors are not common. Some of the errors found in checking the data are the results of inaccuracies in the initial data source. The inaccuracies are corrected as soon as possible. Other errors are CRSP coding errors; over time these coding errors are found and corrected. Historical corrections account for the differences in the data from update to update.

The CRSP data are calculated based on cash transactions on the quotation date. Our data sources prior to GovPX assumed cash transactions on delivery date, typically two business days after the quotation date. GovPX and ICAP assume cash transactions on delivery date, typically one business day after the quotation date. CRSP takes these assumptions into account when verifying the internal consistency of the files.

For callable bonds which have been called, or are likely to be called, the original maturity date is no longer valid for computing duration and yield. In these cases the anticipated call date is used as the working maturity date. This note applies to yield ( $t_{dyld}/t_{myld}$ ), annualized yield ( $t_{dytm}/t_{mytm}$ ), and duration ( $t_{dduratn}/t_{mduratn}$ ).

| <b>Status</b>                    | <b>Yield and Duration Computed to</b> |
|----------------------------------|---------------------------------------|
| Called                           | Next call date                        |
| Callable and priced at a premium | Next call date                        |
| Callable and priced at a premium | Maturity Date                         |
| Not callable                     | Maturity Date                         |

Users should be cautious in interpreting yields based on issues close to maturity. Quotes on these instruments are not always reliable due to infrequent trading.

An ITYPE code of 9 is used to signal instruments having unusual provisions. A list of these instruments and their relevant provisions may be found in Appendix A.

## Chapter 2: Database Structure

Windows subscribers receive a CRSPAccess database (trzyyyymm\_\* folder when extracted) for use with CRSPSift. The data are organized in categories and groups for easy access. The CRSPSift User Guide provides full information for access through Sift. Treasuries Files (trzyyyymm\_\* folder when extracted) are also available in SAS, Excel, ASCII and R formats.

### CRSP Treasuries Files

- In the following tables, items preceded with (KY) are done so for use with SAS and Excel
- A full list of TREASNOXs and their mappings can be found in the [CRSPSift TREASNOX Files Table](#).

Files for all formats share common names with the following File Extensions:

- SAS: \*.sas7bdat
- ASCII: \*.dat
- Excel: \*.xlsx
- R: \*.rds

Note: Sort column references items in each table that, combined in the prescribed order, will identify unique records. These fields are usually a combination of primary keys, dates, and other key-type fields.

### Data Category

Each data item in each table is associated with a Data Category. The Data Category identifies the type of item and the associated formats for use with SAS, ASCII, R, and SQL.

| Data Category | Description                                      | SAS Type  | SAS Format  | ASCII                  | SQL Type         | R type   |
|---------------|--|-----------|-------------|------------------------|------------------|----------|
| Flag          | One-character field - often just 'Y' and 'N'     | Character | \$1         |                        | Char(1)          | Text     |
| Description   | Wide character field containing text information | Character | \$w.        |                        | varchar(w)       | Text     |
| Id            | Field containing an alphanumeric identifier      | Character | \$w.        |                        | varchar(w)       | Text     |
| Mnemonic      | Alphanumeric field containing a code value       | Character | \$w.        |                        | varchar(w)       | Text     |
| Name          | Alphanumeric field for names                     | Character | \$w.        |                        | varchar(w)       | Text     |
| Date          | Date field                                       | Numeric   | yyyymmdd10. | YYYY-MM-DD             | Date             | date     |
| Start Date    | Start of a date range - paired with an end date  | Numeric   | yyyymmdd10. | YYYY-MM-DD             | Date             | date     |
| End Date      | End of a date range - paired with a start date   | Numeric   | yyyymmdd10. | YYYY-MM-DD             | Date             | date     |
| Timestamp     | Date and time, including seconds                 | Numeric   | Datetime    | YYYY-MM-DD<br>HH:MM:SS | Date             | datetime |
| Amount        | Fixed point number                               | Numeric   | w.n         | ww.nnnnn               | Decimal<br>(p,n) | float    |
| Ratio         | Calculated floating point number                 | Numeric   | percentw.n  | 1.234567890123E+12     | float            | float    |

| Data Category | Description   | SAS Type | SAS Format | ASCII              | SQL Type           | R type |
|---------------|---|----------|------------|--------------------|--------------------|--------|
| Value         | Field with a wide range of values                         | Numeric  | e20.       | 1.234567890123E+12 | float (or decimal) | float  |
| Code          | Integer field that represents one or more characteristics | Numeric  | w.         | nnnn               | Int                | int    |
| Key           | Integer field that is used as a key                       | Numeric  | w.         | nnnnnnn            | Int                | int    |
| Number        | Integer value < 2,000,000,000                             | Numeric  | w.         | nnnnnnnnnn         | Int                | int    |
| Quantity      | Integer field with some values in excess of 2,000,000,000 | Numeric  | commaw.    | nnnnnnnnnnnn       | bigint             | float  |

Missing values are displayed as follows:

- ASCII and Excel missing values, regardless of type, are an empty string
- SAS missing values are an empty string for character fields and SAS missing (displayed as a.) for numeric fields
- R missing values are an empty string for character fields, and 'R' missing (displayed as N/A) for float, int, date and datetime.

### TFZ\_ISS.\* - Issue Descriptions

Treasury issue data file. Contains identifying and description information for individual treasury issues that are contained in both the daily and monthly issues files.

| Sort | Column Name | Description                | Definition  | Data Category |
|------|-------------|----------------------------|---|---------------|
| 1    | (KY)TREASNO | Treasury Record Identifier | TREASNO is CRSP's unique treasury issue identifier. TREASNO is the primary key used in the CRSPAccess database version of the Treasury product, replacing CRSPID that was used in the legacy files.   | Key           |
|      | (KY)CRSPID  | CRSP-Assigned Unique ID    | CRSP-assigned unique identifier and key, see CRSPID below   | ID            |
|      | CRSPID      | CRSP-Assigned Unique ID    | CRSPID is the CRSP Issue Identification Number. It is in format YYYYMMDD.TCCCCCE where:<br>YYYYMMDD = Maturity Year, Month, and Day (tmatdt)<br>T = Type of Issue (itype)<br>CCCC = Integer part of Coupon Rate (tcouprt) * 100<br>E = Uniqueness Number (iuniq)<br>For example, 19850515.504250 identifies a 4¼% callable bond which matured on May 15, 1985.<br>CRSPID is a composite variable stored as a character string and maintained for user convenience and backward compatibility. CRSP recommends using the underlying variables (tmatdt, itype, tcouprt, and iuniq) rather than extracting the component parts directly from the CRSPID. | ID            |
|      | TCUSIP      | Treasury CUSIP             | The Committee on Uniform Security Identification Procedures began assigning CUSIP identification numbers in 1968. Issues that matured prior to 1968 are assigned the value OXX. The earliest maturity on the file with a CUSIP is February 15, 1969.  | ID            |

| Sort | Column Name | Description                                 | Definition  | Data Category |
|------|-------------|---|---|---------------|
|      | TDATDT      | Date Dated by Treasury                      | Coupon issues accrue interest beginning on the dated date. This may result in a modified first coupon payment if the dated date is not a regular interest payment date. <code>Tdatdt</code> is set to missing if not available or applicable.   | Date          |
|      | TMATDT      | Maturity Date at Time of Issue              | The maturity date at the time of issue for all securities except for the consol bond, which is set to 20990401  | Date          |
|      | IWHY        | Reason for End of Data                      | 0 = Still quoted on last update of file.<br>1 = Matured<br>2 = Called for redemption<br>3 = All exchanged<br>4 = Sources no longer quote issue  | Code          |
|      | TPCOUPRT    | Coupon Rate                                 | Annual rate of interest stated on the face of a note, bond, or other fixed income issue expressed as a percent.   | Amount        |
|      | TNIPPY      | Number of Interest Payments Per Year        | 0 = Treasury bill or certificate paying interest only at maturity<br>2 = Semi-annual interest<br>4 = Quarterly interest<br><br>All interest-bearing negotiable Treasury securities issued since the beginning of WWI have paid interest semi-annually. The last outstanding issue that paid interest quarterly was the Panama Canal Loan 3%'s due June 1, 1961. | Number        |
|      | TVALFC      | Amount of First Coupon per \$100 Face Value | Amount paid on the First-Coupon Date ( <code>tfcpdt</code> )  | Value         |
|      | TFCPDT      | First Coupon Payment Date                   | The first coupon payment date. Its flag, <code>ifcpdtf</code> , indicates where the date is estimated or has been verified. <code>tfcpdt</code> is set to missing for non-coupon issues.  | Date          |
|      | IFCPDTF     | First Coupon Payment Date Flag              | Valid values are:<br>-1 = Estimated Date<br>0 = Not Applicable<br>1 = Verified from the Treasury Offering Circular  | Code          |
|      | TFCALDT     | First Eligible Call Date                    | First eligible call date at time of issue.<br>All interest payment dates beginning with the <code>tfcaldt</code> are possible call dates. <code>tfcapdt</code> is set to missing if the issue is not callable.  | Date          |
|      | TNOTICE     | Notice Required on Callable Issues          | 0 = No notice required or not callable<br>3 = 3 months notice<br>4 = 4 months notice<br>6 = 6 months notice   | Number        |
|      | IYMCN       | Year and Month of First Call Notice         | <code>iymcn</code> is the month and year of the first call notice, stored as a YYYYMM number. <code>iymcn</code> is set to missing if the issue is not callable or has not been called.   | Number        |
|      | ITYPE       | Type of Issue                               | 1 = Noncallable bond<br>2 = Noncallable note  | Code          |

| Sort | Column Name | Description                            | Definition   | Data Category |
|------|-------------|--|--|---------------|
|      |             |  | 3 = Certificate of indebtedness<br>4 = Treasury Bill<br>5 = Callable bond<br>6 = Callable note<br>7 = Tax Anticipation Certificate of Indebtedness<br>8 = Tax Anticipation Bill<br>9 = Other, flags issues with unusual provisions<br>10 = Reserved for future use<br>11 = Inflation-Adjusted Bonds<br>12 = Inflation-Adjusted Notes   |               |
|      | IUNIQ       | Uniqueness Number                      | Uniqueness number assigned to CRSPID if maturity date, coupon rate and type are not sufficient to distinguish between two securities; zero otherwise.  | Code          |
|      | ITAX        | Taxability of Interest                 | 1 = Fully taxable for federal income tax purposes. 2 = Partially tax exempt, i.e. interest of first \$3000 of bonds of this class, at par value, exempt from tax subject to surtax but not to normal tax.<br>3 = Wholly tax exempt.  | Code          |
|      | IFLWR       | Payment of Estate Tax Code             | 1 = No special status.<br>2 = Acceptable at par and accrued interest if owned by decedent at time of death: a flower bond.<br>3 = Acceptable at par and accrued interest if owned by decedent during entire 6 month period preceding death: a flower bond.   | Code          |
|      | TBANKDT     | Bank Eligibility Date at Time of Issue | Bank eligibility date at the time of issue. Contractual earliest date security was to become bank eligible. A security is bank eligible if a bank may own it. Some 2½%'s and 2¼%'s issued during and immediately after WWII had limited negotiability because of prohibitions and restrictions on bank ownership. Tbankdt set to missing if no restrictions apply.<br><br>All remaining restrictions were removed on January 1, 1955. The last bank eligible CRSPID in the file is dated November 15, 1945 and matured on December 15, 1972. | Date          |
|      | TSTRIPELIG  | Future Use - Strip Eligible Flag       | Denotes if the issue is eligible to be broken into component cash flows, that can be traded separately. This item is reserved for future use.  | Flag          |
|      | TFRGNTGT    | Future Use - Foreign Targeted Flag     | Reserved for future use.   | Flag          |

### TFZ\_MAST.\* - Master Record

Reference for daily and monthly issues, contains first and last dates of daily and monthly series.

| Sort | Column Name                  | Description   | Definition   | Data Category |
|------|------------------------------|---|--|---------------|
| 1    | (KY)TREASNO<br>(KY) TREASNOX | Treasury Record Identifier (both issue & supplemental series) | TREASNO is CRSP's unique treasury issue identifier. TREASNO is the primary key used in the CRSPAccess database version of the Treasury product, replacing CRSPID that was used in the legacy files. Applies to | Key           |

| Sort | Column Name | Description   | Definition  | Data Category |
|------|-------------|---|---|---------------|
|      |             |   | Issues (TREASNO) and Supplemental Series Data (TREASNOX).                           |               |
|      | TREASNOTYPE | Treasury Record Type (1=Issue, 2=supplemental series) | TREASNOTYPE is the code used to identify a record as a TREASNO (1) or TREASNOX (2). | Code          |
|      | TMFSTDAT    | Date of First Monthly Data                            | Date of issue's first monthly data on file  | Start Date    |
|      | TMLSTDAT    | Date of Last Monthly Data                             | Date of issue's last monthly data on file   | End Date      |
|      | TDFSTDAT    | Date of First Daily Data                              | Date of issue's first daily data on file  | Start Date    |
|      | TDLSTDAT    | Date of Last Daily Data                               | Date of issue's last daily data on file   | End Date      |
|      | TNAME       | Name of Government Security                           | Name of Government Security Type. This variable is blank for all TREASNOXs.         | Name          |
|      | TREASSYM    | Future Use - Treasury Trading Symbol                  | Reserved for future use.  | ID            |

