Bloomberg: Getting Started

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This guide is intended to:
- Provide a brief introduction to the Bloomberg system, including the custom Bloomberg keyboard and function keys.
- Help you gain an understanding of how information is organized in the Bloomberg system for easy retrieval.

What do the Bloomberg terminals look like?

Monitors: Bloomberg has two flat-panel monitors, which allows you to view two displays simultaneously. The active screen shows a blue flashing cursor. To switch between the panels, click on the inactive panel to activate it or press the <PANEL> key.

Keyboard: Bloomberg has a colored keypad (Please go to Bloomberg keyboard page (http://firestone.princeton.edu/econlib/blp/docs/keynew.pdf) for an image of the keyboard.) The yellow function keys across the top represent different markets- each will bring up a similar main menu for that market. The green keys are action keys that execute your commands.

In this guide, keywords, commands and mnemonics are used interchangeably.

Log On/Off:

Log on to Bloomberg using one of the following two methods.

Method 1

      Press **<CONN DFLT>**
      Enter Username and Password.
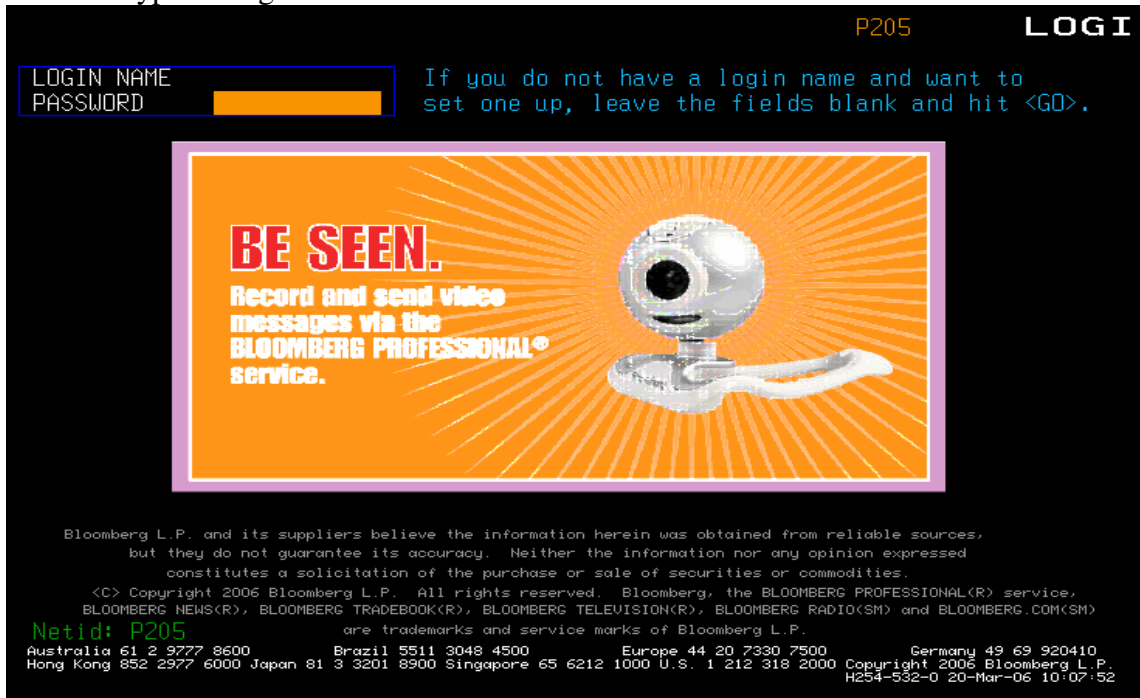   Press **<GO>**

Method 2

      Enter **L <GO>**
      Enter Username and Password.
      Press **<GO>**

Log off of Bloomberg using the following:

    Press **<CONN DFLT>**

Here is a typical Login screen:

<CANCEL>   To reset a screen or cancel a current command

<u>Green Keys</u>
The Green keys are action keys and allow you to move throughout the system.
<GO>   **:** To access a particular screen, one might

- enter some keyword(s) and then press **<GO>**, or
- press some key and then press **<GO>**, or
- use a combination of keys and keywords and then press **<GO>**, or
- click on the highlighted item on the screen, or
- in some special cases, just press certain keys, such as the **<Menu>**, **<Page Fwd>**, **<Page Back>**, etc.

