CRSP

US GOVERNMENT BILLS, NOTES, AND BONDS DATABASE GUIDE

Monthly Prices and Yields, Updated Annually
1925-1998

Center for Research in Security Prices
The University of Chicago Graduate School of Business

CRSP.com

US Government Bills, Notes, and Bonds Database Guide

Monthly Prices and Yields, Updated Annually

5,136 US Treasury Securities and 101,986 Price Observations

From December 31, 1925, through December 31, 1998

Center for Research in Security Prices
The University of Chicago Graduate School of Business

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DATABASE GUIDES

Additional copies of this database guide are available on the CRSP CD-ROM and on-line through the Database Guide link found at http://www.crsp.com

OVERVIEW

ABOUT THIS GUIDE

This guide will help you to understand and access the Monthly US Government Bills, Notes, and Bonds Database, developed at the University of Chicago, Graduate School of Business, Center for Research in Security Prices (CRSP).

Professor Lawrence Fisher, currently at Rutgers University, originated the basic design and content of the Monthly US Government Bills, Notes, and Bonds Database.

The Databases are comprehensive. The monthly database contains more than 101,986 price observations on 5,136 US Government issues. The daily database contains more than 1.4 Million price observations on 3,176 US Government securities. They are updated annually.

INSIDE

Chapter One: Introduction describes the sources of the data and the construction of the database's Master Files.

Chapter Two: Database Structure contains a listing of the layout and character positions of the Calendar File, The Master File, the Cross Sectional File and the Fixed Term Index Files.

Chapter Three: Data Definitions defines the data variables found in the Calendar File, the Master File and the Cross-Sectional File, and the Fixed-Term Indices File.

Chapter Four: Supplemental Files describes in detail the Supplemental Files developed by Professor Eugene F. Fama, the Robert R. McCormick Distinguished Service Professor of Finance at the University of Chicago. It also defines the Fixed-Term Indices for 1, 2, 5, 7, 10, 20, and 30 year US Treasury maturities.

Chapter Five: Accessing the Data describes the sample programs written in FORTRAN 77, and lists the layout of the ASCII, Excel and SAS files.

Appendix: Lists the US Government issues which require special treatment.

Index: provides an alphabetical reference to locate definitions for the data variables, sample programs, subroutines, and include files.

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CHAPTER ONE: INTRODUCTION

OVERVIEW

This chapter describes the sources of the data and the construction of the US Government Bills, Notes and Bonds Database.

INSIDE

CHAPTER 1. INTRODUCTION

1.1 About CRSP

Back in 1959, Professor James Lorie fielded a call from Louis Engel, a Vice President at Merrill Lynch, Pierce, Fenner & Smith. The firm wanted to advertise how well people had done investing in common stocks, but Engel needed some solid data. Could the University of Chicago Graduate School of Business help?

That was the start of the Center for Research in Security Prices. Forty years ago, computer technology was in its infancy and no machine-readable data existed.

Professor Lorie and Professor Lawrence Fisher, a colleague on the finance faculty, set out to build a database of historical and current securities data that answered Merrill Lynch's question and, since then, many, many others.

The professors compiled the first machine-readable file. It contained month-end prices and total returns on all stocks listed on the New York Stock Exchange between 1926 and 1960. Over time, CRSP added the American Stock Exchange, the NASDAQ stock exchange, and end-of-day as well as month-end prices. Now CRSP updates US stock data in two frequencies; either once a year or once a month.

In 1999, CRSP is justly considered the best provider by far of US corporate actions information. Specifically, we diligently track name changes and name identifiers, distributions of shares, cash, rights, spin-offs, mergers and liquidation payments. As a result, the history and quality of CRSP capital return, income return and total return numbers are unsurpassed.

CRSP Working Papers

From its founding, the University set for itself the highest standards of research excellence. The Graduate School of Business helped to spawn the modern revolution in finance, and research done here has been incorporated into CRSP Data Files. Among them:

Risk/Return Analysis by Harry Moskovitz
The Sharpe-Lintner Capital Asset Pricing Model
The Efficient Market Hypothesis
Black-Scholes Option Pricing Model
Small Stock Effect

The comprehensiveness and quality of CRSP data has made it the premier source for academic researchers and quantitative analysts for forty years. We have available the latest research on a wide variety of finance topics over the web.

World Wide Web: crsp.com, CRSP Working Papers

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CRSP Historical Data Products

CRSP NYSE, AMEX, Nasdaq Daily and Monthly Price and Total Return Databases

CRSP will provide monthly or annual updates of end-of-day and month-end prices on all listed NYSE, AMEX and NASDAQ common stocks and Foreign stocks, plus basic market indices. CRSP provides the most comprehensive distribution information available, for the most accurate total return calculations.

Important facts regarding CRSP US Stock Data.

- **Annual Update**: Ready in April.
- **Monthly Updates**: Ready by the 15th day of the following month.
- **Daily and Month-End Data:** NYSE / AMEX**:** High, low, bid, ask, closing prices; trading volume; shares outstanding; capital appreciation, income appreciation, and total return; year-end capitalization, and year-end capitalization portfolio. NASDAQ also includes month-end closing bid and ask, number of trades, historical traits information, market maker count, trading status, NASD classification**.**
- **History:** NYSE daily data begins July 1962. Monthly data begins December 1925. AMEX daily and monthly data begins July 1962. NASDAQ daily and monthly data begins December, 14 1972.
- **Identifying Information:** Complete Name History; all historical CUSIPs, Exchange Ticker Symbols, SIC Codes, Share Classes, Share Codes, Exchange Codes, and Security Delisting information. Certain items may change over time -- Name, CUSIP, and Exchange Ticker Symbol. CRSP has developed a unique identifier called the PERMNO™, which does not change and allows for extremely accurate time-series analysis.
- **Distribution Information:** descriptions of all distributions, dividend amounts, factors to adjust price and shares, declarations, ex-distribution, record and payment dates, and security and company linking information.

CRSP US Stock, Treasury Indices and Portfolio Assignments Database

A companion database, the CRSP US Stock, Treasury Indices and Portfolio Assignments Database**,** provides market indices on a daily, monthly, quarterly and annual frequency. This database provides additional market and security level portfolio statistics and decile portfolio assignment data. Four types of indices provide the following information.

- The **CRSP Stock File Indices** includes Value- and Equal-Weighted Indices, with or without dividends, the S&P 500 Composite Index and returns, NASDAQ Composite Index and return and security data needed to link stocks to the CRSP US Market Cap-Based Portfolios. US Government Consumer Price Index, US Government Bond Fixed Term Index Series, and the CRSP Risk-Free Rates File.

- Track micro-, small-, mid- and large-cap stocks with CRSP US Market Cap-Based Portfolios. CRSP ranks all NYSE companies by market capitalization and divides them into 10 equally populated portfolios. AMEX and NASDAQ National Market stocks are then placed into deciles according to their respective capitalizations. CRSP Portfolios 1-2 represent large caps, Portfolios 3, 4, 5 represent mid-caps, Portfolios 6, 7, 8 represent small caps, and Portfolios 9-10 benchmark micro-caps.

  Among the monthly data provided are the number of companies in the portfolio at the start of the quarter, portfolio weight at the start of the quarter, total return and index level, capital apprecation return and index level, and income return and index level.

- **CRSP Indices for the S&P 500 Universe** are daily and monthly files which include value- and equal-weighted returns, with and without dividends.

- **CRSP US Treasury and Inflation Series** are monthly files containing returns and index levels on US Treasuries and the Consumer Price Index.

CRSP Survivor-Bias Free US Mutual Fund Database

based on the Standard & Poor's© Micropal© Database

In estimating the performance on an equal-weighted index of equity mutual funds, Mr. Carhart found that, "Using only surviving funds biases these (performance) measures upward by about one percent per year."

Recently introduced, the **CRSP Survivor-Bias Free US Mutual Fund Database** records each mutual fund's name and organizational history. CRSP tracks monthly returns, Monthly Total Net Assets, Monthly Net Asset Values and Monthly Distributions for open-ended mutual funds from January 1, 1962, to December 31,1997. Updated quarterly, the database uses Microsoft Access 97 database software.

Mark M. Carhart developed this unique database for his 1995 dissertation submitted to the Graduate School of Business entitled, *Survivor Bias and Persistence in Mutual Fund Performance*. In it he noted that the explosion in new mutual funds has been "accompanied by a steady disappearance of many other funds through merger, liquidation and other means. …this data is not reported by mutual fund data services or financial periodicals and in most cases is (electronically) purged from current databases. This imposes a selection bias on the mutual fund data available to researchers: only survivors are included."