### TFZ\_DLY.\* - Daily Time Series Items

Daily time series data for individual treasury issues - Not available in Excel format

| Sort                       | Column Name  | Description                | Definition  | Data Category              |       |       |      |                        |     |     |   |                        |     |     |   |      |
|----------------------------|--------------|----------------------------|---|----------------------------|-------|-------|------|------------------------|-----|-----|---|------------------------|-----|-----|---|------|
| 1                          | (KY)TREASNO  | Treasury Record Identifier | TREASNO is CRSP's unique treasury issue identifier. TREASNO is the primary key used in the CRSPAccess database version of the Treasury product, replacing CRSPID that was used in the legacy files.   | Key                        |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | (KY)CRSPID   | CRSP-Assigned Unique ID    | CRSPID is the CRSP Issue Identification Number. It is in format YYYYMMDD.TCCCCE where:<br>YYYYMMDD = Maturity Year, Month, and Day (tmatdt)<br>T = Type of Issue (itype)<br>CCCC = Integer part of Coupon Rate (tcouprt) * 100<br>E = Uniqueness Number (iuniq)<br>For example, 19850515.504250 identifies a 4¼% callable bond which matures on May 15, 1985. | ID                         |       |       |      |                        |     |     |   |                        |     |     |   |      |
| 2                          | CALDT        | Quotation Date             | Date associated with the quotation  | Date                       |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDBID        | Daily Bid                  | Daily series of bids. tdbid is set to zero for missing.   | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDASK        | Daily Ask                  | Daily series of asks. tdask is set to zero for missing.   | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDNOMPRC     | Daily Nominal Price        | Value used in CRSP calculations. For daily, this is either the bid and ask average or it is set to zero when unavailable.   | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDNOMPRC_FLG | Daily Nominal Price Flag   | <table border="1"> <thead> <tr> <th>Information in Data Source</th> <th>tdbid</th> <th>tdask</th> <th>flag</th> </tr> </thead> <tbody> <tr> <td>Average of Bid and Ask</td> <td>Bid</td> <td>Ask</td> <td>M</td> </tr> <tr> <td>Unavailable or missing</td> <td>0.0</td> <td>0.0</td> <td>X</td> </tr> </tbody> </table>                                      | Information in Data Source | tdbid | tdask | flag | Average of Bid and Ask | Bid | Ask | M | Unavailable or missing | 0.0 | 0.0 | X | Flag |
| Information in Data Source | tdbid        | tdask                      | flag  |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
| Average of Bid and Ask     | Bid          | Ask                        | M   |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
| Unavailable or missing     | 0.0          | 0.0                        | X   |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDSOURCR     | Daily Price Data Source    | Primary Data Source   | Flag                       |       |       |      |                        |     |     |   |                        |     |     |   |      |

| Sort | Column Name | Description                            | Definition  | Data Category |
|------|-------------|--|---|---------------|
|      |             |  | C = ICE 4pm<br>I = ICAP 5PM<br>J = ICAP 3pm<br>P = Interactive Data<br>R = Federal Reserve Bank of New York<br>S = Salomon Brothers<br>W = Wall Street Journal - present (Associated Press: 6/14/618/20/87, Bloomberg: 8/28/87-7/2/90, Bear- Stearns: 12/4/902008)<br>M = No quote was available<br>X = GovPX, Inc.   |               |
|      | TDACCINT    | Daily Series of Total Accrued Interest | Calculated on the basis of the number of days between interest payment dates for a \$100 bond or note and the number of days from the last payment date (or from the dated date for the first coupon) to the quotation date.  | Value         |
|      | TDRETNUA    | Daily Unadjusted Return                | <p>tdretnua is the price change plus accrued interest and paid interest, divided by the previous day's price plus accrued interest.</p> $TDRETNUA(I) = \frac{TDNOMPRC(I) + TDPDINT(I) + TDACCINT(I)}{TDNOMPRC(I-1) + TDACCINT(I-1)} - 1.0$ <p>tdretnua is set to -99 when the price is missing for either this day or the previous day.</p> <p>For bills, tdpdint and tdaccint are always zero and the equation simplifies to:</p> $TDRETNUA(I) = \frac{TDNOMPRC(I)}{TDNOMPRC(I-1)} - 1.0$  | Ratio         |
|      | TDYLD       | Daily Series of Promised Daily Yield   | <p>Promised yield daily rate, also called daily yield to maturity. On any given date, the promised yield of a security is the single interest or discount rate that makes the sum of the present values of the principal at maturity plus future interest payments equal to the full price of the security. The full price is the nominal price plus the accrued interest. If a price is missing, the tdyld is set to -99.</p>  | Ratio         |
|      | TDDURATN    | Daily Series of Macaulay's Duration    | <p>Duration is the daily series of the weighted average number of days until the cash flows occur, where the present values, discounted by yield to maturity, of each payment are used as the weights<sup>1</sup>.</p> <p>For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.</p> <p><sup>1</sup>Some Theoretical Problems of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856. Frederick R. Macaulay, National Bureau of Economic Research, 1938, 44-53. Missing values are coded as -1,</p> | Value         |

| Sort | Column Name    | Description                               | Definition   | Data Category |
|------|----------------|---|--|---------------|
|      |                |   | except for securities with ITYPE 12 or 13 which have missing values coded as -99.  |               |
|      | TDPUBOUT       | Daily Series of Publicly Held Outstanding | Daily Series of the amount (face value) held by the public in millions of dollars. This series is derived from the monthly series <code>tmpubout</code> . See <code>tmpubout</code> for more information. <code>tdpubout</code> is set to missing when unavailable.  | Number        |
|      | TDTOTOUT       | Daily Series of Total Amount Outstanding  | Daily Series of the total amount (face value) issued and still outstanding, expressed in millions of dollars. This series is derived from the monthly series <code>tmtotout</code> . <code>tdtotout</code> is set to missing when unavailable.   | Number        |
|      | TDPDINT        | Daily Series of Paid Interest             | Daily Series of Coupon interest paid since the previous trading day. This field is always zero for non-coupon issues, and is almost always zero for coupon issues.   | Value         |
|      | TDIDXRATIO     | Daily Tips Index Ratio                    | The Daily Index Ratio for a Treasury Inflation Protected Security (TIPS) is calculated as the Reference CPI ( <code>tdcpiref</code> ) of a particular date ( <code>caldt</code> ) divided by the Reference CPI ( <code>tdcpiref</code> ) of the original issue date ( <code>tdate</code> ). It is set to missing for non-TIPS. | Ratio         |
|      | TDIDXRATIO_FLG | Daily Tips Index Ratio Flag               | The Daily Index Ratio Flag is uniformly 'C'(calculated) for all TIPS and missing for all non-TIPS.   | Flag          |

### TFZ\_MTH.\* - Monthly Time Series Items

Monthly time series data for individual treasury issues

| Sort | Column Name  | Description                      | Definition  | Data Category |
|------|--------------|----------------------------------|---|---------------|
| 1    | (KY)TREASNO  | Treasury Record Identifier       | TREASNO is CRSP's unique treasury issue identifier. TREASNO is the primary key used in the CRSPAccess database version of the Treasury product, replacing CRSPID that was used in the legacy files. | Key           |
|      | (KY)CRSPID   | CRSP-Assigned Unique ID          |   | ID            |
| 2    | MCALDT       | Last Quotation Date in the Month | Month-end date associated with the quotation.   | Date          |
|      | TMBID        | Monthly Bid                      | Monthly Series of bids on the last quotation day of the month. <code>tmbid</code> is set to zero for missing.   | Value         |
|      | TMASK        | Monthly Ask                      | Monthly Series of asks on the last quotation day of the month. <code>tmask</code> is set to zero for missing.   | Value         |
|      | TMNOMPRC     | Monthly Nominal Price            | Value used in CRSP calculations, most often the bid and ask average. Prior to 1960, bids and sales were used, see table below.  | Value         |
|      | TMNOMPRC_FLG | Monthly Nominal Price Flag       | Information in Data Source  | Flag          |
|      |              |                                  | Bid and ask      Bid      Ask      (Bid+ask)/2      M   |               |
|      |              |                                  | Bid Only      Bid      -Bid      Bid      B   |               |

| Sort | Column Name | Description                              | Definition   | Data Category |
|------|-------------|--|--|---------------|
|      |             |  | Sale Only      Sale    0      Sale      T  |               |
|      |             |  | Unavailable/<br>missing      0      0      0      X  |               |
|      |             |  | Fama Bliss Series    N/A      N/A      Discount      D   |               |
|      | TMSOURCR    | Monthly Price Data Source                | C = ICE 4pm<br>I = ICAP 5PM<br>J = ICAP 3pm<br>M = Morgan Guaranty<br>P = Interactive Data<br>R = Federal Reserve Bank of New York<br>S = Salomon Brothers<br>W = Wall Street Journal<br>X = GovPX, Inc.   | Flag          |
|      | TMACCINT    | Monthly Series of Total Accrued Interest | Calculated on the basis of the number of days between interest payment dates for a \$100 bond or note and the number of days from the last payment date (or from the dated date for the first coupon) to the quotation date.   | Value         |
|      | TMRETNUA    | Monthly Unadjusted Return                | <p>tmretnua is the price change plus accrued interest and paid interest, divided by the previous month's price plus accrued interest.</p> $TMRETNUA(I) = \frac{TMNOMPRC(I) + TMPDINT(I) + TMACCINT(I)}{TMNOMPRC(I-1) + TMACCINT(I-1)} - 1.0$ <p>tmretnua is set to -99 when the price is missing for either this day or the previous day.</p> <p>For bills, tmpdint and tmaccint are always zero and the equation simplifies to:</p> $TMRETNUA(I) = \frac{TMNOMPRC(I)}{TMNOMPRC(I-1)} - 1.0$                                     |               |
|      | TMYLD       | Monthly Series of Promised Daily Yield   | <p>Tmyld is the promised yield daily rate, also called daily yield-to-maturity.</p> <p>At any date, the promised yield of a security is the single interest or discount rate which makes the sum of the present values of the principle at maturity and future interest payments be precisely equal to the full price of the security. The full price is the nominal price, e.g., mean of tmbid and tmask, plus the accrued interest on the date in question. If a price is missing, the tmyld for that month is set to -99.</p> | Ratio         |
|      | TMDURATN    | Monthly Series of Macaulay's Duration    | <p>Duration is the monthly series of the weighted average number of days until the cash flows occur, where the present values, discounted by yield to maturity, of each payment are used as the weights<sup>1</sup>.</p> <p>For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.</p>  | Value         |

| Sort | Column Name | Description                                 | Definition   | Data Category |
|------|-------------|---|--|---------------|
|      |             |   | <p><sup>1</sup>Some Theoretical Problems of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856. Frederick R. Macaulay, National Bureau of Economic Research, 1938, 44-53.</p>  |               |
|      | TMTOTOUT    | Total Amount Outstanding                    | Total Amount (face value) issued and still outstanding in millions of dollars. Set to missing for unknown values.  | Number        |
|      | TMPUBOUT    | Monthly Series of Publicly Held Outstanding | Amount (face value) held by the public in millions of dollars. This is the total amount outstanding (tmtotout) minus the amount held in U.S. Government accounts and Federal Reserve Banks. This amount is not available for Treasury Bills and is always set to missing. After December 31, 1982, these numbers are reported quarterly instead of monthly, and the reported values are carried forward the next two months.   | Number        |
|      | TMPCYLD     | Monthly Yield, Compounded SemiAnnually      | $tm\text{pcyld}(t) = 2.0 * (e^{(tm\text{yld} * 182.5)} - 1.0)$ <p>If a yield is missing, tm<sub>pcyld</sub>(t) is coded as -99.</p>  | Ratio         |
|      | TMRETNXS    | Monthly Excess Return                       | <p>tm<sub>retnxs</sub> is the return in excess of what would have been computed if the promised yield from last month on a security had remained constant throughout the month.</p> <p>Although tm<sub>retnua</sub> is the price equivalent of total return on a common stock, the variability in the time between quotation dates may contribute an appreciable part of the time-series variance of return because, even without taking holidays into consideration, the time between quotation dates ranges from 28 to 33 days. For an issue yielding 8 percent per annum, the variability of return introduced by the variation in the time between quotation dates is roughly equivalent to random errors in price of 1/32 of a point. Such errors and some other equalizing differences among returns may be minimized by using tm<sub>retnxs</sub>.</p> <p>tm<sub>retnxs</sub> is set to -99 for months in which it cannot be calculated, i.e. if the price is missing for either the current or previous month.</p> $X_t = R_t - [e^{(Y_{t-1} * N_t)} - 1.0] + I_t * \frac{e^{(Y_{t-1} * C_t)} - 1.0}{P_{t-1} + A_{t-1}}$ <p>Where:</p> <p>X<sub>t</sub> is tm<sub>retnxs</sub>(t), the Excess Return for current month</p> <p>R<sub>t</sub> is tm<sub>retnua</sub>(t), the Unadjusted Return for current month</p> <p>Y<sub>t-1</sub> is tm<sub>yld</sub>(t-1), the Yield for the previous month</p> <p>N<sub>t</sub> is the number of days between m<sub>caldt</sub>(t), the quote date for the current month, and m<sub>caldt</sub>(t-1), the quote date for the previous month</p> <p>I<sub>t</sub> is tm<sub>pdint</sub>(t), the Interest Paid during the current month - Note the interest paid is usually zero and therefore the entire term is usually zero</p> | Ratio         |

| Sort | Column Name    | Description                   | Definition  | Data Category |
|------|----------------|-------------------------------|---|---------------|
|      |                |                               | Ct is the number of days between <code>mcaldt(t)</code> , the quote date for the current month, and the corresponding <code>tpqdate</code> , the coupon payment date during the month, (i.e. where <code>mcaldt(t-1) &lt; tpqdate &lt;= mcaldt(t)</code> )<br>Pt-1 is <code>tmnomprc(t-1)</code> , the nominal price (usually bid/ask average) for previous month<br>At-1 is <code>tmaccint(t-1)</code> , the accrued interest for previous month |               |
|      | TMPDINT        | Interest Payable During Month | Monthly series of coupon interest paid since the previous month-end quotation date. This field is always zero for non-coupon issues, and is zero for coupon issues when no payment was made during the month.   | Value         |
|      | TMIDXRATIO     | Monthly Tips Index Ratio      | The Monthly Index Ratio for a Treasury Inflation Protected Security (TIPS) is calculated as the Reference CPI ( <code>tmcpiref</code> ) of a particular date ( <code>mcaldt</code> ) divided by the Reference CPI ( <code>tmcpiref</code> ) of the original issue date ( <code>tmatdt</code> ). It is set to missing for non-TIPS.  | Ratio         |
|      | TMIDXRATIO_FLG | Monthly Tips Index Ratio Flag | The Monthly Index Ratio Flag is uniformly 'C' (Calculated) for all TIPS and missing for all non-TIPS.   | Flag          |