The use of the <GO> key is analogous to the use of the "Enter" key in other Windows applications.

Note: Keywords are always entered in the top left corner of the screen. If you want to enter keywords, and if the cursor is not flashing on the top left corner, click on the top left corner and make sure that the cursor is flashing there. If it doesn't work in some cases, press **<HOME>**. You can then enter keywords.

<MENU>   : to go back to a previous menu or screen, this is going to be one of the most frequently used keys.

<PAGE FWD> and <PAGE BACK>

: The top right corner of any screen will show the number of pages for that particular screen topic. Use <PAGE FWD> and <PAGE BACK> to go forward and backwards through these pages. Use the <MENU> key to go to the most immediate menu from which the current screen is referenced.

<NEWS>   To access Bloomberg's 24-hr global online news service
<PRINT>   To print any screen. To print a multi-page report*,* type the # of pages to print, then press the **<PRINT>** key. For example, to print a 5-page report, press **5 <PRINT>.** Type 9 <GO> to print the whole report.
<PANEL>   Switch Bloomberg screens
<CMND>   Press each time to see previous keywords you entered
You can also type **LAST <GO>** to see last eight commands you entered.

MOST HELPFUL KEYS

<HELP> and <SEARCH> are two of the most helpful keys in Bloomberg, especially for people in learning process.

<HELP>   : This key provides 3 important functions:

1. **<HELP> as Screen Help:** To understand what a given keyword or screen contains, just press **<HELP>** once to define terminology, formulas and applications for that screen.

Example. Start with the following screen by typing **MOST <GO>**. Note that the command will appear on the top right corner of the screen.

If you press **<HELP>** once**,** you get the following screen.

Typical HELP screen includes function of the command, how to use it, screen descriptions, shortcuts and calculations. There are also FAQs in HELP for complicated commands. I personally think Bloomberg HELP information is very specific and effective.

Click **<MENU>** or press the **<MENU>** key to go back to the previous MOST screen.

Press **<HELP>** twice to chat with Bloomberg's LIVE customer service. When the word "Message" is flashing at the top of the Bloomberg screen, it means a representative has responded to your question in email. To view the reply, type HDSK <GO>.

To displays the entire message functions available on the Bloomberg, type MSGM <GO>.
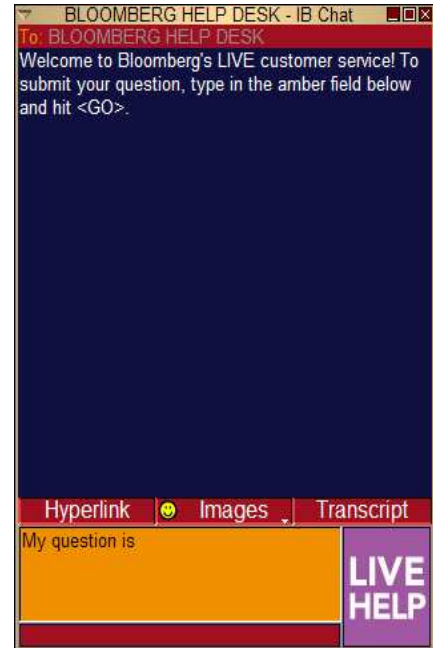
<SEARCH> key or **SEARCH <GO>** OR type the words you want to search and then press the **<HELP>** key OR type the words you want to search in the amber search box on the top of screen will get you to the same search screen. In our example, I searched for "**mutual fund".**

The above HELP screen shows that, there is a certain number of references under some categories indicated by a number in white, you can now click on one of the categories or type the number associated with the category then press the **<GO>** key. I clicked **11) FUNDS.** By entering more keywords in the amber search box below right after current keywords, and/or using Filter on the right side to narrow down the search.