Sample Data Sets

Sample data sets for all CRSP products are available on the Getting Started CD ROM.

1.2 Description

The CRSP US Government Bills, Notes and Bonds Files were developed by the Center for Research in Security Prices at the Graduate School of Business, University of Chicago. The database presently tracks 5,136 securities and contains over 100,000 price observations. The files provide a comprehensive machine-readable database of government security price information.

The US Government Bills, Notes, and Bonds Databases are updated annually and supplied to subscribers on standard CDs.

Sources

Prices prior to January of 1962 were obtained from a number of different sources (see description of SOURCR in Section 3). 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 15th, 1996 the FRBNY discontinued publication of composite quotations.

The start of the day, October 16, 1996, our source for price quotations, maturity dates, and coupon rates changed to GovPX, Inc. GovPX receives its data from 5 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.

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 describes its listed bid and ask prices as the "best price". To determine their "best price" they observe the prices from the 5 inter-dealer brokers and report the bid and ask prices that produce the smallest bid-ask spread.

The amount outstanding (IOUT1R) is obtained from the *Monthly Statement of the Public Debt of the United States* published by the Treasury Department. The amount publicly held (IOUT2R) is obtained from the quarterly US Treasury Bulletin. Money Rates are obtained from the Federal Reserve. The following non-derived data: issue date, coupon payable dates, bank eligibility, tax status and call status are obtained from the US Treasury Department.

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

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.

The amounts outstanding are obtained from the *Monthly Statement of the Public Debt* of the United States published by the US Department of Treasury.

Differences Between Daily and Monthly Databases

The CRSP Daily US Government Bills, Notes, and Bonds Database is a superset of the CRSP Monthly US Government Bills, Notes, and Bonds Database with three exceptions.

When-issued prices are included in the Daily Files. All prices before an issue's dated date can be identified as when-issued prices.

Government Certificate of Deposit, Commercial Paper, and Federal Funds rates are included in the daily files.

Indexes equivalent to the CRSP Monthly US Government Bills, Notes, and Bonds File Fama Files (4 total) are not yet developed for the daily files. These will be included in future releases.

The organization of the data has been changed significantly to reflect the increased amount of data. Certain derived data items are not stored, but can be accessed with utility functions that are provided. Other less frequent data are only stored on the observation dates. See Section 5 for information on accessing the data.

Accuracy

All data are checked for internal consistency, and secondary sources 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 Annual CRSP US Government Bills, Notes, and Bonds Files contain updated data through the end of the previous calendar year. These updated files are available to subscribers each Spring.

Latest Changes and Additions

- The CRSP US Government Bond Files are only available on CD this year. The CD has the volume label: `BMR1_199812`.
- The CRSP Monthly US Government Bills, Notes, and Bonds Files store and deliver dates with years in the YYYY format. `JDATE` in the Cross-Sectional File, and the dates in the Riskfree Rate and Bond Portfolio Files previously used dates the YY format. The File Record Layout, Sample Programs, Subroutines, and Include Files for these have been adjusted accordingly. There are no sample programs for the Riskfree Rate and Bond Portfolio Files.
- `QDATE`, the Calendar File Quote Date in YYMMDD format, is retained in the data file but is no longer supported. Sample programs which called `QDATE` now call `JQDATE`, which is the quote date with dates in YYYYMMDD format.
- There were no callable bonds in 1998.

1.3 1998 File Version Specifics

This section contains version specific information for CRSP US Government Bond Files. The number of issues in the Master File is the total number of historical and current issues. The number of issues in the Cross-Sectional File is the maximum number of active issues in any month.

	Data Range	Trading Index Range	Total Issues
Master (MBM)	19251231-19981231	1-877	5,052
Cross-Sectional (MBX)	19251231-19981231	N/A	251

Notational Conventions

- All data items and names that occur within FORTRAN or C programs are printed using a `constant – width (courier)` font. These names can be variable names, parameter names, subroutine names or keywords. For example, CUSIP refers to the CUSIP Agency identifier, while `CUSIP` refers to the variable that the programs use to store this identifier.
- All names that refer to sample programs or include files are printed using an *italic Helvetica* `font`.
- Names of FORTRAN common blocks are delimited by slashes `(/ /)`.

CHAPTER TWO: DATABASE STRUCTURE

OVERVIEW

This chapter provides an overview of the database structure of the Calendar File, the Master File and the Cross-Sectional File, and the Supplemental Files: Fama Files and Fixed-Term Index Files.

INSIDE

CHAPTER 2. DATABASE STRUCTURE

The US Government Bills, Notes, and Bonds Files consist of three files: the Calendar File, the Master File, and the Cross-Sectional File. These are supplemented by five derived files. Four of these were developed by Professor Eugene Fama, Robert R. McCormick Distinguished Service Professor of Finance at the University of Chicago. The fifth is the CRSP Fixed Term Index Files.

2.1 Calendar File

The Calendar File contains monthly Quote Dates and Delivery Dates as well as several Julian, linear, and other date information derived from these values.

The current Calendar File is composed of 11 one-dimensional arrays. JDDATE and JQDATE contain raw date values and the other arrays are derived or projected from them.

		Character	
Variable	**Description**	**Columns**	**Format**
NQDATE(i)	Day Number of Quotation Date	2-6	I5
NDZERO(j)	Day Number of Zeroth Day of Month	8-12	I5
NDDATE(i)	Day Number of Delivery Date	14-18	I5
JAHRMO(j)	Year and Month (YYYYMM) of Quote Date	20-25	I6
IQDAY(i)	Day of Month of Quotation Date (DD)	27-28	I2
NDHFYR(j)	Linear Number of Days in a Half Year	30-32	I3
NQTOQD(i)	Number of Days from Last Quotation Date to this Quotation Date	34-36	I3
JDDATE(i)	Delivery Date (YYYYMMDD)	38-45	I8
JQDATE(i)	Quotation Date (YYYYMMDD)	47-54	I8
QDATE(i)	Quotation Date (YYMMDD)	56-61	I6
NUMDAT(i)	Number of Data Records	63-65	I3

The arrays are dimensioned to MAXMAT, which is set to 1261 in the include file *BPARMFL*. The *i* arrays contain zeros for *i* greater than the index of the last month of the current data. This is stored in the variable NMONS by the FORTRAN calendar load subroutines, and is 877 in the 1998 file. The *j* arrays contain extrapolated date information up to MAXMAT.

2.2 Master File

The Master File contains end-of-day price data on virtually all negotiable direct obligations of the United States Treasury for the period December 31, 1925, to the present. The Master File is sorted by issue. See the Appendix for a list of the issues that have been excluded as Foreigns.

Section 3 contains detailed descriptions of the date items. For further discussion on earlier data, see Lawrence Fisher and James H. Lorie, *A Half Century of Returns on Stocks and Bonds*, Chicago: The University of Chicago, Graduate School of Business, 1977, Appendices A and B.

The Master File contains `MBM` structures. An `MBM` structure is made up of a header record and `MFINIS - MSTART + 1` number of data records.

The following table shows the Master File variables in both character and binary `MBM` header records.

		Character	
Variable	**Description**	**Column(s)**	**Format**
NTYPE	Record Type Identifier = 1 for Header Records	1	I1
CRSPID	CRSP Issue Identification Number	2-16	F15.6
CUSIP	CUSIP Number	18-25	A8
NAME	Name of Government Security	27-34	A8
IDTMAT	Maturity Data at Time of Issue	36-43	I8
ITYPE	Type of Issue	45	I1
COUPRT	Coupon Rate (per cent per annum)	47-53	F7.3
IUNIQ	Uniqueness Number	55	I1
MSTART	Month Number of First Price in Data Arrays	57-59	I3
MFINIS	Month Number of Last Price in Data Arrays	61-62	I3
IWHY	Reason for End of Data on File	65	I1
IDTDTD	Date Dated by Treasury	67-74	I8
IDTBNK	Bank Eligibility Date at Time of Issue	76-83	I8
IDTCP	First Call Date at Time of Issue	85-92	I8
IYMCN	Year and Month of First Call Notice	94-99	I6
NOTICE	Notice Required on Callable Issues	101	I1
ITAX	Taxability of Interest	103	I1
IFLWR	Payment of Estate Taxes Code	105	I1
NIPPY	Number of interest Payments Per Year	107	I1
IDTFC	Date of first Coupon Payment	109-117	I9
VALFC	Amount of First Coupon Payment	119-127	F9.6
IDTEX1	Not used	129	I1
VALEX1	Not used	131-133	F3.1
IDTEX2	Not used	135	I1
VALEX2	Not used	137-139	F3.1

The following table shows the Master File variables in both character and binary MBM data records.