### TFZ\_DLY\_CD.\* - Daily Rates

Contains rate data found in the legacy files, `bxcaldt.*`. Each CD, commercial paper, and federal funds rate is assigned a unique TREASNOX. Daily rates are assigned to each.

| Sort | Column Name  | Description                                 | Definition   | Data Category |
|------|--------------|---|--|---------------|
| 1    | (KY)TREASNOX | See table below for mapping to old variable | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.                               | Key           |
| 2    | CALDT        | Quotation Date                              | Date associated with the quotation.  | Date          |
|      | TDRATE       | Daily Rates                                 | Daily series of published rates available for the CD Rates index family, TREASNOX range 2000052 - 2000060. | Amount        |

### TFZ\_MTH\_CD.\* - Monthly Rates

Monthly version of the daily cd files

| Sort | Column Name  | Description                      | Definition   | Data Category |
|------|--------------|----------------------------------|--|---------------|
| 1    | (KY)TREASNOX | See below for mappings           | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.                                 | Key           |
| 2    | MCALDT       | Last Quotation Date in the Month | Month-end date associated with the quotation   | Date          |
|      | TMRATE       | Monthly Rates                    | Monthly series of published rates available for the CD Rates index family, TREASNOX range 2000052 - 2000060. | Amount        |

**TFZ\_PAY.\* - Paid Interest Event Series**

Includes paid interest data for individual treasury issues.

| Sort | Column Name | Description                | Definition  | Data Category |
|------|-------------|----------------------------|---|---------------|
| 1    | (KY)TREASNO | Treasury Record Identifier | TREASNO is CRSP's unique treasury issue identifier. TREASNO is the primary key used in the CRSPAccess database version of the Treasury product, replacing CRSPID that was used in the legacy files.   | Key           |
|      | (KY)CRSPID  | CRSP-Assigned Unique ID    | CRSPID is the CRSP Issue Identification Number. It is in format YYYYMMDD.TCCCCE where:<br>YYYYMMDD = Maturity Year, Month, and Day (tmatdt)<br>T = Type of Issue (itype)<br>CCCC = Integer part of Coupon Rate (tcouprt) * 100<br>E = Uniqueness Number (iuniq)<br>For example, 19850515.504250 identifies a 4¼% callable bond which matures on May 15, 1985. | ID            |
| 2    | TPQDATE     | Interest Payment Date      | Date on which the coupon payable is paid to the issue holder.   | Date          |
|      | PDINT       | Coupon Interest Payments   | Coupon payable on the interest payment date (tpqdate). Value for additional information about the first coupon see tvalfc, tfcpdt, and ifcpdtf.   |               |

**Supplemental Series****TFZ\_IDX.\* - Supplemental Series Properties**

Descriptive data for all TREASNOX series

| Sort                | Column Name    | Description                               | Definition  | Data Category |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
|---------------------|----------------|---|---|---------------|----------------|--|------|--|-----|-----|-------------|---------|---------|--|----|---------|---------|--|----------|---------|---------|--|-----------|---------|---------|--|---------------------|---------|---------|--|---------------------|---------|---------|--|------------|---------|---------|--|--|
| 1                   | (KY)TREASNOX   | Unique identifier for Supplemental Series | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
|                     | TIDXFAM        | Treasury Index Family                     | <table border="1"> <thead> <tr> <th>TIDXFAM</th> <th colspan="2">TREASNOX Range</th> <th rowspan="2">Name</th> </tr> <tr> <th></th> <th>min</th> <th>max</th> </tr> </thead> <tbody> <tr> <td>BONDMATPORT</td> <td>2000028</td> <td>2000044</td> <td></td> </tr> <tr> <td>CD</td> <td>2000052</td> <td>2000060</td> <td></td> </tr> <tr> <td>DISCBOND</td> <td>2000047</td> <td>2000051</td> <td></td> </tr> <tr> <td>FIXEDTERM</td> <td>2000003</td> <td>2000009</td> <td></td> </tr> <tr> <td>RISKFREE (mth only)</td> <td>2000001</td> <td>2000002</td> <td></td> </tr> <tr> <td>RISKFREE2 (mth/dly)</td> <td>2000061</td> <td>2000063</td> <td></td> </tr> <tr> <td>TERMSTRUCT</td> <td>2000010</td> <td>2000027</td> <td></td> </tr> </tbody> </table> | TIDXFAM       | TREASNOX Range |  | Name |  | min | max | BONDMATPORT | 2000028 | 2000044 |  | CD | 2000052 | 2000060 |  | DISCBOND | 2000047 | 2000051 |  | FIXEDTERM | 2000003 | 2000009 |  | RISKFREE (mth only) | 2000001 | 2000002 |  | RISKFREE2 (mth/dly) | 2000061 | 2000063 |  | TERMSTRUCT | 2000010 | 2000027 |  |  |
| TIDXFAM             | TREASNOX Range |   | Name  |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
|                     | min            | max                                       |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| BONDMATPORT         | 2000028        | 2000044                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| CD                  | 2000052        | 2000060                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| DISCBOND            | 2000047        | 2000051                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| FIXEDTERM           | 2000003        | 2000009                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| RISKFREE (mth only) | 2000001        | 2000002                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| RISKFREE2 (mth/dly) | 2000061        | 2000063                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |
| TERMSTRUCT          | 2000010        | 2000027                                   |   |               |                |  |      |  |     |     |             |         |         |  |    |         |         |  |          |         |         |  |           |         |         |  |                     |         |         |  |                     |         |         |  |            |         |         |  |  |

| Sort | Column Name | Description   | Definition  | Data Category |
|------|-------------|---|---|---------------|
|      | TTERMTYPE   | TERMTYPE from the bxdlyind.dat and bxmthind.dat files | <code>ttermtype</code> for the Daily and Monthly Fixed Term Index Family (TREASNOX 2000003-2000009) contains what was formerly the primary key, TERMTYPE. Through <code>ttermtype</code> is maintained and expanded to cover the new series, it is a legacy code, and users are strongly encouraged to switch to TREASNOX as the primary key for supplemental series. | Code          |
|      | TTERMMIN    | Min Days to Maturity to be Eligible                   | Reserved for future use   | Number        |
|      | TTERMMAX    | Max Days to Maturity to be Eligible                   | Reserved for future use   | Number        |
|      | TTERMLBL    | Maturity and Rebalancing Label                        | Name of a TREASNOX series   | Name          |
|      | TSELDESC    | Future Use - Selection Description                    | Reserved for future use   | Description   |
|      | TELIGDESC   | Future Use - Eligibility Description                  | Available for new Risk-Free series with TREASNOX range 2000061- 2000063.  | Description   |

### Fama Maturity Portfolios – Monthly Only

The Fama Maturity Portfolios are defined in 6-month intervals (TREASNOX range 2000028–2000037) and in 12-month intervals (TREASNOX range 2000040–2000044) for up to 60 months. TREASNOX 2000038 is a single portfolio for maturities between 60 and 120 months, and TREASNOX 2000039 is a single portfolio for maturities greater than 120 months. Each TREASNOX represents the portfolio containing one-month holding period returns for issues maturing in a range of months from the quote date.

Callable, non-callable, and non-flower notes and bonds are included in the portfolios. Partially and full tax-exempt issues are excluded. The returns are calculated as the equal-weighted average of the unadjusted holding period return (TMRETNUA) for each bond in the portfolio.

### TFZ\_MTH\_BP.\* - Monthly Bond Portfolio Series

Monthly Bond Portfolio series

| Sort | Column Name  | Description                             | Definition   | Data Category |
|------|--------------|---|--|---------------|
| 1    | (KY)TREASNOX | Treasury Record Identifier              | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.                                     | Key           |
| 2    | MCALDT       | Last Quotation Date in the Month        | Month-end date associated with the quotation.  | Date          |
|      | TMEWRETD     | Monthly Equal Weighted Portfolio Return | Return value is valid only for the Bond Portfolio index family, represented by TREASNOX range 2000028 – 2000044. | Ratio         |

### Fama-Bliss Discount Bonds – Monthly Only

The Fama-Bliss Series (TREASNOX 2000047-2000051) use only fully taxable, non-callable, non-flower issues, including ITYPES equal to 1 (Bonds), 2 (Notes), 3 (Certificates), and 4 (Bills).

Callable, non-callable, and non-flower notes and bonds are included in the portfolios. Partially and full tax-exempt issues are excluded. The returns are calculated as the equal-weighted average of the unadjusted holding period return (TMRETNUA) for each bond in the portfolio.

Bond Selection for Term Structure

Four filters are used to select from the remaining bonds a subset from which to construct a term structure.

First Pass: Initial Choice of Instruments

The screen on the first pass is based on two moving averages of CRSP yields to maturity on the 3 longer and 3 shorter maturity instruments surrounding the bond being considered for inclusion. Issues with the same maturity may form part of the window. Whether they are considered shorter or longer depends on the relative CRSP coupon rates. Also, 1.5% notes are excluded from windows, since these are subject to large spurious errors.

A bond is included if its yield is within 0.2% (an absolute not relative yield difference) of either average, or if its yield is between either average. The latter rule allows rapid changes in the yield curve. Multiple issues with the same maturity are permitted. Included instruments with different maturities must have maturities at least 7 days apart. Conflicts are resolved using issues in this order of preference: bill with smallest spread, bills, maturity dates with multiple issues, or issue trading closest to par.

There are refinements of the rules used to form the moving average yield windows that improve the screen.

1. The moving windows are restricted to bills as long as they are available. There are well-known liquidity problems that affect the pricing of short bonds.
2. Windows are bounded below by 0.0%.
3. The longest maturity issue is always included.

Second Pass: Clean Up Big Yield Reversals

The second pass begins to refine the discount yield term structure by deleting suspicious bonds which cause large reversals in the discount yields generated from the set of bonds included in the first pass.

A reversal is defined as a sequence of changes in the discount yield function greater than 0.2% and opposite in sign. A reversal sequence ends when there is a change less than 0.2% in the discount yield function.

When there are multiple bonds at a given maturity, they are examined separately in looking for reversals. That is, first one bond is included in the sequence of yields. Then it is dropped and the other is included. Bonds at the same maturity tend to be priced the same way, so they will break reversal sequences if they are not treated separately.

To determine which bonds in a reversal sequence are to be deleted, we go to the end of the sequence. The change in yield less than 0.2% at the end of the sequence is assumed to mean that the last change greater than 0.2% is good. Thus, we delete the second from the last in the sequence, the fourth from last, etc.

Third Pass: Reconsider Excluded Bonds

With the bonds included after the second pass, a new term structure of discount yields can be calculated. The next step is to re-examine bonds excluded on the first and second passes for possible inclusion. Pass Three adds selected bonds from those previously excluded to the set of bonds included after Pass Two.

The inclusion criteria are similar to Pass One with the criteria applied to the discount yield rather than the yield to maturity.

1. The mean yields of each of two moving windows of three strictly longer and three strictly shorter maturity bonds are computed.
2. Bonds of the same maturity as the one being tested are excluded from the windows.

3. Only bonds previously included, either on Pass Two or earlier in Pass Three, may form part of the window. The 1.5% notes are no longer specifically excluded.
4. An excluded bond is put back if the discount yield at its maturity date which would result from its inclusion is within 0.2% of the mean of either the shorter or the longer window, or if it is between the two means.

#### Fourth Pass: Last Check for Reversals

Repeat reversal tests of Pass Two, using yields calculated from bonds included after Pass Three.

#### Calculation of Forward Rates, Discount Prices and Yields

The bills and bonds that survive Pass Four allow us to calculate monthly term structures of forward rates and yields for adjacent accepted maturities. Each successively longer maturity accepted allows us to calculate an additional forward rate. When there are multiple accepted bonds on a single quote date, the forward rates for each of them are calculated and the average is used as the rate for the quote date. Forward rates calculated from shorter maturity bonds are used to price the coupons for the subsequent available maturity. The coupon dates are unlikely to correspond exactly to the forward rate dates. To price coupons that fall within the period covered by a forward rate, the forward rate (always continuously compounded) is assumed to be constant during the period, so that it can be used for any subinterval. Likewise, there may be coupons as well as a principal payment during the period from the maturity date of the last included bond to the maturity of the next longer bond. In this case, the incremental forward rate is assumed to cover the whole incremental period to the maturity of the next longer bond.

The forward rates described above cover unevenly spaced periods between the maturities of accepted bills and bonds. Under the assumption that a forward rate applies to each day of the period it covers, the forward rates can be used to calculate implied prices of artificial discount securities for maturities corresponding to future end-of-month quote dates. Equivalently, one can think of the calculations as generating daily forward rates, which are then grouped to get implied forward rates for annual intervals.

These forward rates are used to calculate prices and yields on artificial discount securities for the maturities corresponding to end-of-month quote dates one through five years in the future. To avoid having single bonds introduce spurious results only annual maturity intervals were used. This increases the signal to noise ratio. Extension of the term structure beyond 5 years is impractical due to the scarcity of qualified issues and the erratic results produced by those quotes which are available.