Bloomberg is menu driven

Type **MAIN <GO>** to go to main menu for the Bloomberg Professional Service, then go to sections that are of your interest.

Yellow Keys
The yellow keys represent market sectors — **government, corporate, mortgage, money market, municipals, preferred, equity, commodities, index, currencies and client**.

<GOVT>   Securities issued by national governments and securities by quasi-governmental agencies
<CORP>   Information regarding corporate bonds
<MTGE>   Information regarding mortgages and collaterized mortgage obligations
<M-MKT>   Money market information
<MUNI>   Trading, descriptive and settlement information regarding municipal and state bonds
<PFD>   Preferred market includes public and private security types, including: fixed, floating, variable rate, zero-coupon, convertibles, and warrants.
<EQUITY>   Complete information on Equities
<CMDTY>   Commodities and their associated futures and options
<INDEX>   Generic interest rates as well as economic indices, such as the Consumer Price Index (CPI).
<CRNCY>   Foreign currency database
<CLIENT>   Create and analyze portfolios

Press the **<Yellow Key>** for the market sector and then **<Go>** for a menu of general analytics which can be performed on that specific market sector. This doesn't require you to know any commands, but this is not an efficient way to use Bloomberg. It is better to learn the commands through using those menus in the beginning.

Every financial instrument or index in Bloomberg can be accessed by using a ticker symbol for that financial instrument or index followed by a yellow market sector key **[ticker] <yellow key>. e.g. IBM US EQUITY <GO>** will get you to the main page for IBM US stock**.** You can find out all possible operations you can perform on this stock.

Useful tips:

1. Whenever in an unfamiliar screen requiring an input, look for directions from Bloomberg as to the order of the required keystrokes. In most instances, the system will give hints. Those instructions could be on the top or bottom of a screen.

2. If a screen is entered that was not intended, use the <MENU> key to go back to the original menu for more selections.

3. If the exact command is known, there is no need to search through the menu system. For example, if I want to know historical price of an equity, then the menu could be circumvented by typing in " ticker symbol <EQUITY> HP **<GO>**". This generalization can be used within any of the Yellow keys.

Example: If the user knows the CUSIP of a corporate bond and wants to know the details on the bond, the shortcut would be as follows: (**DES** for description)

   CUSIP # CORP DES <GO>

4. If assistance other than this manual is needed, hit the "Help" key while in the menu which is giving trouble. In most instances the help system will suffice.

5. If a multi-page document has been pulled up and it is inconvenient to page forward through each page, then type the number of pages that you need to go forward and then hit the page forward key. This will also work for the back page key.

The user will find that after using Bloomberg, there is a set pattern for retrieving information concerning each category of information. As such, many of the examples provided will appear repetitive in nature. Once the pattern is recognized, the user should feel confident that their ability on Bloomberg is sufficient for most uses.

<u>Learn more about Bloomberg</u>

Use **BU <Go>** to display a menu of Bloomberg training resources that can help you better navigate the Bloomberg Professional service. Through **BU**, you can access training manuals, conduct a key word search, contact the Bloomberg Helpdesk, register to attend Bloomberg seminars or certification program, and read about new functions and enhancements.

EASY <Go> display a list of tips and shortcuts including:

   1) Bloomberg Shortcuts
   2) Copy & Paste - Drag & Drop
   3) PC & Mnemonic Shortcuts
   4) Bloomberg News Shortcuts
   5) Bloomberg Message System: Tips, Tricks & Shortcuts
   6) Most Frequently Asked Helpdesk Questions
   7) Download Tips, Tricks & Shortcuts Document

Use **DOCS <Go>** to search for Bloomberg documents by category, keyword, or date. For example, to search for class handout for *I005: introduction to API*, type "I005" in the amber box and <Go>.

Bloomberg News

Bloomberg news is a major part of the system, although it is not the emphasis in academic research. Please go to Bloomberg **News and Research (http://firestone.princeton.edu/econlib/blp/docs/newsman.pdf)** and **News and Economics (http://firestone.princeton.edu/econlib/blp/docs/news.pdf)** for more detail.