		Character	
Variable	**Description**	**Column(s)**	**Format**
NTYPE	Record Type Identifier = 0 for Data Records	1	I1
CRSPID	CRSP Issue Identification Number	2-16	F15.6
NMONS	Month Number of Observation	18-20	I3
PRIC1R(*i*)	Month-End Bid Price where available	22-32	F11.6
PRIC2R(*i*)	Month-End Ask Price where available	34-44	F11.6
IOUT1R(*i*)	Face Value Outstanding	46-50	I5
IOUT2R(*i*)	Face Value Publicly Held	52-56	I5
SOURCR(*i*)	Primary Data Source	58	A1
ACCINT(*i*)	Accrued Interest as of Month End	60-72	E13.6
PDINT(*i*)	Interest Payable During Month	74-86	E13.6
YIELD(*i*)	Promised Daily Yield	88-100	E13.6
RETNUA(*i*)	Unadjusted Return	102-114	E13.6
RETNXS(*i*)	Adjusted Excess Return	116-128	E13.6
PCYLD(*i*)	Yield Compounded Semiannually	130-142	E13.6
DURATN(*i*)	Duration	144-149	F6.1

Here index *i* can range from MSTART to MFINIS, which are values in the header record for each issue.

2.3 Cross-Sectional File

The Cross-Sectional File contains the same information as the Master File, except it is sorted by Quote Date. Section 3 contains detailed descriptions of the data variables.

The Cross-Sectional File contains MBX structures, which are made up of a variable number of data records for each Quotation Date. The sample programs return this number in the variable NOBS each time a day is read. The Calendar File also contains the number of observations in a month in the array NUMDAT.

		Character	
Variable	**Description**	**Column(s)**	**Format**
JDATE	Quotation Date (YYYYMMDD)	2-9	I8
CRSPID(*i*)	CRSP Issue Identification Number	11-25	F15.6
PRIC1R(*i*)	Month-End Bid Price where available	27-36	F10.5
PRIC2R(*i*)	Month-End Ask Price where available	38-47	F10.5
ACCINT(*i*)	Accrued Interest as of Month End	49-56	F8.5
PDINT(*i*)	Interest Payable During Month	58-65	F8.5
ITAX(*i*)	Taxability of Interest	67	I1
IFLWR(*i*)	Payment of Estate Taxes Code	69	I1
YTM(*i*)	Annualized Yield to Maturity	71-79	F9.4
RETADJ(*i*)	1-Month Holding Period Return	81-89	F9.4
DURATN(*i*)	Duration	91-96	F6.1
IOUT1R(*i*)	Face Value Outstanding	98-102	I5
IOUT2R(*i*)	Par Value Publicly Held	104-108	I5

Here the index *i* can range from 1 to MAXNOB, which is set to 300 in include file *BPARMFL*. The maximum number of observations in the 1998 file is 251.

2.4 Fama Files

The Fama Files are derived from the CRSP US Government Bills, Notes, and Bonds Files. They have been made available to CRSP subscribers by Professor Eugene Fama. There are four groups of files: Treasury Bill Term Structure Files, Maturity Portfolios Returns Files, Fama-Bliss Discount Bonds Files, and Risk Free Rates File.

Treasury Bill Term Structure Files are a series of 24 files of term structures based on selected Treasury Bills. There are three series based on bid, asked and average prices. Each series has subset based on 6-month and 12-month target maturities. Each subset contains prices, yields, forward rates and holding period returns files.

Maturity Portfolios Returns Files are two files of portfolio holding period returns. Portfolios of 6 months and 1 year maturity intervals are constructed.

Fama-Bliss Discount Bonds Files contain artificial discount bonds with 1 to 5 years to maturity, constructed after first extracting the term structure from a filtered subset of the available bonds. These files are intended for users who need to extend the term structures available in the Treasury Bill files to longer maturities. This database is a refinement of the one used in E. Fama and R. Bliss, *The Information in Long-Maturity Forward Rates*, American Economic Review, v.77 (September 1987). Data in these files begin in 1952.

Risk Free Rates Files contains one and three month risk free rates for use in pricing and macroeconomic models. This file provides lending and borrowing rates derived from bid, ask, and bid/ask average prices. Data in this file goes back to 1925.

2.5 Fixed Term Indices Files

The CRSP Monthly US Government Bills, Notes, and Bonds Files include bond indices called the CRSP Fixed Term Indices Files. These derived files offer 7 groups of indices: 30, 20, 10, 7, 5, 2 and 1 year target maturity indices sorted by term type and quote date. This index creates a sophisticated bond yield curve, allowing the selection of data items referenced by returns, prices and duration. Start dates vary based upon term types selected. Programming support is not provided for the CRSP Fixed Term Indices.

The Fixed Term Indices File contains a variable number of data records for each quotation date and term type. There are no sample programs available for this file.

		Character	
Variable	**Description**	**Column(s)**	**Format**
TERMTYPE	Index Identification Number	1-4	I4
QDATE	Quotation Date (YYYYMMDD)	6-13	I8
CRSPID	CRSP Issue Identification Number	15-29	A15
YEARSTM	Number of Years Left to Maturity	31-36	F6.3
RETADJ	One Month Holding Period Return	38-48	F11.6
YTM	Annualized Yield to Maturity	50-60	F11.6
ACCINT	Accrued Interest as on Month End	62-72	F11.6
DURATN	Duration	74-79	F6.1
PRIC1R	Bid Price	81-90	F10.6
PRIC2R	Ask Price	92-101	F10.6

CHAPTER THREE: DATA DEFINITIONS

OVERVIEW

This chapter provides the names and definitions of all the monthly data variables in alphabetical order found in the Calendar File, the Master File and the Cross-Sectional File, and the Fixed-Term Indices File.

INSIDE

CHAPTER 3. DATA DEFINITIONS

The CRSP data are calculated based on cash transactions on the quotation date, which is the last business day of each month. Our data sources prior to GovPX assumed cash transactions on delivery date, typically two business days after the quotation date. GovPX assumes 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 variables promised daily yield (YIELD), yield to maturity (PCYLD), annualized yield (YTM), and duration (DURATN).

Status	Yield and Duration Computed to:
called	next call date
callable and priced at a premium	next call date
callable and priced at a discount	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 the relevant provisions may be found in the Appendix.

Following is a list of all monthly data variables in alphabetical order.

ACCINT(I) **Accrued Interest as of Month End** **REAL**

Accrued interest on U.S. Treasury marketable securities is calculated on the basis of the number of days between interest payment dates for a $100 bond or note. Interest is accrued from the last interest payment date or the dated date to quotation date.

COUPRT **Coupon Rate (Percent Per Annum)** **REAL**

Coupon rate or nominal interest rate. Annual interest per $100 of face value.

CRSPID **CRSP Issue Identification Number** **REAL*8**

In format YYYYMMDD.TCCCCE, where:

YYYY = maturity year
MM = maturity month
DD = maturity day
T = type of issue (ITYPE)
E = uniqueness number (IUNIQ)

For example, 19850515.504250 identifies a 4¼% callable bond which matures May 15, 1985.

CRSPID is a double precision real variable. It is CRSP's unique Identification Number for the issue. It is a composite of other variables. Therefore, mathematical operations to retrieve parts of the CRSPID are unnecessary when using the Master File.

CUSIP **CUSIP Number** **CHARACTER*8**

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.

DURATN(I) **Duration** **REAL**

Also known as Macaulay's Duration, duration is 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.[1]

If $P_{t_1}, P_{t_2}, ..., P_{t_n}$ are the present values at time t_0 of payments promised at perhaps unequally spaced time intervals $t_1, t_2, ..., t_n$ then the duration of that promised stream measured at t_0 is:[2]

$$D_{t_0} = \frac{\sum_{j=1}^{j=n} (t_j - t_0) P_{t_0}}{\sum_{j=1}^{j=n} P_{t_j}} = \frac{\sum_{j=1}^{j=n} t_j P_{t_j}}{\sum_{j=1}^{j=n} P_{t_j}} - t_0$$

IDTBNK **Bank Eligibility Date, in YYYYMMDD Format.** **INTEGER**

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.

0 no restrictions apply.
YYYYMMDD restrictions removed or scheduled to have been removed on this date.

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.