#### **TFZ\_MTH\_FB.\* - Monthly Fama Bliss Discount Series**

| Sort | Column Name  | Description                                | Definition   | Data Category |
|------|--------------|--|--|---------------|
| 1    | (KY)TREASNOX | See table below for mapping to old columns | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.   | Key           |
| 2    | MCALDT       | Last Quotation Date in the Month           | Month-end date associated with the quotation.  | Date          |
|      | TMNOMPRC     | Monthly Artificial Bond Discount Price     | Value used in CRSP calculations, most often the bid and ask average. Prior to 1960, bids and sales were used, see table below. | Value         |
|      | TMNOMPRC_FLG | Monthly Nominal Price Flag (Uniformly D)   | Information in Data Source   | Flag          |
|      |              |  | Bid and ask  |               |
|      |              |  | Bid  |               |
|      |              |  | Ask  |               |
|      |              |  | (Bid+ask)/2  |               |
|      |              |  | M  |               |

| Sort | Column Name | Description   | Definition  | Data Category |
|------|-------------|---|---|---------------|
|      |             |   | Bid Only      Bid    -Bid      Bid      B   |               |
|      |             |   | Sale Only      Sale    0      Sale      T   |               |
|      |             |   | Unavailable/<br>missing      0      0      0      X   |               |
|      |             |   | Fama Bliss Series    N/A    N/A      Discount    D  |               |
|      | TMYTM       | Monthly Series of Yield to Maturity (TMYLD * 36500) | Monthly series of the annualized yield to maturity expressed as a percent per year ( $t_{myld} * 365 * 100$ ). TREASNOX 2000047-2000051 | Ratio         |

### CRSP Fixed-Term Indexes - Daily and Monthly

The CRSP Fixed Term Indexes are built for 1, 2, 5, 7, 10, 20, and 30 year periods. A TREASNOX in the range 20000032000009 is created for each period. File names for this series are TFZ\_DLY\_FT.\* and TFZ\_MTH\_FT.\*

A valid issue that best represents each term is chosen at the end of each month and held through the next month for each of the fixed-term periods. Valid issues are at least 6 months from, but closest to the target maturity date. They are fully taxable, non-callable, and non-flower bonds. When more than one issue meets the criteria, the one most recently issued is used. If no issue meets the criteria, a second pass is made that allows flower bonds.

The series was designed to plot a sophisticated yield curve. Relevant data items are calculated for each quote date.

| Term Type | Index         | Monthly File Start Date | TREASNOX |
|-----------|---------------|-------------------------|----------|
| 112       | 1 Year Bonds  | January 31, 1941        | 2000003  |
| 212       | 2 Year Bonds  | January 31, 1941        | 2000004  |
| 512       | 5 Year Bonds  | April 30, 1941          | 2000005  |
| 712       | 7 Year Bonds  | April 30, 1941          | 2000006  |
| 1012      | 10 Year Bonds | May 31, 1941            | 2000007  |
| 2012      | 20 Year Bonds | January 31, 1942        | 2000008  |
| 3012      | 30 Year Bonds | November 29, 1941       | 2000009  |

### TFZ\_DLY\_FT.\* - Daily Fixed Term Indexes

Daily fixed term series. All begin on 6/14/1961.

| Sort | Column Name  | Description                      | Definition  | Data Category |
|------|--------------|----------------------------------|---|---------------|
| 1    | (KY)TREASNOX | Mapping below for TERMTYPE       | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | CALDT        | Quotation Date                   | Date associated with the quotation  | Date          |
|      | RDTREASNO    | Daily Series of Related TREASNOs | Daily Series of Reference TREASNOs which identify the issue used for a supplemental series. Fixed Term family (TREASNOX 2000003- 2000009)<br>TREASNOX 2000003 (contains TERMTYPE 0112),<br>2000004 (0212), 2000005 (0512) , 2000006(0712) | Key           |

| Sort                       | Column Name  | Description                            | Definition   | Data Category              |       |       |      |                        |     |     |   |                        |     |     |   |      |
|----------------------------|--------------|--|--|----------------------------|-------|-------|------|------------------------|-----|-----|---|------------------------|-----|-----|---|------|
|                            |              |  | TREASNOX 2000007 (contains TERMTYPE 1012 ), 2000008 (2012), 2000009 (3012)   |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | RDCRSPID     | Daily Series of Related CRSPIDs        | Daily Series of Reference CRSPIDs which identify the issue used for a supplemental series. Fixed Term family (TREASNOX 2000003-2000009) See also CRSPID.   | ID                         |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDYEARSTM    | Daily Series of Years to Maturity      | Daily series of the remaining years to maturity for the selected issue as of the quote date, calculated by dividing by 365.25 and expressed as a decimal number of years. TREASNOX range 2000003 - 2000009.  | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDDURATN     | Daily Series of Macaulay's Duration    | Duration is the daily series of the weighted average number of days until the cash flows occur, where the present values, discounted by yield to maturity, of each payment are used as the weights <sup>1</sup> .<br>For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.<br><sup>1</sup> Some Theoretical Problems of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856. Frederick R. Macaulay, National Bureau of Economic Research, 1938, 44-53.<br>Missing values are coded as -1, except for securities with ITYPE 12 or 13 which have missing values coded as -99. | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDRETADJ     | Daily Series of Return Adjusted        | Daily holding period return expressed as a percentage. $TDRETNUA * 100$<br>TREASNOX range 2000003- 2000009.  | Ratio                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDYTM        | Daily Series of Yield to Maturity      | Annualized yield-to-maturity expressed as a percent per annum.<br>TREASNOX range 2000003-2000009.<br>$tdytm(l)=100*tdyld*365.0$  | Ratio                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDBID        | Daily Bid                              | Daily series of bids. $tdbid$ is set to zero for missing.  | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDASK        | Daily Ask                              | Daily series of asks. $tdask$ is set to zero for missing.  | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDNOMPRC     | Daily Nominal Price                    | Value used in CRSP calculations. For daily, this is either the bid and ask average or it is set to zero when unavailable.  | Value                      |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDNOMPRC_FLG | Daily Nominal Price Flag               | <table border="1"> <thead> <tr> <th>Information in Data Source</th> <th>tdbid</th> <th>tdask</th> <th>flag</th> </tr> </thead> <tbody> <tr> <td>Average of Bid and Ask</td> <td>Bid</td> <td>Ask</td> <td>M</td> </tr> <tr> <td>Unavailable or missing</td> <td>0.0</td> <td>0.0</td> <td>X</td> </tr> </tbody> </table>   | Information in Data Source | tdbid | tdask | flag | Average of Bid and Ask | Bid | Ask | M | Unavailable or missing | 0.0 | 0.0 | X | Flag |
| Information in Data Source | tdbid        | tdask                                  | flag   |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
| Average of Bid and Ask     | Bid          | Ask                                    | M  |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
| Unavailable or missing     | 0.0          | 0.0                                    | X  |                            |       |       |      |                        |     |     |   |                        |     |     |   |      |
|                            | TDACCINT     | Daily Series of Total Accrued Interest | Calculated on the basis of the number of days between interest payment dates for a \$100 bond or note and the number of days from the last payment date (or from the dated date for the first coupon) to the quotation date.   | Ratio                      |       |       |      |                        |     |     |   |                        |     |     |   |      |

**TFZ\_MTH\_FT.\* - Monthly Fixed Term Indexes**

Monthly fixed term series.

| Sort | Column Name  | Description   | Definition  | Data Category |
|------|--------------|---|---|---------------|
| 1    | (KY)TREASNOX | See mappings below for TERMTYPE                     | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | CALDT        | Quotation Date                                      | Date associated with the quotation.   | Date          |
|      | RMTREASNO    | Monthly Series of Related TREASNOs                  | Monthly Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX 2000003 (contains TERMTYPE 0112 ),<br>2000004 (0212), 2000005 (0512) , 2000006(0712)<br>TREASNOX 2000007 (contains TERMTYPE 1012 ),<br>2000008 (2012), 2000009 (3012)   | Key           |
|      | RMCRSPID     | Monthly Series of Related CRSPIDs                   | Monthly Series of Reference CRSPIDs which identify the issue used for a supplemental series.<br>TREASNOX 2000003 - 2000009  | ID            |
|      | TMYEARSTM    | Monthly Series of Years to Maturity                 | Monthly series of the remaining years-to-maturity for the selected issue as of the quote date, calculated by dividing by 365.25 and expressed as a decimal number of years.<br>TREASNOX range 2000003- 2000009.   | Value         |
|      | TMDURATN     | Monthly Series of Macaulay's Duration               | Duration is the monthly series of the weighted average number of days until the cash flows occur, where the present values, discounted by yield to maturity, of each payment are used as the weights <sup>1</sup> .<br><br>For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.<br><br><sup>1</sup> Some Theoretical Problems of Interest Rates, Bond Yields and Stock Prices in the United States Since 1856. Frederick R. Macaulay, National Bureau of Economic Research, 1938, 44-53. | Value         |
|      | TMRETADJ     | Monthly Series of Return Adjusted (TMRETNUA * 100)  | The monthly holding period return expressed as a percentage ( $tmretnua * 100$ ). See also $tmretnua$ .   | Ratio         |
|      | TMYTM        | Monthly Series of Yield to Maturity (TMYLD * 36500) | Monthly series of the annualized yield to maturity expressed as a percent per year ( $tmlyld * 365 * 100$ ).  | Ratio         |
|      | TMBID        | Monthly Bid   | Monthly Series of bids on the last quotation day of the month. $tmbid$ is set to zero for missing.  | Value         |
|      | TMASK        | Monthly Ask   | Monthly Series of asks on the last quotation day of the month. $tmask$ is set to zero for missing.  | Value         |
|      | TMNOMPRC     | Monthly Nominal Price                               | Value used in CRSP calculations, most often the bid and ask average. Prior to 1960, bids and sales were used, see table below.  | Value         |

| Sort | Column Name  | Description                              | Definition   | Data Category |
|------|--------------|--|--|---------------|
|      | TMNOMPRC_FLG | Monthly Nominal Price Flag               | Information in Data Source   | Flag          |
|      |              |  | tmbid tmask tmnomprc flag  |               |
|      |              |  | Bid and ask Bid Ask (Bid+ask)/2 M  |               |
|      |              |  | Bid Only Bid -Bid Bid B  |               |
|      |              |  | Sale Only Sale 0 Sale T  |               |
|      |              |  | Unavailable/missing 0 0 0 X  |               |
|      |              |  | Fama Bliss Series N/A N/A Discount D   |               |
|      | TMACCINT     | Monthly Series of Total Accrued Interest | Calculated on the basis of the number of days between interest payment dates for a \$100 bond or note and the number of days from the last payment date (or from the dated date for the first coupon) to the quotation date. | Value         |

### CRSP Risk-Free Rates File

The historic Monthly Risk-Free Rates file is the first of two Risk-Free Rate Series provided by CRSP. The monthly-only series begin in 1925 and are the same as those in the legacy treasury files. Two TREASNOXs represent the Risk-Free Series:

- 2000001 – 1-month rates, and
- 2000002 – 3-month rates.

The file name of this series is TFZ\_MTH\_RF.\* Three yields are provided for each series based on the bid, asked and average prices. Yields are continuously compounded 365 day rates. The CRSP identifier of the selected issue security used and the number of days to maturity of that issue are also provided.

The Treasury Bill selected in the 1-month series that is chosen has a minimum of 30 days to maturity, and is the closest T-Bill to 30 days to maturity. The 3-month series used a 90 day target.

When building this series, where bills were not available certificates and, in a few cases, notes were used. In early periods, the selection among alternatives was subjective at times. The issue with the maturity closest to target was sometimes rejected because the quotes were suspicious. In no case was an issue used which did not mature on its next coupon payment date. Also excluded were issues with bid quotations implying negative yields. This resulted in some very short nominally three month maturities prior to 1942. Similarly, scarcity of available issues results in some very long nominal one month issues being used prior to 1937. The range of maturities of both series after 1942 is within a few days of the targets. Users may wish to restrict their usage to this period.

Prior to 1938 bids and asks were not always available. In these cases the available data was a trade price. The bid and average yields were set to the trade yield and the ask yield was set to missing. Bid and average yields were never missing. Valid ask and average yields may actually be negative.

### CRSP Daily and Monthly Risk-Free Rate Series

The CRSP Daily and Monthly Risk-Free Rate Series is a slight modification of the historical monthly series that is included in the Treasuries Product. Daily and monthly series begin in 1961 and are represented by three TREASNOXs:

- 2000061 – 4-week rates

- 2000062 – 13-week rates, and
- 2000063 – 26-week rates.

The file names of this series are TFZ\_DLY\_RF2.\* and TFZ\_MTH\_RF2.\*

#### Duration Range of Selected Bills:

- 4-week bills run from 22 days to 28 days. Through 12/31/2010 there are about 79 cases where 29 days to maturity is used due to Thursday holidays.
- 13-week bills run from 85 days to 91 days. Through 12/31/2010 there are about 84 cases where 92 days to maturity is used due to Thursday holidays.
- 26-week bills run from 176 days to 182 days. Through 12/31/2010 there are about 82 cases where 183 days to maturity is used due to Thursday holidays. There is also one week at the end of September 1987 where a 25- week bill (169 days to 175 days) was used, because the auction of the 3/24/1988 bill was delayed 10 days due to Congressional inaction on raising the debt limit.