System Levels

A. The One Security Function Level

The one-security function level includes yield analysis, descriptions, price histories, horizon analysis, etc. However, you must remember that this level of the Bloomberg is security specific. That means that a security must be defined before you can view a menu of analytics. No matter what the security the same functions can be run in each market sector. Once you are on the one-security function menu for a particular security, the analytical functions are available by typing the menu number that corresponds to the function or by entering the Bloomberg mnemonic and **<GO>**.

B. The Two Security Function Level

The two-security function level includes historical spreads, swap analysis, spread matrices, regression and hedge analysis, etc. To view a two-security function, you must define the two securities to be analyzed. Once you are on the two-security function menu for two securities the analysis is available by hitting the menu number that corresponds to the function or by entering the Bloomberg mnemonic.

Now that you know the basics, it's time to spend time on the Bloomberg system. Please refer to the other Bloomberg Guides on http://firestone.princeton.edu/econlib/blp/bloomberg.htm for further information regarding the specific markets.

Searching Bloomberg

Here are some sample searches that illustrate different features and approaches.

a. Looking up and using Ticker Symbols

To find a Ticker symbol for a specific security listed as an Equity security, enter

> **<EQUITY> TK {Full or partial name} <GO>**

For instance, to find the ticker symbol of the equity Coca Cola, type

<div align="center">**<EQUITY> TK Coca Cola <GO>**</div>

and obtain KO, the ticker symbol of Coca Cola. But this is not best way to find tickers, because you will always get too many results.

To find information on equities fastest, use the Green <HELP> key and search. For instance, type **IBM <HELP> and go to Companies category** to obtain equities information on IBM.

For non-equities, include the appropriate yellow key with the Ticker Symbol or Bloomberg shortcut description. For instance, to find the debt issued by IBM, type

IBM <CORP> <GO>

To find equities in an industry, **<EQUITY> TKI <GO>**

b. Finding historical stock prices for IBM

Single Security Function for Equity

1. Press **<EQUITY>**, type **TK IBM**, press **<GO>**. You will obtain the following menu.

```
Equity TK IBM                                          N242 Equity TK
Enter # <Go> for selection.
            Equity  Ticker  Look-Up              Page  1 / 1

 1)  IBM                    (QUNIBM   AU)  22)  IBM PHILIPPINES      (1073Z    PM)
 2)  IBM                    (IBMC     AV)  23)  IBM SOUTH AFRICA     (IBM      SJ)
 3)  IBM                    (14798Z   BI)  24)  IBM SOUTH AFRICA     (IBMZF    US)
 4)  IBM                    (IBM      CN)  25)  IBM+                 (IBM      ES)
 5)  IBM                    (IBM      CP)  26)  IBM-$US              (IBM/U    CN)
 6)  IBM                    (IBM      FP)  27)  IBM-A/T UNIT         (BZU      US)
 7)  IBM                    (REIBM    FP)  28)  IBM-A/T-PRIME        (BZP      US)
 8)  IBM                    (IBM      GR)  29)  IBM-CB CW01          (IBMCAC   BB)
 9)  IBM                    (6680     JP)  30)  IBM-CB CW01          (IBF      FP)
10)  IBM                    (TEST31   JP)  31)  IBM-CEDEAR           (IBM      AR)
11)  IBM                    (IBM      LI)  32)  IBM-CEDEAR $US       (IBMD     AR)
12)  IBM                    (IBM      LN)  33)  IBM-CEDEAR BLK       (IBMB     AR)
13)  IBM                    (IBM*     MM)  34)  IBM-CEDEAR C/E       (IBMC     AR)
14)  IBM                    (IBMA     NA)  35)  IBM-CTFS             (IBMT     BB)
15)  IBM                    (IBM      PE)  36)  IBM-CTFS             (IBMBF    US)
16)  IBM                    (IBM      SW)  37)  IBM-CVA              (IBM      NA)
17)  IBM                    (IBM      US)  38)  IBM-CW03             (NAX      FP)
18)  IBM CRED RECEIVS       (5890Z    US)  39)  IBM-GER CTFS         (40802Q   GR)
19)  IBM CREDIT LLC         (IBM1     US)  40)  IBM-ML CW06          (MLIBM    LX)
20)  IBM GLOBAL FINAN       (1121Z    AU)  41)  IBM-OLD              (IBMC     BB)
21)  IBM GLOBAL SERVI       (237287Z  AU)  42)  IBMS TRAINING &      (157775Z  MK)
Australia 61 2 9777 8600      Brazil 5511 3048 4500      Europe 44 20 7330 7500      Germany 49 69 920410
Hong Kong 852 2977 6000 Japan 81 3 3201 8900 Singapore 65 6212 1000 U.S. 1 212 318 2000 Copyright 2006 Bloomberg L.P.
                                                          H208-532-3 22-Mar-06 16:38:00
```