IDTCP **First Call Date, in YYYYMMDD Format.** **INTEGER**

First call date at time of issue if callable.

IDTCP is 0 if not callable.

All interest payment dates beginning with the first call date are possible future call dates.

IDTDTD **Date Dated by Treasury, in YYYYMMDD Format.** **INTEGER**

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.

IDTDTD is 0 if not available or not applicable.

IDTEX1 **Date of First Exchange Offer, in YYYYMMDD Format.** **INTEGER**

(not currently on file)

IDTEX2 **Date of Second Exchange Offer, in YYYYMMDD Format.** **INTEGER**

(not currently on file)

IDTFC **First Coupon Payment Date, in YYYYMMDD Format.** **INTEGER**

Negative dates are estimated from the normal coupon payment cycle. Positive dates have been verified in the *Treasury Offering Circular.*

IDTFC is 0 if not applicable.

1. 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
2. Coping with the Risk of Interest-Rate Fluctuations: Returns to Bondholders from Naive and Optimal Strategies, Lawrence Fisher and Roman L. Weil, Journal of Business, vol. 44, 415.

IDTMAT **Maturity Date at Time of Issue, in YYYYMMDD Format.** **INTEGER**
The maturity date at the time of issue is in a YYYYMMDD format in the files for all securities except for the consol bond, which is set to 20990401.

IFLWR **Payment of Estate Tax Code.** **INTEGER**

1 no special status.
2 acceptable at par and accrued interest if owned by decedent at time of death: a flower bond.
3 acceptable at par and accrued interest if owned by decedent during entire 6 month period preceding death: a flower bond.

IOUT1R(I) **Face Value Outstanding** **INTEGER**
Amount (face value) issued and still outstanding in millions of dollars. Set to 0 for unknown values.

IOUT2R(I) **Publicly Held Face Value Outstanding** **INTEGER**
Amount (face value) held by the public in millions of dollars. This is the total amount outstanding (IOUT1R) 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 0. For other issues, it is set to 0 After December 31, 1982, these numbers are reported quarterly instead of monthly and the reported values are carried forward for the next two months.

IQDAY(I) **Day of Month of Quotation Date, in DD Format.** **INTEGER**

ITAX **Taxability of Interest** **INTEGER**
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.
3 wholly tax exempt.

ITYPE **Type of Issue** **INTEGER**
0 Inflation Index Security
1 Noncallable bond
2 Noncallable note
3 Certificate of indebtedness
4 Treasury Bill
5 Callable bond
6 Callable note
7 Tax Anticipation Certificate of Indebtedness
8 Tax Anticipation Bill
9 Other — this flags issues with unusual provisions

IUNIQ **Uniqueness Number** **INTEGER**
Uniqueness number assigned to CRSPID if maturity date, coupon rate and type are not sufficient to distinguish between two securities; zero otherwise.

IWHY **Reason for End of Data on File** **INTEGER**
0 still quoted on last update of file.
1 matured.
2 called for redemption.
3 all exchanged.
4 sources no longer quote issue.

IYMCN **Year and Month of First Call Notice, in YYYYMM Format.** **INTEGER**
IYMCN is 0 if not called or not callable.

JAHRMO(I) **Year and Month of Quotation Date, in YYYYMM Format.** **INTEGER**
JAHRMO(1) is equal to 192512.

JDATE **Current Quotation Date, in YYYYMMDD Format.** **INTEGER**

JDDATE(I) **Delivery Date, in YYYYMMDD Format.** **INTEGER**

JQDATE(I) **Quotation Date, in YYYYMMDD Format.** **INTEGER**

MFINIS **Month Number of Last Price** **INTEGER**
PRIC1R(MFINIS) is the last bid price for a security. MFINIS is 1 for December, 1925 and 877 for December, 1998.

MSTART **Month Number of First Price** **INTEGER**
PRIC1R(MSTART) is the first bid price for a security. MSTART is 1 for December, 1925 and 877 for December, 1998.

NAME **Name of Government Security** **CHARACTER*8**

Name	ITYPE	Explanation
BILL4		
T_A_BILL	8	Tax Anticipation
T_A_CTF	7	Tax Anticipation
BOND	1, 5, 9	
CNV_BOND	1	Convertible
CONSOL	9	Consol
CTF	3, 7, 9	Certificate of Deposit
NOTE	2, 6, 9	
1LL_BOND	5	First Liberty Loan
1LL_CV	5	1LL First Conversion
1LL_2CNV	5	1LL Second Conversion
2LL_BOND	5	Second Liberty Loan
2LL_CNV	5	2LL First Loan Conversion
3LL_BOND	1	Third Liberty
4LL_BOND	9	Fourth Liberty Loan
4LL_CALL	9	Fourth Liberty Loan Called
PLC_BOND	1, 5	Panama Canal Loan
IA-NOTE	0	Inflation Index Note
IA-BOND	0	Inflation Index Bond

NDDATE(I) **Day Number of Delivery Date** **INTEGER**
Number of days from January 1, 1900 to delivery date.

NDHFYR(I) **Number of Days in the Preceding Half Year** **INTEGER**
NDHFYR(I) = NDZERO(I) – NDZERO(I-6)

NDZERO(I) **Day Number of Zero'th Day of Month** **INTEGER**
NDZERO expressed as the number of days from January 1, 1900 to the day before the first day of this month. NDZERO(1) is the number of days to the day before December 1, 1925.

NIPPY **Number of Interest Payments Per Year** **INTEGER**

0 treasury bill or certificate paying interest only at maturity
1 annual interest
2 semi-annual interest
4 quarterly interest

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.

NOBS **Number of Securities Listed in Current Cross-Sectional Month.** **INTEGER**

NMONS **Number of Months with Data in Current Calendar.** **INTEGER**

NOTICE **Notice Required on Callable Issues** **INTEGER**

0 no notice required or not callable
3 3 months notice
4 4 months notice
6 6 months notice

NQDATE(I) **Day Number of Quotation Date** **INTEGER**

NQDATE is expressed as the number of days from January 1, 1900 to quotation date.

NQTOQD(I) **Number of Days from Last Quote Date to this Quote Date.** **INTEGER**

NTYPE **Record Type Identifier** **INTEGER**

NTYPE = 1 for a header file and 0 for a data file.

NUMDAT(I) **Number of Securities Active During a Specific Month.** **INTEGER**

PCYLD(I) **Yield to Maturity Compounded Semi-Annually.** **REAL**

$$PCYLD(I) = 2.0[e^{YIELD(I) \times 182.5} - 1.0]$$

Yield can be converted to an annual rate compounding at some other frequency, *f*, assuming a 365 day year, using the formula:

$$f\,[e^{YIELD(I)(365/f)} - 1.0]$$

If a yield is missing, PCYLD(I) is coded as -99.

PDINT(I) **Interest Payable During Month** **REAL**

PDINT(I) is the coupon payable in month I.

PRIC1R(I) & PRIC2R(I) **Prices** **REAL**

Arrays PRIC1R and PRIC2R contain month-end bid and ask information when available for each month prior to maturity.

Arrays PRIC1R and PRIC2R contain day-end bid and ask information, when available for each quote date prior to maturity. If PRIC1R and PRIC2R are not available, whatever quote information is available is used and coded using the following conventions:

Information in Data Source	PRIC1R	PRIC2R
Bid and Ask	Bid	Ask
Mean of Bid and Ask	Mean	Mean
Bid only	Bid	Bid
Ask only	-Ask	Ask
Sale (last trading price)	Sale	0
No price Sale	0	0

PRIC1R(MSTART) through PRIC1R(MFINIS) and PRIC2R(MSTART) through PRIC2R(MFINIS) are the available prices for a given issue.

QDATE(I) **Quote Date, in YYMMDD Format** **INTEGER**

RETADJ(I) **One Month Holding Period Return** **REAL**

RETADJ is the one month holding period return expressed as a percentage.

$$RETADJ(I) = 100 \times RETNUA(I)$$

If RETNUA(I) is missing, RETADJ(I) is set to -999.