#### **TFZ\_MTH\_RF.\* - Monthly Risk-Free Series (1-month and 3-month)**

Monthly risk-free series beginning in 1925.

| Sort | Column Name  | Description                                  | Definition  | Data Category |
|------|--------------|--|---|---------------|
| 1    | (KY)TREASNOX | See mappings below                           | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | MCALDT       | Last Quotation Date in the Month             | Month-end date associated with the quotation  | Date          |
|      | RMTREASNO    | Monthly Series of Related TREASNOs           | Monthly Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX 2000001- 2000002            | Key           |
|      | RMCRSPID     | Monthly Series of Related CRSPIDs            | Monthly Series of Reference CRSPIDs which identify the issue used for a supplemental series.<br>TREASNOX 2000001 - 2000002            | ID            |
|      | TMBIDYTM     | Monthly Annualized Yield calculated from bid | Monthly series of yield-to-maturity based on the monthly bid amount.<br>Annualized percent (yield*365*100).                           | Ratio         |
|      | TMASKYTM     | Monthly Annualized Yield calculated from ask | Monthly series of yield-to-maturity based on the monthly ask amount.<br>Annualized percent (yield*365*100).                           | Ratio         |
|      | TMYTM        | Monthly Series of Yield to Maturity          | Monthly series of the annualized yield to maturity expressed as a percent per year (tmyld * 365 *100).                                | Ratio         |
|      | TMDURATN     | Monthly Series of Macaulay's Duration        | For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity. | Number        |

**TFZ\_DLY\_RF2.\* - Daily Risk-Free Series (4-, 13-, and 26-Week)**

Daily risk-free series. Data series begins June 15, 1961.

| Sort | Column Name   | Description  | Definition  | Data Category |
|------|---------------|--|---|---------------|
| 1    | (KY)TREASNOX  |  | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | CALDT         | Quotation Date   | Date associated with the quotation  | Date          |
|      | RDTREASNO     | Daily Series of Related TREASNOs                       | Daily Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX 2000061 (contains 4-week series),<br>2000062 (13- week series), 2000063 (26-week series)  | Key           |
|      | RDTREASNO_FLG | Flag associated with RDTREASNO - A or O                | Values identify the selection process of the representative TREASNO.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated   | Flag          |
|      | RDCRSPID      | Daily Series of Related CRSPIDs                        | Daily Series of Reference CRSPIDs which identify the issue used for a supplemental series.<br>TREASNOX 2000061-2000063.   | ID            |
|      | RDCRSPID_FLG  | Flag associated with RDCRSPID - A or O                 | Values identify the selection process of the representative CRSPID.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated  | Flag          |
|      | TDBIDYLD      | Daily Series of Promised Daily Yield based on BID      | Daily series of yield based on the bid amount.  | Ratio         |
|      | TDBIDYLD_FLG  | Flag associated with TDBIDYLD - currently always 'B'   | <code>tdbidyld_flg</code> has valid values of: B = Bid  | Flag          |
|      | TDASKYLD      | Daily Series of Promised Daily Yield based on ASK      | Daily series of yield based on the ask amount.  | Ratio         |
|      | TDASKYLD_FLG  | Flag associated with TDBIDYLD - currently always 'A'   | <code>tdaskyld_flg</code> has valid values of: A = Ask  | Flag          |
|      | TDYLD         | Daily Series of Promised Daily Yield based on TDNOMPRC | <code>tdyld</code> is the promised yield daily rate, also called daily yield to maturity.<br>On any given date, the promised yield of a security is the single interest or discount rate that makes the sum of the present values of the principal at maturity plus future interest payments equal to the full price of the security. The full price is the nominal price plus the accrued interest. If a price is missing, the <code>tdyld</code> is set to -99. | Ratio         |
|      | TDYLD_FLG     | Flag associated with TDBIDYLD                          | Valid values of the flag for yield based on TDNOMPRC: M = Mean of Bid and Ask<br>Currently always "M"   | Flag          |

| Sort | Column Name | Description                         | Definition  | Data Category |
|------|-------------|-------------------------------------|---|---------------|
|      | TDDURATN    | Daily Series of Macaulay's Duration | For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity. | Number        |

### TFZ\_MTH\_RF2.\* - Monthly Risk-Free Series (4-, 13-, and 26-Week)

New monthly risk-free series. Data begin June 30, 1961.

| Sort | Column Name   | Description  | Definition   | Data Category |
|------|---------------|--|--|---------------|
| 1    | (KY)TREASNOX  | See mappings below for TERMTYPE                    | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.   | Key           |
| 2    | CALDT         | Quotation Date                                     | Date associated with the quotation   | Date          |
|      | RMTREASNO     | Monthly Series of Related TREASNOs                 | Monthly Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX 2000061 (contains 4-week series), 2000062 (13-week series), 2000063 (26-week series)             | Key           |
|      | RMTREASNO_FLG | Flag associated with RMTREASNO                     | Values identify the selection process of the representative TREASNO.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated<br>TREASNOX 2000061-2000063.                         | Flag          |
|      | RMCRSPID      | Monthly Series of Related CRSPIDs                  | Monthly Series of Reference CRSPIDs which identify the issue used for a supplemental series.   | ID            |
|      | RMCRSPID_FLG  | Flag associated with RMCRSPID                      | Values identify the selection process of the representative CRSPID.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated<br>TREASNOX 2000061-2000063.                          | Flag          |
|      | TMBIDYLD      | Month-end Daily Bid Yield                          | Monthly series of yields based on the bid ( <code>tmbid</code> ).<br>For the 4-week, 13-week, and 26-week Riskfree series (TREASNOX 2000061- 2000063), <code>tmbidyld</code> is the month-end daily yield. | Ratio         |
|      | TMBIDYLD_FLG  | Flag associated with TMBIDYLD                      | <code>tmbidyld_flg</code> has valid values of:<br>B = Bid  | Flag          |
|      | TMASKYLD      | Month-end Daily Ask Yield                          | Monthly series of yields based on the ask ( <code>tmask</code> ).<br>For the 4-week, 13-week, and 26-week Riskfree series (TREASNOX 2000061- 2000063), <code>tmaskyld</code> is the month-end daily yield. | Ratio         |
|      | TMASKYLD_FLG  | Flag associated with TMASKYLD                      | <code>tmaskyld_flg</code> has valid values of:<br>A = Ask  | Flag          |
|      | TMYLD         | Monthly Series of Promised Yield based on TMNOMPRC | <code>tmyld</code> is the promised yield daily rate, also called daily yield-to-maturity.  | Ratio         |

| Sort | Column Name | Description                   | Definition  | Data Category |
|------|-------------|-------------------------------|---|---------------|
|      |             |                               | At any date, the promised yield of a security is the single interest or discount rate which makes the sum of the present values of the principle at maturity and future interest payments be precisely equal to the full price of the security. The full price is the nominal price, e.g., mean of <code>tmbid</code> and <code>tmask</code> , plus the accrued interest on the date in question. If a price is missing, the <code>tmyld</code> for that month is set to -99. |               |
|      | TMYLD_FLG   | Flag associated with TMBIDYLD | Values are:<br>M = Bid/Ask Mean<br>Currently always "M"   | Flag          |
|      | TMDURATN    | Macaulay's Duration           | For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.   | Number        |

### Term Structure Files

CRSP creates two sets of Term Structure Files. The long-standing Fama Treasury Bill Term Structure files are produced monthly-only, the 6-month series begin in 1950 and the 12-month series begin in 1963. CRSP also produces a second set of daily/monthly 26-week term structure files that begin at various points in 1961.

#### Fama TS Files – Monthly Only

The Term Structure Files are calculated in three alternative ways using the:

- Average of the bid and ask quotes
- Bid quotes
- Ask quotes

Data items are derived from using six-month and 12-month Treasury bills. For each type of bill, Forward Rates, Yields, and Holding Period Returns are calculated.

Each series is built by selecting the bill closest to either six or 12 months to maturity, and then following that bill through to maturity. Each term structure series is accessed by a TREASNOX.

12-month series are represented by the TREASNOX range 2000010-2000021, with each TREASNOX representing a different number of months to maturity, between one and 12. The 12-month representative bill used was the longest bill with more than 11 months and 10 days to maturity. This can result in a large variation between target and actual maturities. It should also be noted there are significant missing values from early 2000 to 2009, when the Treasury switched to quarterly releases and then did not issue a 52-week bill for over seven years from 3/1/2001 to 6/5/2008.

Six-month series are represented by the TREASNOX range 2000022-2000027, with each TREASNOX representing a different number of months to maturity, between one and 6. The six-month bills have been extended back in time so that prior to the availability of six-month bills, three-month bills were used, and before that, one-month bills were used. The representative six-month bill was the closest bill to the target maturity with a maximum of four days variation on either side of the maturity.

Users interested in short maturities should use the six-month bills or the Risk-Free Rates rather than the 12-month files.

Computation of Fama T-Bill Files

Let:

 $P_{t,\tau}$  = price of bill with  $\tau$  months to maturity observed at time  $t$  $N_{t,\tau}$  = number of days to maturity of a  $\tau$  month bill at time  $t$ 

Then:

 $Y_{t,\tau}$  = yield to maturity of a  $\tau$  month bill observed at time  $t$ 

$$Y_{t,\tau} = \left[ 1n \left( \frac{100}{P_{t,\tau}} \right) \right] \left( \frac{30.4}{N_{t,\tau}} \right)$$

 $F_{t,\tau}$  = forward rate from  $F_{t,\tau}$  to  $t + \tau$  observed at time  $t$ 

$$F_{t,\tau} = \left[ 1n \left( \frac{P_{t,\tau-1}}{P_{t,\tau}} \right) \right] \left( \frac{30.4}{N_{t,\tau} - N_{r,\tau-1}} \right)$$

$H_{t,\tau}$  = one month holding period return for a  $\tau$  month bill bought at time  $t$  and sold at time  $t + 1$  (when it has  $\tau - 1$  months remaining to maturity). Note that in the return files, the date for  $H_{t,\tau}$  is the purchase month  $t$ .

$$H_{t,\tau} = \left[ 1n \left( \frac{P_{t+1,\tau-1}}{P_{t,\tau}} \right) \right] \left( \frac{30.4}{N_{t,\tau} - N_{t+1,\tau-1}} \right)$$

By convention,  $\tau = 0$  at maturity. Therefore, when  $P_{t,0} = 100$ ,  $Y_{t,1} = F_{t,1} = H_{t,1}$ .

The computations do not include transaction costs. All yields, rates and returns have been standardized to a 30.4 day basis and are therefore directly comparable.

**TFZ\_MTH\_TS.\* - Monthly Term Structure Series**

Monthly term structure files. Individual files in the monthly legacy format are consolidated into this single file in the new flat files.

| Sort | Column Name  | Description                        | Definition  | Data Category |
|------|--------------|------------------------------------|---|---------------|
| 1    | (KY)TREASNOX | See mappings below                 | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | MCALDT       | Last Quotation Date in the Month   | Month-end date associated with the quotation  | Date          |
|      | RMTREASNO    | Monthly Series of Related TREASNOs | Monthly Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX range 2000010 - 2000027 | Key           |
|      | RMCRSPIID    | Monthly Series of Related CRSPIIDs | Monthly Series of Reference CRSPIIDs which identify the issue used for a supplemental series.<br>TREASNOX range 2000010 - 2000027 | ID            |

| Sort | Column Name  | Description                              | Definition  | Data Category |
|------|--------------|--|---|---------------|
|      | TMDURATN     | Macaulay's Duration                      | For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity. | Number        |
|      | TMBID        | Monthly Bid                              | Monthly Series of bids on the last quotation day of the month. <code>tmbid</code> is set to zero for missing.                         | Value         |
|      | TMBIDRET     | Month-Adjusted Bid Hold Return           | Monthly value of holding period returns based on bid, adjusted on a 30.4 day monthly basis.   | Ratio         |
|      | TMBIDYLD     | Month-Adjusted Bid Yield                 | Monthly series of yields based on the bid ( <code>tmbid</code> ). <code>tmbidyld</code> is a month-adjusted (30.4 day basis).         | Ratio         |
|      | TMBIDFWD     | Month-Adjusted Bid Forward Rate          | Monthly value of bid forward rates adjusted on a 30.4 day monthly basis.  | Ratio         |
|      | TMASK        | Monthly Ask                              | Monthly Series of asks on the last quotation day of the month. <code>tmask</code> is set to zero for missing.                         | Value         |
|      | TMASKRET     | Month-Adjusted Ask Hold Return           | Monthly value of holding period returns based on ask, adjusted on a 30.4 day monthly basis.   | Ratio         |
|      | TMASKYLD     | Month-Adjusted Ask Yield                 | Monthly series of yields based on the ask ( <code>tmask</code> ). <code>tmaskyld</code> is a month-adjusted (30.4 day basis).         | Ratio         |
|      | TMASKFWD     | Month-Adjusted Ask Forward Rate          | Monthly value of ask forward rates adjusted on a 30.4 day monthly basis.  | Ratio         |
|      | TMNOMPRC     | Monthly Nominal Price (Bid/ Ask Average) | Value used in CRSP calculations, most often the bid and ask average. Prior to 1960, bids and sales were used, see table below.        | Value         |
|      | TMNOMPRC_FLG | Monthly Nominal Price Flag               |   | Flag          |
|      | TMAVERET     | Month-Adjusted Average Hold Return       | Value used in CRSP calculations, most often the bid and ask average. Prior to 1960, bids and sales were used, see table below.        | Ratio         |
|      | TMAVEYLD     | Month-Adjusted Average Yield             | Monthly value of average yields based on nominal price (most often bid/ask average) on a 30.4 day monthly basis.                      | Ratio         |
|      | TMAVEFWD     | Month-Adjusted Average Forward Rate      | Monthly value of average forward rates based on nominal price (most often bid/ask average) on a 30.4 day monthly basis.               | Ratio         |

### Treasury Bill 26-Week Term Structure Files – Daily and Monthly

The 26-Week Term Structure Files are calculated in three alternative ways using the:

- Nominal Price (Average of the bid and ask quotes)
- Bid quotes
- Ask quotes

There are 26 series. The one-week series is TREASNOX 2000064, the two-week series is TREASNOX 2000065 through the 26-week series which is TREASNOX 2000089.

Data items are derived using regular cycle 26-week bills. These bills have Thursday maturities, unless Thursday is a holiday, and then it is a Friday maturity. A bill is selected on Thursday with 26-weeks to maturity and then used through the following Wednesday. On the next Thursday, it becomes the 25-week bill, and a new 26-week bill is selected and this process repeated for each series. For example, on Thursday July 1, 2010, the 26-week series (TREASNOX 2000089) selects the bill that matured on Thursday 12/30/2010. On July 8, the 12/30/2010 bill is used for the 25-week series (TREASNOX 2000088), and a new 26-week bill is selected; the one that matures on 1/6/2011.

### Computation of the Fields

The calculations of items that follow use items from the daily series. The monthly series are simply the month-end values of the daily series.

- TDBID, TDASK, and TDNOMPRC:

$P_{(t,w)}$  = The price (could be bid, ask, or nomprc) on day  $t$  for a bill maturing in  $w$  weeks.

- TDDURATN:

$N_{(t,w)}$  = The number of days to maturity on day  $t$  for a bill maturing in  $w$  weeks.

- TDBIDYLD, TDASKYLD, and TDYLD:

$$Y_{t,w} = \frac{1n \left( \frac{100}{P_{t,w}} \right)}{N_{t,w}}$$

This is the daily continuously compounded yield to maturity on day  $t$  for a bill maturing in  $w$  weeks.