2. Select the appropriate ticker symbol by clicking on the number, or by typing in the number from the list and press <GO>. (In this example **17) IBM US.**)

3. On the next screen, select **4) Historical Prices**.

4. On the next screen, select **2) Px Table w/ Avg Daily Volume or type HP <Go>**. To download historical data, please refer to Excel API guide on the Bloomberg help page at http://firestone.princeton.edu/econlib/blp/bloomberg.htm.

APPENDIX

I list commonly used commands for equity and fixed income below for your reference. These are pretty much all commands you should know about the Bloomberg. For the latest cheat sheets, please go to DOCS <Go>, and search for class number for the Bloomberg Certification program.

EQUITY

DES
DES displays fundamental background information and financial data for a specific company, warrant, mutual fund or equity option. You can use DES to quickly view this information in one convenient location.

RELS Use RELS to display a comprehensive overview of a selected company. The overview includes a list of all of the company's equity, debt, preferred and money market securities as well as its description and lists of major subsidiaries and brand names.

CF
CF displays and searches for corporate filings, Securities & Exchange Commission's EDGAR filings and Canadian SEDAR filings for a selected equity or corporate security.

ERN
ERN displays earnings-per-share summaries for a selected equity. You can use ERN to determine trends, quality of earnings and numbers most directly comparable to analysts' estimates in order to better analyze a company's fundamentals.

DVD
DVD displays detailed information about a selected security's dividend/split history. Use DVD to determine how a security's gross or net dividend yield contributes to its overall returns.

EE
Use EE to display earnings projections from I/B/E/S, Nelson, Zacks, First Call and Toyo Keizai for a selected equity security. EE collects all earnings estimates for a company in one place so that you can quickly gauge market expectations.

ANR
ANR displays a list of analysts' recommendations and a consensus rating for a selected equity. The consensus rating is based on analyst recommendations compiled by Bloomberg reports and researchers around the world.

DSRC
Use DSRC to generate a list of companies or mutual funds based on a set of criteria you select. The criteria are based on specific words (from the DES paragraph), country of

domicile or whether a company is publicly or privately traded. You can use DSRC to export your results to a portfolio, NW worksheet, Launchpad, or Excel spreadsheet.

QSRC
Use QSRC to generate a list of equity securities based on a set of criteria you select. A set of criteria can include country, exchange, security type, index, industry group and a variety of numeric values. You can use QSRC to find equities that meet your fundamental and technical criteria.

WEI
Use WEI to monitor intraday changes and display historical returns for indices in North/Latin America, Europe/Africa and the Pacific Rim. WEI enables you to stay abreast of changes in broad and overnight markets.

WEIS
WEIS ranks the returns for a group of equity indices over a specified period in either local currency of each index or in an adjusted base currency. You can use WEIS to identify opportunities in global markets.

GRR
GRR ranks the returns of all industry groups in a selected index during a specified time. GRR displays the returns for all of the components of an index in a single locations and gives you an overview of what constituted the performance of the index.

MRR
Use MRR to display the 10 best and 10 worst performing stocks of an index. MRR also ranks the returns of all the components of a selected index by simple price appreciation for a specified time period.