RETNUA(I) **Unadjusted Return** **REAL**

RETNUA is price change plus interest, divided by last month's price. It is set to a large negative number for months in which a return cannot be calculated, i.e. if the price is missing for either this month or last month. Missing returns are set to -99.where

$$\text{RETNUA(I)} = \frac{\text{XNUM}}{\text{XDEN}} \quad \text{where}$$

When Bid and Ask available:

$$\text{XNUM} = \frac{\text{PRC1R(I)+PRIC2R(I)}}{2} - \frac{\text{PRIC1R(I-1)+PRIC2R(I-1)}}{2} + \text{YINT}$$

$$\text{XDEN} = \frac{\text{PRC1R(-1I)+PRIC2R(I-1)}}{2} + \text{ACCINT(I-1)}$$

YINT = PDINT(I) + ACCINT(I) - ACCINT(I-1)

For all other cases:

XNUM = PRIC1R(I) - PRIC1R(I-1) + YINT

XDEN = PRIC1R(I-1) + ACCINT(I-1)

YINT = PDINT(I) + ACCINT(I) - ACCINT(I-1)

RETNXS(I) **Adjusted Return** **REAL**

RETNXS 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. Although RETNUA 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 RETNXS.

RETNXS 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.

```
RETNXS(I) = RETNUA(I) - RETXP(I)
```

Calculation of constant yield (expected) return RETXP(I) in periods when no coupon is due:

$$\text{RETXP(I)} = e^{\text{YIELD(I-1) x NQTODQ(I)}} - 1.0$$

This computation of RETXP assumes that interest payments received are *not* reinvested between quotation dates. In a period when interest is received, constant yield return is:

$$RETXP(I) = \left(e^{YIELD(iI-1)\,NQTODQ(I)} - 1.0\right) - PDINT(I)\left(\frac{e^{YIELD(I-1)TP} - 1.0}{XDEN}\right)$$

where: TP is the number of days from interest payment date to quotation date for month I and NQTODQ(I) is the number of linear days between quotation dates.

XDEN is defined under RETNUA.

SOURCR(I) **Primary Data Source** **CHARACTER*1**

F First Boston
G Government actuary
M Morgan Guaranty
Q Bank and Quotation Record
R Federal Reserve Bank of New York
S Salomon Brothers
T New York Times
W Wall Street Journal
X GovPX, Inc.
Z Multiple sources

TERMTYPE **Index Identification Number** **INTEGER**

Fixed term index identification number links all results in the Fixed-Term Indices File. The identification is typically in the form YYYYMM, where YYYY is the number of years to maturity of issues selected in the index and MM is the number of months an issue is held once selected before another is chosen.

VALEX1 **Value at Date of First Exchange Offer** **REAL**

(not currently on file)

VALEX2 **Value at Date of Second Exchange Offer** **REAL**

(not currently on file)

VALFC **Amount of First Coupon Per $100 Face Value** **REAL**

(not currently on file)

YEARSTM **Number of Years Left to Maturity** **REAL**

In the fixed term index files, YEARSTM contains the time left to maturity of the selected issue as of the quote date, expressed as an annual decimal amount.

YIELD(I) **Promised Daily Yield** **REAL**

YIELD is the 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 flat price of the security. The flat price is the nominal price, e.g., mean of PRIC1R and PRIC2R, plus the accrued interest on the date in question. If a price is missing, the YIELD for that month is set to -99.

YTM(I) **Annualized Yield to Maturity** **REAL**

YTM is the annualized yield to maturity expressed as a percent per annum.

```
YTM(I) = 100 x [YIELD(I) x 365]
```

If yield is missing, YTM for that month is set to -999.

CHAPTER FOUR: SUPPLEMENTAL FILES

OVERVIEW

This chapter describes in detail the derived files developed by Professor Eugene F. Fama, the Robert R. McCormick Distinguished Service Professor of Finance at the University of Chicago. It also defines the Fixed-Term Indices for 1, 2, 5, 7, 10, 20, and 30-year US Treasury Maturities.

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CHAPTER 4. SUPPLEMENTAL FILES

4.1 Fama Treasury Bill Term Structure Files

There are three sets of Treasury Bill Files. These sets differ only in the value used for the price on which computations are based. The three alternatives are the mean of the bid and ask quotes (`TBILLAVE`), bid quotes (`TBILLBID`) and ask quotes (`TBILLASK`).

Each set of Treasury Bill Term Structure Files consists of eight files containing term structure information derived from 6-month and 12-month Treasury Bills. For each of the two types of bills there is a Forward Rate File, a Holding Period Return File, a Price File, and a Yield File.

Each set of four files is built by selecting for each month the bill closest to either 6 or 12 months to maturity, and then following that bill to maturity. The 6-month files have been extended back in time so that prior to 6-month Treasury Bills being available, 3-month bills were used, and before that one month bills. In the 6-month file the closest bill to the target maturity was used with a maximum mismatch of 4 days either way. In the 12-month file, the 12-month bill was the longest bill with more than 11 months and 10 days to maturity. This results in a larger variation between target and actual maturities. See the Price Files for actual maturities. Users interested in short maturities should use the 6-month or Risk Free Rates file rather than the 12-month files.

The 6-month files all have 7 columns, a date and 6 data columns. The 12-month files have 13 columns.

The four files for each type of bill are described as follows:

Forward Rate File

The Forward Rate File gives the one month forward rates. Column 1 contains the quotation date. Column 2 contains the forward rate from zero to 1 month, column 3 the forward rate from 1 to 2 months, etc.

Holding Period Return File

The Holding Period Return File contains ex-post one-month holding period returns. Column 1 contains the date the position was initiated. Column 2 contains the return from purchasing a one month bill on that date and then holding it to maturity. Column 3 contains the return from purchasing a two month bill on that date and selling it one month later, etc.

Price File

The Price File identifies each bill in the term structure each month, with such additional information as price, exact time to maturity, and yield. This is essentially a descriptive file, and so is not suitable for statistical analysis. When printed out, the data will appear as follows:

19650129 (a)	19650228 (c)	19650331 . . .	
23770 (b)	23800 (d)	23861 . . .	
	1 30 (e)	2 61 . . .	etc.
	99.679200 (f)	99.362900 . . .	
	0.003256 (g)	0.003185 . . .	

(a) Quote Date
(b) Linear Quote Date
(c) Maturity Date
(d) Linear Maturity Date
(e) Months and Days to Maturity
(f) Price (bid, ask or mean)
(g) Yield to Maturity (30.4 day basis)

Yield File

The Yield File contains the yield to maturity for each bill in the term structure, with column 1 containing the quotation date, column 2 the yield to maturity of the one month bill, column 3 the yield to maturity of the two month bill, etc.

Computation of Fama T-Bill Files

Let

$P_{t,\tau}$ = price of bill with τ ô months to maturity observed at time *t*.

$N_{t,\tau}$ = number of days to maturity of a ô month bill at time *t*.

Then

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

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

$F_{t,\tau}$ = forward rate from $\tau - 1$ to τ observed at time *t*

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

Ht,t = one month holding period return for a τ period bill observed at time *t* (when bill has $\tau - 1$ periods remaining to maturity), buying at time *t* and selling one month later.

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.

4.2 Fama Maturity Portfolios Returns File

The Maturity Portfolios Returns File (BONDPORT) consists of two sections. One section uses six month maturity intervals to define the portfolios, the other uses one year intervals. Only non-callable, non-flower notes and bonds are included in the portfolios. The returns are an equal weighted average of the unadjusted holding period return (RETNUA) for each bond in the portfolio.

The section of the file with 12 month maturity intervals has nine columns. Column 2 is the quote date for the end of the period over which the return is measured. Column 1 is the month number from the Calendar File, which corresponds to the quote date in column 2. Column 3 through 8 contain the one month returns for portfolios holding securities which mature: (column 3) from 1 to 12 months from the quote date, (4) from 13 to 24 months, (5) from 25 to 36 months, (6) from 37 to 48 months. (7) from 49 to 60 months, and (8) from 61 to 120 months. Column 9 contains the portfolio returns for securities with greater than 120 months to maturity.

The section of the file with 6 month maturity intervals has 14 columns. Columns 1 and 2 are the same in both sections of the file. Columns 3 through 12 contain one month returns for portfolios holding securities which mature: (column 3) from 1 to 6 months from the quote date, (4) from 7 to 12 months, (5) from 13 to 18 months, (6) from 19 to 24 months, (7) from 25 to 30 months, (8) from 31 to 36 months, (9) from 37 to 42 months, (10) from 43 to 48 months, (11) from 49 to 54 months, (12) from 55 to 60 months. Column 13 contains the return on a portfolio of securities maturing from 61 to 120 months from the quote date and column 14 contains the return of a portfolio of securities maturing greater than 120 months from the quote date.

4.3 Fama-Bliss Discount Bonds File

The Fama-Bliss (FAMABLIS) File uses only fully taxable, non-callable, non-flower bonds.

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.