- TDBIDFWD1, TDBIDFWD4, TDASKFWD1, TDASKFWD4, TDAVEFWD1, TDAVEFWD4:

$$F_{t,w} = \frac{1n \left( \frac{P_{t,w-\tau}}{P_{t,w}} \right)}{N_{t,w} - N_{t,w-\tau}}$$

is the formula used for calculating the forward rate for tau offset of both 1-week and 4-weeks.

For convenience, the denominators ( $N_{t,w} - N_{t,w-\tau}$ ) are stored in the TDDURFWD1 and TDDURFWD4 variables.

- TDBIDHLD1, TDBIDHLD4, TDASKHLD1, TDASKHLD4, TDAVEHLD1, TDAVEHLD4

$$H_{t,w} = \frac{1n \left( \frac{P_{t+\tau,w-\tau}}{P_{t,w}} \right)}{N_{t,w} - N_{t+\tau,w-\tau}}$$

is the formula used for calculating the forward rate for tau offset of both 1-week and 4-weeks.

For convenience, the denominators ( $N_{(t,w)} - N_{(t+\tau,w-\tau)}$ ) are stored in the TDDURHLD1 and TDDURHLD4 variables.

### Missing Values

While the new 26-week term structure series does not have the 12-month series seven year gap, these series do have missing values that should be noted." The 1-week series (TREASNOX 2000064) contains no 1-week or 4-week forward rates or 1-week

or 4-week holding period returns, because price for the comparison bill cannot exist. Similarly, the 2-week series (2000065), 3-week series (2000066), and 4-week series (2000067) contain no 4-week forward rates or 4-week holding period returns.

At the beginning of the series, the 26-week series (TREASNOX 2000089) starts on 6/15/1961, the 25-week series (2000088) a week later, etc. and the 1-week series (2000064) begins on 12/7/1961. So full data for all series is not available until roughly 1/1/1962. At the end of the series, the holding period returns are not available, because the comparison price is beyond the last available date for prices in the data.

The market closures around 9/11 also introduce missing values in the daily series that are not in the monthly series.

### TRZ\_DLY\_TS2.\* - Daily 26-Week Term Structure

| Sort | Column Name  | Description                          | Definition  | Data Category |
|------|--------------|--------------------------------------|---|---------------|
| 1    | (KY)TREASNOX | See mappings below                   | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | CALDT        | Quotation Date                       | Date associated with the quotation.   | Date          |
|      | RDTREASNO    | Daily Series of Related TREASNOs     | Daily Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX 2000064 (1-week series), 2000065 (2-week), 2000088 (25-week), 2000089 (26-week)   | Key           |
|      | RDCRSPID     | Daily Series of Related CRSPIDs      | Daily Series of Reference CRSPIDs which identify the issue used for a supplemental series.  | ID            |
|      | RDCRSPID_FLG | Reference CRSPID Flag                | Values identify the selection process of the representative CRSPID.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated  | Flag          |
|      | TDBID        | Daily Bid                            | Daily series of bids. $t_{dbid}$ is set to zero for missing.  | Value         |
|      | TDASK        | Daily Ask                            | Daily series of asks. $t_{dask}$ is set to zero for missing.  | Value         |
|      | TDNOMPRC     | Daily Nominal Price                  | Value used in CRSP calculations. For daily, this is either the bid and ask average or it is set to zero when unavailable.   | Value         |
|      | TDBIDYLD     | Daily-Adjusted Bid Yield             | Daily series of yield based on the bid amount.  | Ratio         |
|      | TDASKYLD     | Daily-Adjusted Ask Yield             | Daily series of yield based on the ask amount.  | Ratio         |
|      | TDYLD        | Daily Series of Promised Daily Yield | $t_{dyld}$ is the promised yield daily rate, also called daily yield to maturity.<br>On any given date, the promised yield of a security is the single interest or discount rate that makes the sum of the present values of the principal at maturity plus future interest payments equal to the full price of the security. The full price is the nominal price plus the accrued interest. If a price is missing, the $t_{dyld}$ is set to -99. | Ratio         |
|      | TDDURATN     | Daily Series of Macaulay's Duration  | For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.   | Number        |

| Sort | Column Name | Description                         | Definition   | Data Category |
|------|-------------|-------------------------------------|--|---------------|
|      | TDBIDFWD1   | 1-week forward bid rate             | Daily series of 1-week day-adjusted forward rates based on bid.  | Ratio         |
|      | TDASKFWD1   | 1-week forward ask rate             | Daily series of 1-week day-adjusted forward rates based on ask.  | Ratio         |
|      | TDAVEFWD1   | 1-week forward nomprc rate          | Daily series of 1-week day-adjusted forward rates based on nominal prices (bid/ask average).   | Ratio         |
|      | TDDURFWD1   | Days used for 1-week forward rate   | Daily series of the number of days used as the denominator in the calculation for the 1-week forward rate. Usually 7, but can be 6 or 8.             | Number        |
|      | TDBIDFWD4   | 4-week forward bid rate             | Daily series of 4-week day-adjusted forward rates based on bid.  | Ratio         |
|      | TDASKFWD4   | 4-week forward ask rate             | Daily series of 4-week day-adjusted forward rates based on ask.  | Ratio         |
|      | TDAVEFWD4   | 4-week forward nomprc rate          | Daily series of 4-week day-adjusted forward rates based on nominal prices (bid/ask average).   | Ratio         |
|      | TDDURFWD4   | Days used for 4-week forward rate   | Daily series of the number of days used as the denominator in the calculation for the 4-week forward rate. Usually 28, but can be 27 or 29.          | Number        |
|      | TDBIDHLD1   | 1-week bid holding return           | Daily series of 1-week day-adjusted holding period returns based on bid.   | Ratio         |
|      | TDASKHLD1   | 1-week ask holding return           | Daily series of 1-week day-adjusted holding period returns based on ask.   | Ratio         |
|      | TDAVEHLD1   | 1-week nomprc holding return        | Daily series of 1-week day-adjusted holding period returns based on nominal prices (bid/ask average).  | Ratio         |
|      | TDDURHLD1   | Days used for 1-week holding return | Daily series of the number of days used as the denominator in the calculation for the 1-week holding period return. Usually 7, but can be 6 or 8.    | Number        |
|      | TDBIDHLD4   | 4-week bid holding return           | Daily series of 4-week day-adjusted holding period returns based on bid.   | Ratio         |
|      | TDASKHLD4   | 4-week ask holding return           | Daily series of 4-week day-adjusted holding period returns based on ask.   | Ratio         |
|      | TDAVEHLD4   | 4-week nomprc holding return        | Daily series of 4-week day-adjusted holding period returns based on nominal prices (bid/ask average).  | Ratio         |
|      | TDDURHLD4   | Days used for 4-week holding return | Daily series of the number of days used as the denominator in the calculation for the 4-week holding period return. Usually 28, but can be 27 or 29. | Number        |

### TRZ\_MTH\_TS2.\* - Monthly 26-Week Term Structure

| Sort | Column Name  | Description                      | Definition   | Data Category |
|------|--------------|----------------------------------|--|---------------|
| 1    | (KY)TREASNOX | See mappings below               | TREASNOX is CRSP's unique treasury issue identifier for supplemental series. | Key           |
| 2    | CALDT        | Last Quotation Date in the Month | Month-end date associated with the quotation.                                | Date          |

| Sort | Column Name   | Description                            | Definition  | Data Category |
|------|---------------|--|---|---------------|
|      | RMTREASNO     | Monthly Series of Related TREASNOs     | Monthly Series of Reference TREASNOs which identify the issue used for a supplemental series.<br>TREASNOX 2000064 (1-week series), 2000065 (2-week) 2000088 (25-week), 2000089 (26-week)  | Key           |
|      | RMTREASNO_FLG | Reference Treasno Flag                 | Values identify the selection process of the representative TREASNO.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated   | Flag          |
|      | RMCRSPID      | Monthly Series of Related CRSPIDs      | Monthly Series of Reference CRSPIDs which identify the issue used for a supplemental series.  | ID            |
|      | RMCRSPID_FLG  | Reference CRSPID Flag                  | Values identify the selection process of the representative CRSPID.<br>A = Selected via Algorithm<br>O = Manual Override<br>V = Researcher Validated  | Flag          |
|      | TMBID         | Monthly Bid                            | Monthly Series of bids on the last quotation day of the month. <code>tmbid</code> is set to zero for missing.   | Value         |
|      | TMASK         | Monthly Ask                            | Monthly Series of asks on the last quotation day of the month. <code>tmask</code> is set to zero for missing.   | Value         |
|      | TMNOMPRC      | Monthly Nominal Price                  | Value used in CRSP calculations, most often the bid and ask average. Prior to 1960, bids and sales were used, see table below   | Value         |
|      | TMBIDYLD      | Month-Adjusted Bid Yield               | Monthly series of yield-to-maturity based on the monthly bid amount.  | Ratio         |
|      | TMASKYLD      | Month-Adjusted Ask Yield               | Monthly series of yield-to-maturity based on the monthly ask amount.  | Ratio         |
|      | TMYLD         | Monthly Series of Promised Daily Yield | Promised yield daily rate, also called daily yield-to-maturity. At any date, the promised yield of a security is the single interest or discount rate which makes the sum of the present values of the principle at maturity and future interest payments be precisely equal to the full price of the security. The full price is the nominal price, e.g., mean of <code>tmbid</code> and <code>tmask</code> , plus the accrued interest on the date in question. If a price is missing, the <code>tmyld</code> for that month is set to -99. | Ratio         |
|      | TMDURATN      | Monthly Series of Macaulay's Duration  | For all issues with only a single payment at maturity remaining, which includes all bills, duration is equal to the days to maturity.   | Number        |
|      | TMBIDFWD1     | 1-week forward bid rate                | Month-end series of 1-week day-adjusted forward rates based on bid.   | Ratio         |
|      | TMASKFWD1     | 1-week forward ask rate                | Month-end series of 1-week day-adjusted forward rates based on ask.   | Ratio         |

| Sort     | Column Name | Description  | Definition   | Data Category |
|----------|-------------|--|--|---------------|
|          | TMAVEFWD1   | 1-week forward nomprc rate   | Month-end series of 1-week day-adjusted forward rates based on nominal prices (bid/ask average).   | Ratio         |
|          | TMDURFWD1   | Days used for 1-week forward rate  | Month-end series of the number of days used as the denominator in the calculation for the 1-week forward rate. Usually 7, but can be 6 or 8.             | Number        |
|          | TMBIDFWD4   | 4-week forward bid rate  | Month-end series of 4-week day-adjusted forward rates based on bid.  | Ratio         |
|          | TMASKFWD4   | 4-week forward ask rate  | Month-end series of 4-week day-adjusted forward rates based on ask.  | Ratio         |
|          | TMAVEFWD4   | 4-week forward nomprc rate   | Month-end series of 4-week day-adjusted forward rates based on nominal prices (bid/ask average).   | Ratio         |
|          | TMDURFWD4   | Days used for 4-week forward rate  | Month-end series of the number of days used as the denominator in the calculation for the 1-week forward rate. Usually 28, but can be 27 or 29.          | Number        |
|          | TMBIDHLD1   | 1-week bid holding return  | Month-end series of 1-week day-adjusted holding period returns based on bid.   | Ratio         |
|          | TMASKHLD1   | Monthly 1-week ask holding return  | Month-end series of 1-week day-adjusted holding period returns based on ask.   | Ratio         |
|          | TMAVEHLD1   | 1-week nomprc holding return   | Month-end series of 1-week day-adjusted holding period returns based on nominal prices (bid/ask average).  | Ratio         |
|          | TMDURHLD1   | Days used for 1-week holding return  | Month-end series of the number of days used as the denominator in the calculation for the 1-week holding period return. Usually 7, but can be 6 or 8.    | Number        |
|          | TMBIDHLD4   | 4-week bid holding return  | Month-end series of 4-week day-adjusted holding period returns based on bid.   | Ratio         |
|          | TMASKHLD4   | 4-week ask holding return  | Month-end series of 4-week day-adjusted holding period returns based on ask.   | Ratio         |
|          | TMAVEHLD4   | 4-week nomprc holding return   | Month-end series of 4-week day-adjusted holding period returns based on nominal prices (bid/ask average).  | Ratio         |
|          | TMDURHLD4   | Days used for 4-week holding return  | Month-end series of the number of days used as the denominator in the calculation for the 4-week holding period return. Usually 28, but can be 27 or 29. | Number        |
| Mappings |             | TREASNOX 2000064 (1-week series), 2000065 (2-week), 2000088 (25-week), 2000089 (26-week) |  |               |

## CPI Files

CPI data items are accessible through a new TREASNOX:

- 2000090 – Published and Reference CPI

Data items for CPI values are included Daily and Monthly Data Groups in SIFT, labeled Daily CPI and Monthly CPI. Items can be selected individually from the Data Items tree view, or collectively under the Data Groups tab.