RV
RV displays customized reports with key technical and fundamental data that you can use to compare a selected equity to securities with the same industry, index or portfolio.

FA
FA displays financial analysis statements for a selected company. You can use FA to analyze the current fundamental strength and historical trends in specific areas of a company's balance sheet, income and cash flow statements.

COMP
COMP compares the returns of a selected security to its benchmark index and industry group (if available) or to two other selected securities. You can use COMP to evaluate a security's relative value and determine if it is out/underperforming other securities or indices.

ECO
Use ECO to display a calendar of economic releases. You can use ECO to monitor historical, current and expected releases of economic numbers around the world to stay abreast of market and financial activity on a global scale.

Warrants, Futures and Options

CEPR
Use CEPR to display a menu of futures and options exchanges. The directory provides the symbol, address, phone and fax numbers, and Internet address for each exchange.

CTM
Use CTM to locate futures contracts when you are unsure of the exchange the contract trades on or do not know of all the available exchanges on which a type of future contract trades.

OTM
OTM displays a menu of futures contracts for which listed options are available, grouped by financial, equity and index, soft commodity, and hard commodity contracts. You can also sort the futures contracts by predetermined criteria or display the options for each contract.

WEIF
This stand-alone function gives an overview of latest prices for world equity index futures. The FEPS function will dictate whether you see day or night session prices or both.

TKA/MOSO
TKA is a list of the 20 most active futures contracts worldwide. MOSO displays the day's most active options by volume and the leading advancers and decliners by percentage or net gain/loss for a particular exchange.

CT
CT allows you to monitor price movements across all expiries for a given underlying contract, such as the future on the Standard and Poor's 500 index.

FHG
Use FHG to graph historical data for a selected future contract and/or equity. The data items consist of statistics on the selected security and/or their traded options.

OMST
OMST displays the most active options - and the greatest upward and downward movers - for an underlying equity or index. You can use OMST to identify which options for an underlying security best meet your trading needs.

OV/OVX

Use OV/OVX to create or calculate option values for a selected index or equity option using pricing assumptions you define. You can use OV/OVX to save the options, so you can value them and mark to market your positions. You can also use OVX to search for specific option types and model exotic options that you can send to other BLOOMBERG PROFESSIONAL service users.

OSCN/WSRC

Use OSCN to generate a list of options based on a set of criteria you select. A set of criteria can include country, exchange, security type, index, industry group, and a variety of underlying and option limiting values. You can use OSCN to find options that meet your fundamental and technical criteria. WSRC is the customized search facility for warrants.

OMON/WCM

OMON displays real-time pricing for a selected exchange-listed security's call and put options. You can customize multiple templates according to the option information you need, such as implied volatility levels, risk measurements, and historical volatility. You can also filter the options according to center price, strike price, and exchange criteria you select. Like OMON, WCM will display your selected data items if warrants (options) exist on the underlying and is thus useful as a search facility.

COAT/POAT

COAT/POAT display call option valuation sensitivity measures for various strike prices for an underlying equity. COAT allows you to evaluate several call options at once to help you identify the options that meet your value and volatility objectives.

HVG/HVT

HVG graphs historical price or yield volatility for a selected security. You can use HVG to identify trends in historical volatility in order to help predict future volatility and thus more accurately price options and warrants. HVT is invaluable in getting an overview of historical volatilities over various periods.

HIVG

HIVG helps gauge historical price movement and volatility versus the market's prediction (implied) of volatility over time. You can use HIVG to identify trends in price direction, predict trends in future volatility or draw correlations between prices/yields and volatility.

HRH

HRH displays a historical return histogram for a selected security. You can use HRH to determine if a security's returns follow a normal theoretical distribution and, therefore, determine the validity of pricing model assumptions.

SKEW

SKEW displays implied volatilities across different strike prices for a selected equity, currency, commodity, or index security. You can use SKEW to detect higher implied

volatilities, which indicate that the security has a greater chance of reaching a strike price than the odds predicted by a lognormal probability distribution.