4.4 CRSP Risk Free Rates File

The CRSP Risk Free Rates File (RISKFREE) contains nominal one and three month risk free rates from December 1925 through the present. 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 security used and the number of days to maturity of that issue are also provided.

The Treasury Bill selected in the one 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 three month series used a 90 day target. Where bills were not available, certificates, and in a few cases notes, were used.

The selection among alternatives was, at times, subjective in early periods. 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 is a trade price. The bid and average yields are set to the trade yield and the ask yield is set to a missing code of -9.0. Bid and average yields are never missing. Valid ask and average yields may actually be negative.

4.5 CRSP Fixed Term Indices Files

The CRSP Fixed Term Indices Files contain 1, 2, 5, 7, 10, 20 and 30 year Fixed Term Indices. These indices are identified and sorted by TERMTYPE, which distinguishes the length of maturity. A valid issue that best represents each term is chosen at the end of each month for each of the above referenced fixed terms and held through the next month. Valid issues are least six months from the target maturity date and fully taxable. The selection process selects a representative bond from each of the fixed term groups by filtering available issues on the basis of their characteristics. The selection criteria first tries to find a fully taxable, non-callable, non-flower bond that is closest to the target maturity of its group. If there is more than one security, the one most recently issued is used. If there is no other suitable issue, a second pass is made where flower bonds are accepted.

These values were designed to plot a sophisticated yield curve and the yields, returns, accrued interest, prices and durations are provided on each quote date.

The Fixed Term Indices Daily Files begin June 14, 1961. The Fixed Term Indices Monthly Files vary by index as follows:

Termtype	Index	Monthly File Start Date
3012	30 Year Bonds	November 29, 1941
2012	20 Year Bonds	January 31, 1942
1012	10 Year Bonds	May 31, 1941
712	7 Year Bonds	April 30, 1941
512	5 Year Bonds	April 30, 1941
212	2 Year Bonds	January 31, 1941
112	1 Year Bonds	January 31, 1941

CHAPTER FIVE: ACCESSING THE DATA

OVERVIEW

This chapter provides sample programs written in FORTRAN 77, and describes the ASCII, Excel and SAS Files.

INSIDE

CHAPTER 5. ACCESSING THE DATA

This section provides general information needed to access the CRSP Monthly US Government Bills, Notes, and Bonds Files. The data files are available in three formats: ASCII, Excel, and SAS.

1. The ASCII files, closely structured to the format formerly provided on the tape, work with the included FORTRAN sample programs and subroutines and can be used to load into various other programs. These files were used to create the Excel and SAS files. See Section 2.1 for details about the ASCII file specifications for the Master Bills, Notes, and Bonds (`MBM`) File, the associated Header File, Cross Sectional (`MBX`) File and the Fixed Term Indices File, and 5.2 for the ASCII file layout and the FORTRAN Format of the Supplemental Fama Files. Section 5.1 contains descriptions of the sample programs and subroutines.

2. The Excel 5.0/95 Workbook files may contain multiple worksheets per file. The large master and cross sectional files were not converted into Excel because of their size. See “5.3 Excel Files” on page 38.

3. The SAS files contain the entire file. They were combined and are distributed in one large transport file created in SAS PROC CPORT, to support SAS's many different platforms and data engines. See “5.4 SAS Files” on page 39.

CD-ROM Layout

The top level of the CD contains the directory containing the ASCII character data (data), the documentation (doc), data converted into MS Excel 5.0/95 (excel), data converted into SAS (sas), source code containing uncompiled FORTRAN sample programs and subroutines (src), and two text files; a copy of the accompanying CRSP Data License (`license.txt`), a copy of CRSP's Copyright Statement (`copyright.txt`), and a copy of CRSP’s Notice of Use (`notice.txt`).

In some cases, ASCII character files in the data directory contain multiple series. In these cases, a combined file is stored in the top level data directory and a subdirectory exists with the individual series. For example: the `/data/bondport` subdirectory contains `bondport12.dat` and `bondport6.dat` which were combined to create the `/data/bondport.dat` file.

There is one subdirectory in the `/doc/` directory. `/doc/pdf/` subdirectory contains the documentation in Acrobat Adobe (`.pdf`) format.

Installation and Recommended Use

The CRSP Monthly US Government Bills, Notes, and Bonds File has been created in tabular format to make it easy to use with CRSP sample programs or other tools. The files can be directly loaded into relational databases or statistical packages as well as used with CRSP sample programs that can support sequential or random access. The data were split into independent files that can be managed in parts or groups. It is highly recommended that the Bills, Notes, and Bonds Files are loaded from the CD and accessed on disk.

There are three possible strategies for using the files:

1. Use with third party tools or applications, or user-created programs.

2. CRSP FORTRAN access of the character files.

3. Conversion to binary with CRSP FORTRAN programs and FORTRAN access of the binary files.

If using the first option, see the CD Layout above and the File Specifications in Chapter Two. If exclusively using CRSP sample programs, it is recommended to convert to binary to take advantage smaller files.

Installation

The files on CD do not have installation scripts. Therefore, we recommend following the strategy outlined below for utilizing the programs described in later in this chapter.

- Load the CD in your CD drive.
- The system will mount the CD for NT and Sun Solaris.

  A sample OpenVMS mount command would be (device name `dka600:` may be different depending on your machine.):

  ```
  mount /media=cd dka600: BMR1_199812 /undefined_fat=(stream_lf:500)
  - /shared /bind=BMR1_199812#1
  ```

  A sample Digital Unix Installation on Digital Alpha mount command would be: (device name `/dev/rz4c` may be different depending on your machine.)

  ```
  mount -t cdfs -o noversion /dev/rz4c /cd
  ```

- Copy the sample programs, subroutines, and include files from the CD to disk. Choose only sources that are suitable
- FORTRAN source is included for IBM and Unix syntax. The Unix syntax versions of the sample programs and subroutines have a "u" prefix. The individual files for the subroutines are provided for convenience in compiling on IBM MVS systems. The Unix syntax can also be used for OpenVMS and Windows NT systems.

  Note that File names in Unix are case sensitive.
- Copy all the data files from the CD `\data\` directory to your system.
- Compile and run *MBMCHA* to create the binary Calendar File and the binary Master File.
- Compile and run *MBXCHA* to create the binary Cross-Sectional File.
- Modify, compile and run the binary programs *MBMBIN* and *MBXBIN* on the binary files.

5.1 Description of Programs

This section provides general information needed to convert the Master and Cross-Sectional data from character format to binary format and to use the sample programs CRSP provides to access the data. These files are provided in ASCII.

Sample Programs

The sample programs are written in FORTRAN 77. To make these programs as universal as possible, CRSP has generally avoided incorporating nonstandard FORTRAN 77 features. However, CRSP has taken advantage of a nonstandard feature in the programs: include files.

Include files have been built into the programs so that the variable declarations do not have to be written out in each program segment. If this causes problems in compilation, the contents of each include file can be manually inserted into the programs in place of the include statements.

The user is advised to read Section 3 to become familiar with the names and definitions of the variables.

MBMBIN Program *MBMBIN* reads the binary calendar file and the binary master file. *MBMBIN* first calls subroutine *CALGTB* to read the binary calendar file. *MBMBIN* then makes successive calls to *MBMGTB,* each call reading all the data for one issue from the data file into the common blocks */MBMREC/*.

MBMCHA Program *MBMCHA* reads the character calendar file and the character master file and creates the binary calendar file and the binary master file. *MBMCHA* first calls subroutine *CALGTC* to read the character calendar file into the common block */BCAL/* and *CALPTC* to write the character calendar file. *MBMCHA* then makes successive calls to *MBMGTC,* each call reading all the data for one issue from the data file into the common block */MBMREC/*. As soon as *MBMGTC* loads an issue, a call to *MKMBMB* writes all the issue's data to a binary file.

MBXBIN Program *MBXBIN* reads the binary calendar file and the binary cross-sectional file. *MBXBIN* first calls subroutine *CALGTB* to read the binary calendar file into the common block */BCAL/*. *MBXBIN* then makes successive calls to *MBXGTB,* each reading all the data for one quote date from the data file into the common block */MBXREC/*.

MBXCHA Program *MBXCHA* reads the binary calendar file and the character cross-sectional file and creates the cross-sectional file in binary format. *MBXCHA* first calls subroutine *CALGTB* to read the binary calendar file into the common block */BCAL/*. *MBXCHA* then makes successive calls to *MBXGTC,* each call reading all the data for one quote date, from the data file into the common block */MBXREC/*. As soon as *MBXGTC* loads a quote date a call to *MKMBXB* writes all the quote date data to a binary file.