**TFZ\_DLY\_CPI.\* - Daily CPI**

| Sort | Column Name    | Description                               | Definition  | Data Category |
|------|----------------|---|---|---------------|
| 1    | (KY)TREASNOX   | Treasury Record Identifier                | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | CALDT          | Quotation Date                            | Date associated with the quotation.   | Date          |
|      | TDCPIREF       | Reference CPI                             | Daily time series of the reference CPI as defined by the treasury in CFR.   | Amount        |
|      | TDCPIREF_FLG   | Ref CPI Flag                              | Daily reference CPI flag<br>S = Spot-check<br>P = Pre-tips Values (CRSP-calculated with current formula, but pre-dating the publication of reference CPI)<br>V = Verified | Flag          |
|      | TDCPI          | Imputed Daily CPI<br>- All Consumers      | CPI-U as published by the US Bureau of Labor Statistics.  | Amount        |
|      | TDCPI_FLG      | Imputed Daily CPI<br>- All Consumers Flag | Daily CPI-U flag<br>M = Monthly published number<br>W = Waiting<br>P = On publication Date<br>B = Before publication Date<br>A = after publication Date                   | Flag          |
|      | TDCPIPUBDT     | CPI-U Publication Date                    | Date the CPI-U was published by the US Bureau of Labor Statistics   | Date          |
|      | TDCPIPUBDT_FLG | CPI-U Publication Date Flag               | CPI-U publication Date flag<br>B = Bureau of Labor statistics   | Flag          |

**TFZ\_MTH\_CPI.\* - Monthly CPI**

| Sort | Column Name  | Description                          | Definition  | Data Category |
|------|--------------|--------------------------------------|---|---------------|
| 1    | (KY)TREASNOX | Treasury Record Identifier           | TREASNOX is CRSP's unique treasury issue identifier for supplemental series.  | Key           |
| 2    | MCALDT       | Last Quotation Date in the Month     | Month-end date associated with the quotation.   | Date          |
|      | TMCPREF      | Reference CPI                        | Monthly time series of the reference CPI as defined by the treasury in CFR.   | Amount        |
|      | TMCPREF_FLG  | Ref CPI Flag                         | Monthly reference CPI flag<br>S = Spot-check<br>P = Pre-tips Values (CRSP-calculated with current formula, but pre-dating the publication of reference CPI)<br>V = Verified | Flag          |
|      | TMCP         | Imputed Daily CPI<br>- All Consumers | CPI-U as published by the US Bureau of Labor Statistics   | Amount        |

| Sort | Column Name      | Description                               | Definition  | Data Category |
|------|------------------|---|---|---------------|
|      | TMCPFLG          | Imputed Daily CPI<br>- All Consumers Flag | Monthly CPI-U flag<br>M = Monthly published number<br>W = Waiting<br>P = On publication Date<br>B = Before publication Date<br>A = after publication Date | Flag          |
|      | TMCPUBDT         | CPI-U Publication Date                    | Date the CPI-U was published by the US Bureau of Labor Statistics.  | Date          |
|      | TMCPUBDT_<br>FLG | CPI-U Publication Date Flag               | CPI-U publication Date flag<br>B = Bureau of Labor statistics   | Flag          |

## Chapter 3: Reference

### Legacy Item Cross Reference

The following table provides a cross-reference of item identifiers for CRSP treasury products.

| New Mnemonic (TRZ)                   | Legacy Daily (BD) | Legacy Monthly File Name             | Legacy Monthly (BM) | Legacy Monthly File Name | Item Name                              |
|--------------------------------------|-------------------|--------------------------------------|---------------------|--------------------------|--|
| <b>Identifiers</b>                   |                   |                                      |                     |                          |  |
| CRSPID                               | CRSPID            | bmquotes, bxquotes, bmyield, bxyield | CRSPID              | MBM Data Record, MBX     | CRSP-Assigned Unique ID                |
| RDCRSPID                             | CRSPID            | bxdlind                              |                     |                          | Daily Series of Related CRSPIDs        |
| RDTREASNO                            | NEW               | N/A                                  |                     |                          | Daily Series of Related TREASNOs       |
| RMCRSPID                             |                   |                                      | CRSPID              | bxmthind                 | Monthly Series of Related CRSPIDs      |
| RMTREASNO                            |                   |                                      | NEW                 | N/A                      | Monthly Series of Related TREASNOs     |
| TNAME                                | NAME              | bmheader                             | NAME                | MBM -header record       | Name of Government Security            |
| TREASNO                              | NEW               | N/A                                  | NEW                 | N/A                      | Treasury Record Identifier             |
| <b>Descriptions &amp; Event Data</b> |                   |                                      |                     |                          |  |
| IFCPDTF                              | FCPDTF            | bmheader.dat                         | NEW                 | MBM -header record       | First Coupon Payment Date Flag         |
| IFLWR                                | FLOWER            | bmheader.dat                         | IFLWR               | MBM -header record, MBX  | Payment of Estate Tax Code             |
| ITAX                                 | TAX               | bmheader.dat                         | ITAX                | MBM -header record, MBX  | Taxability of Interest                 |
| ITYPE                                | TYPE              | bmheader.dat                         | ITYPE               | MBM -header record       | Type of Issue                          |
| IUNIQ                                | UNIQ              | bmheader.dat                         | IUNIQ               | MBM -header record       | Uniqueness Number                      |
| IWHY                                 | WHY               | bmheader.dat                         | IWHY                | MBM -header record       | Reason for End of Data                 |
| IYMCN                                | YMCNOT            | bmheader.dat                         | IYMCN               | MBM -header record       | Year and Month of First Call Notice    |
| PDINT                                | PDINT             | bmheader.dat                         | PDINT(I)            | MBM -header record       | Coupon Interest Payments               |
| TBANKDT                              | BANKDT            | bmheader.dat                         | IDTBNK              | MBM -header record       | Bank Eligibility Date at Time of Issue |
| TCOUPRT                              | COUPRT            | bmheader.dat                         | COUPRT              | MBM -header record       | Coupon Rate                            |
| TCUSIP                               | CUSIP             | bmheader.dat                         | CUSIP               | MBM -header record       | Treasury CUSIP                         |
| TDATDT                               | DATDT             | bmheader.dat                         | IDTDTD              | MBM -header record       | Date Dated by Treasury                 |
| TFCALDT                              | FCALDT            | bmheader.dat                         | IDTCP               | MBM -header record       | First Eligible Call Date               |
| TFCPDT                               | FCPDT             | bmheader.dat                         | IDTFC               | MBM -header record       | First Coupon Payment Date              |

| New Mnemonic (TRZ)               | Legacy Daily (BD) | Legacy Monthly File Name | Legacy Monthly (BM) | Legacy Monthly File Name | Item Name                                   |
|----------------------------------|-------------------|--------------------------|---------------------|--------------------------|---|
| TMFSTDAT                         | QDATE(FSTQUO)     | N/A                      | QDATE(MSTART)       | MBM -header record       | Date of First Monthly Data                  |
| TMLSTDAT                         | QDATE(LSTQUO)     | N/A                      | QDATE(MFINIS)       | MBM -header record       | Date of Last Monthly Data                   |
| TNIPPY                           | NIPPY             | bmheader.dat             | NIPPY               | MBM -header record       | Number of Interest Payments Per Year        |
| TNOTICE                          | NOTICE            | bmheader.dat             | NOTICE              | MBM -header record       | Notice Required on Callable Issues          |
| TPQDATE                          | PQDATE            | bmpaymnts                | NEW                 | N/A                      | Interest Payment Date                       |
| TREASNOTYPE                      | NEW               | N/A                      | NEW                 | N/A                      | Treasury Record Type                        |
| TVALFC                           | VALFC             | bmheader.dat             | VALFC               | MBM -header record       | Amount of First Coupon per \$100 Face Value |
| <b>Daily Time Series Items</b>   |                   |                          |                     |                          |   |
| TDACCINT                         | ACCINT            | bmyield, bxyield         |                     |                          | Daily Series of Total Accrued Interest      |
| TDASK                            | ASK               | bmquotes, bxquotes       |                     |                          | Daily Ask                                   |
| TDBID                            | BID               | bmquotes, bxquotes       |                     |                          | Daily Bid                                   |
| TDDURATN                         | DURATN            | bmyield, bxyield         |                     |                          | Daily Series of Macaulay's Duration         |
| TDNOMPRC                         | NEW               | N/A                      |                     |                          | Daily Nominal Price                         |
| TDNOMPRC_FLG                     | NEW               | N/A                      |                     |                          | Daily Nominal Price Flag                    |
| TDPDINT                          | PDINT             | bmpaymts                 |                     |                          | Daily Series of Paid Interest               |
| TDPUBOUT                         | PUBOUT            | bmdebt                   |                     |                          | Daily Series of Publicly Held Outstanding   |
| TDRATE                           | Multiple          | bxcalind                 |                     |                          | Daily Published Rates                       |
| TDRETADJ                         | RETADJ            | bxdllyind                |                     |                          | Daily Adjusted Return                       |
| TDRETNUA                         | RETNUA            | bmyield, bxyield         |                     |                          | Daily Unadjusted Return                     |
| TDSOURCR                         | SOURCR            | bmquotes, bxquotes       |                     |                          | Daily Price Data Source Flag                |
| TDTOTOUT                         | TOTOUT            | bmdebt                   |                     |                          | Daily Series of Total Amount Outstanding    |
| TDYLD                            | YLD               | bmyield, bxyield         |                     |                          | Daily Series of Promised Daily Yield        |
| <b>Monthly Time Series Items</b> |                   |                          |                     |                          |   |
| TMACCINT                         |                   |                          | ACCINT              | MBM Data Record, MBX     | Monthly Series of Total Accrued Interest    |
| TMASK                            |                   |                          | PRIC2R              | MBM Data Record, MBX     | Monthly Ask                                 |
| TMBID                            |                   |                          | PRIC1R(I)           | MBM Data Record, MBX     | Monthly Bid                                 |

| New Mnemonic (TRZ) | Legacy Daily (BD) | Legacy Monthly File Name | Legacy Monthly (BM) | Legacy Monthly File Name      | Item Name                                      |
|--------------------|-------------------|--------------------------|---------------------|-------------------------------|--|
| TMDURATN           |                   |                          | DURATN(I)           | MBM Data Record, MBX          | Monthly Series of Macaulay's Duration          |
| TMNOMPRC           |                   |                          | NEW                 | N/A                           | Monthly Nominal Price                          |
| TMNOMPRC_FLG       |                   |                          | NEW                 | N/A                           | Monthly Nominal Price Flag                     |
| TMPCYLD            |                   |                          | PCYLD               | MBM Data Record               | Monthly Series of SemiAnnual Yield             |
| TMPDINT            |                   |                          | PDINT               | MBM Data Record, MBX          | Interest Payable During Month                  |
| TMPUBOUT           |                   |                          | IOUT2R              | MBM Data Record, MBX          | Monthly Series of Publicly Held Outstanding    |
| TMRETADJ           |                   |                          | RETADJ              | bxmthind                      | Monthly Adjusted Return                        |
| TMRETNUA           |                   |                          | RETNUA              | MBM Data Record, MBX          | Monthly Unadjusted Return                      |
| TMRETNXS           |                   |                          | RETNXS              | MBM Data Record               | Monthly Excess Return                          |
| TMSOURCR           |                   |                          | SOURCR              | MBM Data Record               | Monthly Price Data Source                      |
| TMTOTOUT           |                   |                          | IOUT1R              | MBM Data Record, MBX          | Total Amount Outstanding                       |
| TMYLD              |                   |                          | YIELD               | MBM Data Record, MBX          | Monthly Series of Promised Daily Yield         |
| TMYTM              |                   |                          | YTM                 | famablisylid.dat              | Monthly Series of Annualized Yield to Maturity |
| <b>TREASNOX</b>    |                   |                          |                     |                               |  |
| TDYEARSTM          | YEARSTM           | bxdlind                  |                     |                               | Daily Series of Years to Maturity              |
| TDYTM              | YTM               | bxdlind                  |                     |                               | Daily Series of Annualized Yield to Maturity   |
| TIDXFAM            |                   |                          |                     |                               | Treasury Index Family                          |
| TMASKFWD           |                   |                          |                     | ffwdask6.dat<br>ffwdask12.dat | Month-Adjusted Ask Forward Rate                |
| TMASKRET           |                   |                          |                     | fhldask6.dat<br>fhldask12.dat | Month-Adjusted Ask Hold Return                 |
| TMASKYLD           |                   |                          |                     | fyldask6.dat<br>fyldask12.dat | Month-Adjusted Ask Yield                       |
| TMASKYTM           |                   |                          |                     | riskfree.dat                  | Monthly Series of Annualized Yield to Maturity |
| TMAVEFWD           |                   |                          |                     | ffwdave6.dat<br>ffwdave12.dat | Month-Adjusted Average Forward Rate            |

| New Mnemonic (TRZ)             | Legacy Daily (BD) | Legacy Monthly File Name | Legacy Monthly (BM) | Legacy Monthly File Name        | Item Name                               |
|--------------------------------|-------------------|--------------------------|---------------------|---------------------------------|---|
| TMAVERET                       |                   |                          |                     | fhldave6.dat<br>fhldave12.dat   | Month-Adjusted Average Hold Return      |
| TMAVEYLD                       |                   |                          |                     | fyldave6.dat<br>fyldave12.dat   | Month-Adjusted Average Yield            |
| TMBIDFWD                       |                   |                          |                     | ffwdbid6.dat<br>ffwdbid12.dat   | Month-Adjusted Bid Forward Rate         |
| TMBIDRET                       |                   |                          |                     | fhldb6.dat<br>fhldb12.dat       | Month-Adjusted Bid Hold Return          |
| TMBIDYLD                       |                   |                          |                     | fyldb6.dat<br>fyldb12.dat       | Month-Adjusted Bid Yield                |
| TMBIDYTM                       |                   |                          |                     | riskfree.dat                    | Bid Yield                               |
| TMEWRET                        |                   |                          |                     | bondport6.dat<br>bondport12.dat | Monthly Equal Weighted Portfolio Return |
| TMYEARSTM                      |                   |                          | YEARSTM             | bxmthind                        | Monthly Series of Years Until Maturity  |
| TTERMYPE                       | TERMYPE           |                          | TERMYPE             |                                 | Term Type                               |
| <b>Reserved for Future Use</b> |                   |                          |                     |                                 |   |
| TELIGDESC                      |                   |                          |                     |                                 | Eligibility Description                 |
| TFRGNTGT                       |                   |                          |                     |                                 | Foreign Target Equivalent Flag          |
| TIDXFAM                        |                   |                          |                     |                                 | Treasury Index Family                   |
| TREASSYM                       |                   |                          |                     |                                 | Treasury Symbol                         |
| TSELDESC                       |                   |                          |                     |                                 | Selection Description                   |
| TSTRPEELIG                     |                   |                          |                     |                                 | Strip Eligibility                       |
| TTERMLBL                       |                   |                          |                     |                                 | Maturity and Rebalancing Label          |
| TTERMMAX                       |                   |                          |                     |                                 | Max Days to Maturity to be Eligible     |
| TTERMMIN                       |                   |                          |                     |                                 | Min Days to Maturity to be Eligible     |