CWS
CWS displays the standstill, breakeven, and if-exercised returns for an equity option contract series, allowing you to quickly determine which strike prices might best enhance your profit and loss. Writing covered calls is a logical method of generating incremental returns on a portfolio.

OSA
OSA calculates the potential profit or loss of an option strategy for a selected equity. You can use OSA to evaluate how changes in the horizon date, underlying price, interest rates, and implied volatility affect an equity option. OSA also allows you to save your positions to a portfolio.

Fundamental Analysis

BETA
BETA displays the historical volatility of a selected equity compared to a broad based market index. You can use BETA to help determine an equity's risk level. The beta is an essential calculation in computing the weighted average cost of capital.

CRP
CRP displays the country risk premium, which is a country's expected market return minus the corresponding risk free rate, for all countries/regions that are currently available. The market return is calculated by taking a capital weighted average of the internal rate of return over all the members of the country's major index.

EQRP
Use EQRP to calculate the expected additional return (equity risk premium) sought above a specific country/region's risk-free rate when investing in a selected equity. You can use EQRP to help measure the relative risk/reward of investing in a selected equity and/or equity market.

WACC
WACC displays a selected company's current capital structure. You can use WACC to calculate the approximate cost of a company increasing their long-term capital and the economic impact on shareholder value. WACC shows whether a company has been increasing or destroying shareholder value. The above functions are essential to the calculation of WACC.

DDM
DDM calculates the intrinsic value of a selected equity using the present value of future cash flows discounted at an appropriate rate. You can compare this theoretical value to the current price of the equity to determine whether it is under or overvalued.

AZS

AZS forecasts the probability of a selected company entering bankruptcy within the next two years. You can use AZS to evaluate the general financial condition of a company and the associated risk of investing in the selected security. You can bring this value into Excel to see a historical trend.

M&A Analysis

MA

MA gives comprehensive coverage on global merger and acquisition activity. You can use a standardized deal search or create a customized search based on criteria that you specify. MA also provides you with a snapshot of the day's top deals, a comprehensive list of financial and legal advisor rankings, and a breakdown of global merger and acquisition statistics.

CACS/CACT

You can use CACS to display a list of corporate and municipal actions taken by a selected company or municipality over a given date range. CACT allows you to search by action type across multiple securities or markets or just a single company like CACS.

FA

You can use FA to analyze the current fundamental strength and historical trends in specific areas of a company's balance sheet, income statement, and cash flow statement. Data transparency – click back to the source document for instant insight into the numbers.

GPCA

GPCA displays a graph of historical corporate actions for a selected security. You can use GPCA to gain insight into the market's reaction to company's corporate actions and how they may have impacted the price of its stock or debt. Bear in mind that the 'news' button on a GP graph allows you to link price action to news on a more general level.

RV

You can use RV to do peer group analysis with respect to deal multiples on a current merger or acquisition.

LEAG

LEAG displays underwriter rankings across a variety of markets including equity and equity-linked, fixed income and syndicated loan markets. MA L <GO> will bring you to a league table for financial and legal advisors.

FIXED INCOME

BTMM
BTMM provides a comprehensive picture of the current interest rate outlook by monitoring all major rates/securities and economic releases for a selected country.

GGR
Access a global summary of government bill, note, and benchmark bond rates for individual countries. Use the generic bond tickers to monitor yield changes in government bond markets for individual countries.

IYC
Analyze both current and historical benchmark international yield curves to determine where you can be best positioned in the market.

FMC
Use FMC to compare yields across maturities of multiple corporate and government bond sectors to formulate a strategy when analyzing trade ideas or issuing bonds.

NIM
Monitor new bond offerings and the news related to these issues with NIM so that you can find value in the new issue market. Create custom searches to quickly find the bonds that meet your investment criteria.

RATC
Use RATC to display a list of current and historical credit ratings changes for various issuers to evaluate the financial security of the issuer. Customize a search to efficiently find the information you need.

{ISSUER NAME}<HELP>
To lookup a company's bonds type a corporate bond issuer's name followed by the <HELP> key and select 10<GO> for companies. Select the correct company and choose from the options under the DEBT SECURITIES heading to access a listing of a company's bonds so that you can see their debt obligations and begin your detailed analysis.