The binary calendar file may be created from running *MBMCHA* or *MKBCAL*. If *MBMCHA* is run before *MBXCHA*, *MKBCAL* does not need to be run before running *MBXCHA*.

MKBCAL Program *MKBCAL* reads the character calendar file and creates the binary calendar file. *MKBCAL* first calls *CALGTC* to read the character calendar file into the common block */BCAL/* and then calls *CALPTB* to write the binary calendar file. *MKBCAL* is not needed if *MBMCHA* is run before *MBXCHA* is run.

Subroutines

CALGTB(JUNIT,*)

Subroutine CALGTB reads the binary calendar file into the /BCAL/ common block. JUNIT is the unit number of the previously opened binary calendar file.

CALGTC(JUNIT,*)

Subroutine CALGTC reads the character calendar file into the /BCAL/ common block. JUNIT is the unit number of the previously opened character calendar file.

CALPRT (JUNT)

Subroutine CALPRT writes a formatted version of the bills, notes, and bonds calendar to a file opened as unit number MUNIT. This file is suitable for printing.

CALPTB (LUNIT,*)

Subroutine CALPTB writes the calendar to a binary file. LUNIT is the unit number of the previously opened binary calendar file.

CALPTC (LUNIT,*)

Subroutine CALPTC writes the calendar to a character file. LUNIT is the unit number of the previously opened character calendar file.

CLJL(IDTCAL, IDTJUL,*)

Subroutine CLJL converts a calendar date to its linear (julian) date equivalent. IDTCAL is the integer YYYYMMDD date which CLJL should convert, IDTJUL is the converted linear (julian) date which CLJL returns. The alternative return is used if IDTCAL is an illegal date.

INDBDT (DATE, CODE, ARRAY, MAXARR)

Function INDBDT can be used to locate the index of a date in a given a bills, notes, and bonds date array. DATE is the value to be located in array ARRAY with MAXARR sorted values. CODE is one of -1, 0, or 1, depending on what action is taken when the exact date given is not found. If CODE = 0 and the exact date is not found, 0 is returned. If CODE = -1 and the exact date is not found, the index of the first date less than DATE is returned, or 0 is returned if DATE is less than any date in the array. If CODE = 1 and the exact date is not found, the index of the first date greater than DATE is returned, or 0 is returned if DATE is greater than any date in the array. For example, INDBDT (19900115,1,JQDATE,NMONS) will return the index of 19900131 = 770.

MBMGTB(IUNIT,*,*)

Subroutine MBMGTB first calls RESETM to erase the previous record's data and then reads a binary MBM structure for unit number IUNIT. MBMGTB reads a header record and then reads MFINIS - MSTART + 1 number of data records. The first alternate return is taken at the end of file. The second alternate return is taken if there is an error.

MBMGTC(IUNIT,*,*)

Subroutine MBMGTC first calls RESETM to erase the previous record's data and then reads a character MBM structure. MBMGTC first reads a header record and then reads MFINIS - MSTART + 1 number of data records. The first alternate return is taken at the end of file. The second alternate return is taken if there is an error.

MBMGTC makes sure

1. the record types for the header and the data records are correct
2. the CRSPID from the header and the data records are the same
3. there are MFINIS - MSTART + 1 number of data records and NMON increments by 1

MBXGTB(IUNIT, THEDAY, NUMREC,*)

Subroutine MBXGTB first calls RESETX to erase the previous record's data and then reads NUMREC number of binary MBX data records from IUNIT. MBXGTB makes sure that the quote dates match and the expected number of data records are read. THEDAY is the next expected quote date. The alternate return is taken if there is an error.

MBXGTC(IUNIT, THEDAY, NUMREC,*)

Subroutine MBXGTC first calls RESETX to erase the previous record's data and then reads NUMREC number of binary MBX data records from IUNIT. MBXGTC makes sure that the quote dates match and the expected number of data records are read. THEDAY is the next expected quote date. The alternate return is taken if there is an error.

MKMBMB(KUNIT)

Subroutine MKMBMB writes a binary MBM structure to file KUNIT, consisting of a header record and MFINIS - MSTART + 1 number of data records.

MKMBMC(KUNIT)

Subroutine MKMBMC writes a character MBM structure to file KUNIT, consisting of a header record and MFINIS - MSTART + 1 number of data records to file KUNIT.

MKMBXB(KUNIT)

Subroutine MKMBXB writes NOBS number of binary MBX data records to file KUNIT.

MKMBXC(KUNIT)

Subroutine MKMBXC writes NOBS number of character MBX data records to file KUNIT.

RESETM

Subroutine RESETM resets the vectors belonging to the previous MBM structure.

RESETX

Subroutine RESETX resets the vectors belonging to the previous MBX structure.

Include Files

Include files are used in FORTRAN as a convenient way to replace long, often-used blocks of code with single statements. There are four include files used by the bills, notes, and bonds sample programs and subroutines. The same include files are used by the character and binary sample programs. Each declares a set of parameters or one of the common blocks. The compiler replaces include statements with the contents of the corresponding include file. If an include file is modified, all programs or subroutines that use the include file must be recompiled.

BCALFL Include file BCALFL contains the variable declarations for common block /BCAL/.

MBMFL Include file MBMFL contains the variable declarations for common block /MBMREC/.

MBXFL Include file MBXFL contains the variable declarations for common block /MBXREC/.

BPARMFL Include file BPARMFL contains the constant values used to set the dimensions of the vectors in the common blocks. BPARMFL must precede the other include files in the program.

5.2 ASCII Files

The US Government Bills, Notes, and Bonds are provided in ASCII on CD-ROMs with fixed length records. The following table lists the files. Fama Files are included in the data directory and also in subdirectories when the standard files contain more than one data set. Each of the Fama Files have between 1 and 4 header lines excepting the Price files, which are formatted for printing, not for use in a FORTRAN program.

/DATA Top Level Files/ Dirs	Files in Subdirectory	Documentation Reference	FORTRAN Format
bondport.dat		See "4.2 Fama Maturity Portfolios Returns File" on page 25.	
bondport	bondport12.dat	12 month intervals	1X,13,19,7F10.5
	bondport6.dat	6 month intervals	1X,13,19,12F10.5
bxmthind.dat		See "4.5 CRSP Fixed Term Indices Files" on page 29.	See "2.5 Fixed Term Indices Files" on page 13.
famablis.dat		See "4.3 Fama-Bliss Discount Bonds File" on page 26.	
famablis	famablispri.dat	Discount Bond Prices	1X,18,5F8.3
	famablisyld.dat	Discount Bond Yields	1X,18,5F8.3
mbi.dat		Section 2.1 Calendar File	See "2.1 Calendar File" on page 9.
mbm.dat		Section 2.2 Master File	See "2.2 Master File" on page 10.
mbx.dat		Section 2.3 Cross Sectional File	See "2.3 Cross-Sectional File" on page 12.
riskfree.dat		Section 4.4 Risk Free Rates	1X,18,2(1X,3F7.3,I4,1X,F15.6)
tbillask.dat		See "4.1 Fama Treasury Bill Term Structure Files" on page 23.	
tbillask	ffwdask12.dat	12 month forward rates based on ask price	1X,19,12F10.6
	ffwdask6.dat	6 month forward rates based on ask price	1X,19,6F10.6
	fhldask12.dat	12 month holding period returns based on ask price	1X,19,12F10.6
	fhldask6.dat	6 month holding period returns based on ask price	1X,19,6F10.6
	fpriask12.dat	12 month prices based on ask price	N/A - 132 Columns
	fpriask6.dat	6 month prices based on ask price	N/A - 72 Columns
	fyldask12.dat	12 month yields based on ask price	1X,19,12F10.6
	fyldask6.dat	6 month yields based on ask price	1X,19,6F10.6
tbillave.dat		See "4.1 Fama Treasury Bill Term Structure Files" on page 23.	
tbillave	ffwdave12.dat	12 month forward rates based on average price	1X,19,12F10.6
	ffwdave6.dat	6 month forward rates based on average price	1X,19,6F10.6
	fhldave12.dat	12 month holding period returns based on average price	1X,19,12F10.6
	fhldave6.dat	6 month holding period returns based on average price	1X,19,6F10.6
	fpriave12.dat	12 month prices based on average price	N/A - 132 Columns
	fpriave6.dat	6 month prices based on average price	N/A - 72 Columns
	fyldave12.dat	12 month yields based on average price	1X,19,12F10.6
	fyldave6.dat	6 month yields based on average price	1X,19,6F10.6
tbillbid.dat		See "4.1 Fama Treasury Bill Term Structure Files" on page 23.	
tbillbid	ffwdbid12.dat	12 month forward rates based on bid price	1X,19,12F10.6
	ffwdbid6.dat	6 month forward rates based on bid price	1X,19,6F10.6
	fhldbid12.dat	12 month holding period returns based on bid price	1X,19,12F10.6
	fhldbid6.dat	6 month holding period returns based on bid price	1X,19,6F10.6
	fpribid12.dat	12 month prices based on bid price	N/A - 132 Columns
	fpribid6.dat	6 month prices based on bid price	N/A - 72 Columns
	fyldbid12.dat	12 month yields based on bid price	1X,19,12F10.6
	fyldbid6.dat	6 month yields based on bid price	1X,19,6F10.6