**CRSPSIFT TREASNOX Files**

| <b>TREASNOX</b>                                       | <b>Term Type Definition</b>          |
|---|--------------------------------------|
| <b>Index Family: RISKFREE – Risk Free</b>             |                                      |
| 2000001   | Risk-Free Rates – 1 Month            |
| 2000002   | Risk-Free Rates – 3 Month            |
| <b>RISKFREE2</b>                                      |                                      |
| 2000061   | Risk Free 4-Week                     |
| 2000062   | Risk Free 13-Week                    |
| 2000063   | Risk Free 26-Week                    |
| <b>Index Family: FIXEDTERM – Fixed Term</b>           |                                      |
| 2000003   | 1 Year Bonds, Start Date 1/31/1941   |
| 2000004   | 2 Year Bonds, Start Date 1/31/1941   |
| 2000005   | 5 Year Bonds, Start Date 4/30/1941   |
| 2000006   | 7 Year Bonds, Start Date 4/30/1941   |
| 2000007   | 10 Year Bonds, Start Date 5/31/1941  |
| 2000008   | 20 Year Bonds, Start Date 1/31/1942  |
| 2000009   | 30 Year Bonds, Start Date 11/29/1941 |
| <b>Index Family: TERMSTRUCT – Fama Term Structure</b> |                                      |
| 2000010   | Fama 12 Month T-Bills – 1 Month      |
| 2000011   | Fama 12 Month T-Bills – 2 Month      |
| 2000012   | Fama 12 Month T-Bills – 3 Month      |
| 2000013   | Fama 12 Month T-Bills – 4 Month      |
| 2000014   | Fama 12 Month T-Bills – 5 Month      |
| 2000015   | Fama 12 Month T-Bills – 6 Month      |
| 2000016   | Fama 12 Month T-Bills – 7 Month      |
| 2000017   | Fama 12 Month T-Bills – 8 Month      |
| 2000018   | Fama 12 Month T-Bills – 9 Month      |
| 2000019   | Fama 12 Month T-Bills – 10 Month     |
| 2000020   | Fama 12 Month T-Bills – 11 Month     |
| 2000021   | Fama 12 Month T-Bills – 12 Month     |
| 2000022   | Fama 6 Month T-Bills – 1 Month       |
| 2000023   | Fama 6 Month T-Bills – 2 Month       |
| 2000024   | Fama 6 Month T-Bills – 3 Month       |
| 2000025   | Fama 6 Month T-Bills – 4 Month       |
| 2000026   | Fama 6 Month T-Bills – 5 Month       |

| TREASNOX   | Term Type Definition                           |
|--|--|
| 2000027  | Fama 6 Month T-Bills - 6 Month                 |
| <b>Index Family: BONDMAPORT - Fama Bond Portfolio Return</b> |  |
| 2000028  | Fama BondPort Return - 6Mo Range <=6Month      |
| 2000029  | Fama BondPort Return -6Mo Range <=12Month      |
| 2000030  | Fama BondPort Return -6Mo Range <=18Month      |
| 2000031  | Fama BondPort Return -6Mo Range <=24Month      |
| 2000032  | Fama BondPort Return -6Mo Range <=30Month      |
| 2000033  | Fama BondPort Return -6Mo Range <=36Month      |
| 2000034  | Fama BondPort Return -6Mo Range <=42Month      |
| 2000035  | Fama BondPort Return -6Mo Range <=48Month      |
| 2000036  | Fama BondPort Return -6Mo Range <=54Month      |
| 2000037  | Fama BondPort Return -6Mo Range <=60Month      |
| 2000038  | Fama BondPort Return > 60 <= 120 Month         |
| 2000039  | Fama BondPort Return > 120 Month               |
| 2000040  | Fama BondPort Return -12Mo Range <=12Month     |
| 2000041  | Fama BondPort Return -12Mo Range <=24Month     |
| 2000042  | Fama BondPort Return -12Mo Range <= 36Month    |
| 2000043  | Fama BondPort Return -12Mo Range <= 48Month    |
| 2000044  | Fama BondPort Return -12Mo Range <= 60Month    |
| 2000045  | Reserved for future use - Duplicate of 2000038 |
| 2000046  | Reserved for future use - Duplicate of 2000039 |
| <b>Index Family: DISCBOND - Fama-Bliss Discount Bonds</b>    |  |
| 2000047  | Fama Bilss Discount Bonds 1 Year               |
| 2000048  | Fama Bilss Discount Bonds 2 Year               |
| 2000049  | Fama Bilss Discount Bonds 3 Year               |
| 2000050  | Fama Bilss Discount Bonds 4 Year               |
| 2000051  | Fama Bilss Discount Bonds 5 Year               |
| <b>Index Family: RATES - Rates</b>                           |  |
| 2000052  | 1-Month Certificate of Deposit Rate            |
| 2000053  | 3-Month Certificate of Deposit Rate            |
| 2000054  | 6-Month Certificate of Deposit Rate            |
| 2000055  | 30-Day Commercial Paper Rate                   |
| 2000056  | 60-Day Commercial Paper Rate                   |
| 2000057  | 90-Day Commercial Paper Rate                   |

| <b>TREASNOX</b>   | <b>Term Type Definition</b>                  |
|---|--|
| 2000058   | Federal Funds Effective Rate                 |
| 2000059   | Federal Funds Minimum Trading Range          |
| 2000060   | Federal Funds Maximum Trading Range          |
| <b>TREASNOX</b>   | <b>Term Type Definition</b>                  |
| <b>Index Family: TERMSRTRUCT - 26-Week Daily/Monthly Term Structure</b> |  |
| 2000064   | Fama T-Bill 26-Week Term Structure - 1 Week  |
| 2000065   | Fama T-Bill 26-Week Term Structure - 2 Week  |
| 2000066   | Fama T-Bill 26-Week Term Structure - 3 Week  |
| 2000067   | Fama T-Bill 26-Week Term Structure - 4 Week  |
| 2000068   | Fama T-Bill 26-Week Term Structure - 5 Week  |
| 2000069   | Fama T-Bill 26-Week Term Structure - 6 Week  |
| 2000070   | Fama T-Bill 26-Week Term Structure - 7 Week  |
| 2000071   | Fama T-Bill 26-Week Term Structure - 8 Week  |
| 2000072   | Fama T-Bill 26-Week Term Structure - 9 Week  |
| 2000073   | Fama T-Bill 26-Week Term Structure - 10 Week |
| 2000074   | Fama T-Bill 26-Week Term Structure - 11 Week |
| 2000075   | Fama T-Bill 26-Week Term Structure - 12 Week |
| 2000076   | Fama T-Bill 26-Week Term Structure - 13 Week |
| 2000077   | Fama T-Bill 26-Week Term Structure - 14 Week |
| 2000078   | Fama T-Bill 26-Week Term Structure - 15 Week |
| 2000079   | Fama T-Bill 26-Week Term Structure - 16 Week |
| 2000080   | Fama T-Bill 26-Week Term Structure - 17 Week |
| 2000081   | Fama T-Bill 26-Week Term Structure - 18 Week |
| 2000082   | Fama T-Bill 26-Week Term Structure - 19 Week |
| 2000083   | Fama T-Bill 26-Week Term Structure - 20 Week |
| 2000084   | Fama T-Bill 26-Week Term Structure - 21 Week |
| 2000085   | Fama T-Bill 26-Week Term Structure - 22 Week |
| 2000086   | Fama T-Bill 26-Week Term Structure - 23 Week |
| 2000087   | Fama T-Bill 26-Week Term Structure - 24 Week |
| 2000088   | Fama T-Bill 26-Week Term Structure - 25 Week |
| 2000089   | Fama T-Bill 26-Week Term Structure - 26 Week |
| <b>Index Family: CPI DATA</b>   |  |
| 2000090   | Published and Reference CPI                  |

## Appendix A: Special Issues

### Issues With Special Provisions

The following is a list of issues having special provisions and coded with ITYPE = 9. You may wish to consider these provisions before using the data from these issues.

|                 |   |
|-----------------|---|
| 19330315.902000 | Redeemable at option of holder at par plus accrued interest with 60 days notice. Principal and interest payable in United States gold coin.   |
| 19340415.904250 | Issue created by early call of 19381015.904250. Similar numbers selected to be called for redemption on 19340415 were promulgated by the Treasury effectively creating a new issue which was quoted separately up to the call date.   |
| 19341015.904250 | Issue created by early call of 19381015.904250. Similar to 19340415.904250.   |
| 19350415.904250 | Issue related by early call of 19381015.904250. Similar to 19340415.904250.   |
| 19381015.904250 | Principal and interest payable in United States gold coin.  |
| 19451015.903250 | Accrued interest at the rate of 41/4% up to 19341015 and at 31/4% thereafter.   |
| 19590801.904000 | Issue created from 19610801.904000 (see below).   |
| 19600215.904000 | Issue created from 19620815.904000 (see below).   |
| 19610801.904000 | Redeemable at the option of the holder at par and accrued interest on August 1, 1959. Notice of intent to redeem must be made by May 1, 1959 and certificates to be redeemed to be stamped. Once stamped, certificates mature on August 1, 1959 (not August 1, 1961 as issued). These stamped certificates were traded and quoted under the new CRSPID, even though no such security was actually issued by the treasury. |
| 19620815.904000 | Similar to 19610801.904000. Redeemable at option of holder on February 15, 1960, written notice and surrender required on or before November 16, 1959. Issue thus created was 19600215.904000.  |
| 99990401.902000 | Consol bond, paid interest quarterly in perpetuity. Principal returned only if called. Issue actually called in 1935.   |

These issues are also traded as normal notes and bonds and are quoted as such in the files.

### Stripped Notes and Bonds

Stripped notes and bonds are issues, which have been broken into their component cash flows, each of which is then traded separately. This was originally done by various financial institutions who issued treasury backed securities (e.g., CATS, TIGERS etc.). A fully-constituted Treasury note of bond consists of a principal payment and semiannual interest payments. In 1985 the treasury began participating in this market by designating certain issues as eligible to be stripped. All 10 year notes and all bonds issued since November 15, 1984 have been made eligible for the STRIPS program either upon their original issue or after their first interest payment date. Issues so designated could be broken up and the individual cash flows registered separately. As of September 1999, all new Treasury marketable fixed-rate notes and bonds issued on and after September 30, 1997 are eligible for STRIPS. The Treasury itself did not sell the individual payments, this being done by dealers who first purchased eligible securities.

The following issues have been designated as eligible for stripping by the Treasury:

|                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|
| 19941115.211620 | 20000815.208750 | 20050815.206500 | 20200815.108750 |
| 19950215.211250 | 20001115.205750 | 20051115.205870 | 20210215.107870 |
| 19950515.211250 | 20001115.208500 | 20060215.109370 | 20210515.108120 |
| 19950815.210500 | 20010215.207750 | 20060515.206870 | 20210815.108120 |
| 19970515.208500 | 20020515.207500 | 20070515.206620 | 20230815.106250 |
| 19970815.208620 | 20020815.206370 | 20070815.206120 | 20241115.107500 |
| 19971115.208870 | 20020930.205870 | 20141115.511750 | 20250215.107620 |
| 19980215.208120 | 20021031.205750 | 20150215.111250 | 20250815.106870 |
| 19980515.209000 | 20021130.205750 | 20150815.110620 | 20260215.106000 |
| 19980815.209250 | 20021231.205620 | 20151115.109870 | 20260815.106750 |
| 19981115.208870 | 20030215.206250 | 20160215.109250 | 20261115.106500 |
| 19990215.208870 | 20030815.205750 | 20160515.107250 | 20270215.106620 |
| 19990515.209120 | 20040215.205870 | 20161115.107500 | 20270815.106370 |
| 19990815.208000 | 20040515.207250 | 20170515.108750 | 20271115.106120 |
| 19990930.205750 | 20040815.207250 | 20170815.108870 | 20280815.105500 |
| 19991031.205620 | 20041115.111620 | 20180515.109120 | 20281115.105250 |
| 19991115.207870 | 20041115.207870 | 20181115.109000 | 20290215.105250 |
| 19991130.205620 | 20050215.207500 | 20190215.108870 | 20290815.106120 |
| 19991231.205620 | 20050515.112000 | 20190815.108120 |                 |
| 20000215.208500 | 20050515.206500 | 20200215.108500 |                 |
| 20000515.208870 | 20050815.110750 | 20200515.108750 |                 |

### Foreign Targeted Securities

Foreign targeted issues are not included in the CRSP US Treasury Database. Certain recent notes have been issued in pairs with identical coupon rates, maturities and dated dates. One issue of the pair is intended for domestic holders and is normal in all respects. The other issue is intended for United States aliens. These "Foreign Targeted Securities" are exempt from certain federal taxes when held by eligible foreigners. They pay interest annually and may be converted into their domestic equivalent or sale to domestic holders. The converse is not true.

The following notes which are included are known to have Foreign Targeted equivalents:

|                 |                |
|-----------------|----------------|
| 19880930.211370 | dated 19841031 |
| 19900215.211000 | dated 19841203 |
| 19900815.209870 | dated 19850604 |
| 19960215.208870 | dated 19860215 |

### **About CRSP Research Data Products**

Center for Research in Security Prices (CRSP), originally established at the University of Chicago in 1960, is widely recognized as a leading provider of research quality historical market and returns data. Built on rigorous academic standards, its research data products are trusted by academic, commercial, and government institutions worldwide that rely on accurate, transparent data for meticulous financial analysis, economic research, and policy development where precision and historical continuity are essential.

In February 2026, Morningstar completed the acquisition of CRSP, integrating CRSP's research data products—renowned for their academic rigor, historical depth, and accuracy—into Morningstar's global data and research platform. This combination enhances Morningstar's equity research capabilities while continuing CRSP's legacy of providing high quality data to support institutional research, benchmarking, and investment decision making.

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