5.3 Excel Files

Description

The Excel 5.0/95 Workbook files, readable by Excel 97, do not contain the large CRSP US Government Bills, Notes, and Bonds Master and Cross-Sectional Files. These files are too large to be supported in Excel. The Excel files were imported from the ASCII files. The number of decimal places matches those in the original ACSII files. Therefore, adding decimal places in the cell formatting will not improve accuracy in data output. The dates are stored as Excel dates and displayed in a MM/DD/YYYY format. The first worksheet in each file is a readme worksheet that outlines the contents of the rest of the sheets.

The following table contains the file name, the work sheet names within them and the section of the documentation, which describes them.

CRSP Monthly US Government Bills, Notes, and Bonds Files in Excel.

Files	Work Sheet Names	Documentation Reference
bondport.xls	PORT12M	See “4.2 Fama Maturity Portfolios Returns File” on page 25.
	PORT06M	
bxmthind.xls	BXMTHIND	See “4.5 CRSP Fixed Term Indices Files” on page 29.
famablis.xls	FAMABLISPRI	See “4.3 Fama-Bliss Discount Bonds File” on page 26.
	FAMABLISYLD	
famayield.xls	ASK12M	See “Yield File” on page 24.
	ASK06M	
	BID12M	
	BID06M	
	AVE12M	
	AVE06M	
ffwdrates.xls	ASKASK12M	See “Forward Rate File” on page 23.
	ASK06M	
	BID12M	
	BID06M	
	AVE12M	
	AVE06M	
fhldrates.xls	ASK12M	See “Holding Period Return File” on page 23.
	ASK06M	
	BID12M	
	BID06M	
	AVE12M	
	AVE06M	
fprice.xls	ASK12M	See “Price File” on page 23.
	ASK06M	
	BID12M	
	BID06M	
	AVE12M	
	AVE06M	
riskfreerate.xls	RISKFREERATE	See “4.4 CRSP Risk Free Rates File” on page 28.

Microsoft Excel Support Disclaimer

CRSP does not support Microsoft Excel. These files have been included in this format as a courtesy. If you are unable to load the files or to use the software, please contact Microsoft or your System Administrator for support. These files are in ASCII in the \DATA\ directory if you want to convert them yourself.

5.4 SAS Files

Description

The complete CRSP Monthly US Government Bills, Notes, and Bonds File was imported into one large SAS Transport Format, `mthbonds.trp`. Sample SAS code, included in the `bmimport.sas` file, may expand the transport data set. The table below has SAS's NT file extensions. File extensions may vary among platforms.

CRSP Monthly US Government Bills, Notes, and Bonds Files in SAS (extracted)

Extracted File Names	Documentation Reference
bndprt06.sd2	See "4.2 Fama Maturity Portfolios Returns File" on page 25.
bndprt12.sd2	
bxmthind.sd2	See "4.5 CRSP Fixed Term Indices Files" on page 29.
fbpri.sd2	See "4.3 Fama-Bliss Discount Bonds File" on page 26.
fbyld.sd2	
fwdask06.sd2	See "Forward Rate File" on page 23.
fwdask12.sd2	
fwdave06.sd2	
fwdave12.sd2	
fwdbid06.sd2	
fwdbid12.sd2	
hldask06.sd2	See "Holding Period Return File" on page 23.
hldask12.sd2	
hldave06.sd2	
hldave12.sd2	
hldbid06.sd2	
hldbid12.sd2	
mbi.sd2	See "2.1 Calendar File" on page 9.
mbmdat.sd2	See "2.2 Master File" on page 10.
mbmdat.si2	CRSPID index for mbmdat.sd2 dataset
mbmhdr.sd2	See "2.2 Master File" on page 10.
mbmhdr.si2	CRSPID index for mbmhdr.sd2 dataset
mbx.sd2	See "2.3 Cross-Sectional File" on page 12.
mbx.si2	QDATE index for mbx.sd2 dataset
mbxid.sd2	See "2.3 Cross-Sectional File" on page 12.
mbxid.si2	CRSPID index for mbxid.sd2 dataset
priask06.sd2	See "Price File" on page 23.
priask12.sd2	
priave06.sd2	
priave12.sd2	
pribid06.sd2	
pribid12.sd2	
riskfree.sd2	See "4.4 CRSP Risk Free Rates File" on page 28.
yldask06.sd2	See "Yield File" on page 24.
yldask12.sd2	
yldave06.sd2	
yldave12.sd2	
yldbid06.sd2	
yldbid12.sd2	

SAS Support Disclaimer

CRSP does not support SAS. These files have been included in this format as a courtesy. If you are unable to load the files or to use the software, please contact SAS or your System Administrator for support. The files are in ASCII in the `\DATA\` directory if you want to convert them yourself.

APPENDIX: SPECIAL ISSUES

The Appendix lists the US Government issues which require special treatment.

INSIDE

APPENDIX: SPECIAL ISSUES

1. 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 Sates gold coin.
19451015.903250	Accrued interest at the rate of 4 1/4% up to 19341015 and at 3 1/4% 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.

2. 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 1998, 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	20010815.207870	20150815.110620
19950215.211250	20011115.207500	20151115.109870
19950515.211250	20020515.207500	20160215.109250
19950815.210500	20020815.206370	20160515.107250
19951115.209500	20020930.205870	20161115.107500
19960215.208870	20021031.205750	20170515.108750
19960515.207370	20021130.205750	20170815.108870
19961115.207250	20021231.205620	20180515.109120
19970515.208500	20030215.206250	20181115.109000
19970815.208620	20030815.205750	20190215.108870
19971115.208870	20040215.205870	20190815.108120
19980215.208120	20040515.207250	20200215.108500
19980515.209000	20040815.207250	20200515.108750
19980815.209250	20041115.111620	20200815.108750
19981115.208870	20041115.207870	20210215.107870
19990215.208870	20050215.207500	20210515.108120
19990515.209120	20050515.112000	20210815.108120
19990815.208000	20050515.206500	20211115.108000
19990930.205750	20050815.110750	20220815.107250
19991031.205620	20050815.206500	20221115.107620
19991115.207870	20051115.205870	20230215.107120
19991130.205620	20060215.109370	20230815.106250
19991231.205620	20060515.206870	20241115.107500
20000215.208500	20060715.207000	20250215.107620
20000515.208870	20061015.206500	20250815.106870
20000815.208750	20060215.205620	20260215.106000
20001115.205750	20070215.206250	20260815.106750
20001115.208500	20070515.206620	20261115.106500
20011115.208500	20070815.206120	20270215.106620
20011115.207500	20141115.511750	20270815.106370
20010215.207750	20150215.111250	20271115.106120
20010515.208000		

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

3. Foreign Targeted Securities

Foreign targeted issues are not included in the US Government Bills, Notes, and Bonds 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

4. Inflation-Indexed Securities

Following is a list of inflation-indexed notes issued for the first time in 1997 by the US Treasury Department. The interest rate, which is set at auction, remains fixed throughout the term of the security. The principal amount of the security will be adjusted for inflation by using the non-seasonally adjusted CPI-U rate, but the inflation-adjusted principal will not be paid until maturity. Semiannual interest payments will be based on the inflation-adjusted principal at the time the interest is paid. Related information can be found on the US Treasury web page at http://www.publicdebt.treas.gov/of/of298pr. CRSP calculates real yields on these issues which exclude any increased payments due to inflation adjustments.

CRSPID	Dated	Maturity Date
20020715.003620	July 15, 1997	July 15, 2002
20070115.003370	January 15, 1997	January 15, 2007

Note: These are highly illiquid issues. Price quotes contained in this database are the same for extended periods of time and may not have much informational value.

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