DES
Use DES as a mini-prospectus for a bond with all of the important descriptive details for the security in one place.

YA
Use YA for customizable yield analysis. Calculate price or yield for a bond along with sensitivity measures like duration.

YAS

Use YAS to price a selected security using spreads to a yield curve, calculate the yield spread to the interpolated point on the benchmark curve, calculate risk and hedge ratios and calculate the cost of carry all in one place.

WBF

Use WBF to monitor prices or display yields for active bond futures contracts from around the world and choose custom the display criteria, creating a customized view of the market.

FMCI

FMCI displays a menu of fair market indices from around the world. Individual points that make up the Fair Market Curves (FMC) are saved as indices, allowing you to compare spread relationships to spot trends and find value.

SRCH

Use SRCH to create up to 20 custom searches for government, corporate, and private securities using customized criteria such as coupon, maturity, and country so that you can select the bonds that best meet your investment needs.

ISSD

ISSD provides a quick overview of the financial data and operations of the issuer of the security, so you can thoroughly evaluate the ability of the issuer to repay its debt.

CRPR

View current and historical ratings for a specific issuer or fixed- income security from various ratings agencies to better assess the credit worthiness of the issuer.

DDIS

Determine how a company is leveraged using the maturity distribution of the outstanding debt.

TRA

Project total return for a bond versus the relevant treasury benchmark over a customized horizon period and taking into account various interest rate scenarios.

RVM

RVM graphs the historical spread of the yield of a selected bond to the corresponding interpolated point on the Treasury curve. It allows you to compare the current spread of a bond to its average spread to see if the bond is currently trading rich or cheap.

BFV

Use BFV to determine a theoretical value for where a selected bond should trade compared to bonds trading in the same industry and with the same credit rating.

<div align="center">

Swaps

</div>

IRSM

Use IRSM to display a menu of functions used for analyzing interest rate swaps and derivatives. Find current market rates, yield curve data, calculators and portfolio functionality from this menu.

USSW

Use USSW to monitor current interest rate swap data and data on U.S. government, agency, LIBOR, futures markets, and economic statistics all in one convenient location. Use this real-time intraday data so that you can make timely decisions.

SWDF

Use SWDF to customize your swap curve defaults or a variety of currencies. Choose a standard curve constructed from LIBOR and contributed swap rates from a contributor of your choice, a hand-priced curve, or construct a portion of your curve from futures market rates.

FWCV

Use FWCV to analyze projected forward rates for fair market curves, interest rate swap curves, and government curves for three future dates. By utilizing FWCV's curve analysis, you can formulate opinions about the future levels of interest rates so that you can make the most informed decisions about the use of interest rate swaps.

SWYV

Use SWYV to save volatility curve settings used in interest rate swap analytics, and to save default settings for cap/floor/collar securities.

SWPM

Use SWPM to create, value, and update interest rate swaps and derivative securities. You can display and update curves and cashflows, and perform risk and horizon analyses, for each leg of the swap and for the entire deal.

ASW

Use ASW to calculate the relative value of a selected bond through the interest rate swap market. You can use ASW to determine if it is better to enter into an asset swap versus purchasing a floating rate instrument.

BCCF

Use BCCF to create and value interest rate caps, floors, and collars. BCCF allows you to save the values and structures. Once a structure from BCCF is saved, you yan apply it within Bloomberg's portfolio system.

SWPR

Use SWPR to set up and store up to five report formats that display relevant structural, pricing, and risk characteristic on a portfolio of swaps, caps, floors, and/or forward rate agreements, so you can make better assessments about the performance and risk of your portfolio. Resulting reports display critical details of the individual securities in the

portfolio as well as summary information about the entire portfolio, including total market value.

FI Futures and Options

WBF & WIR
Monitor interest rates and interest rate futures so that you can quickly identify profitable opportunities in both the cash and futures markets.

CEM & CTM
Quickly gain direct ticker access to future contracts by exchange or contract type so that you can customize your own monitors and apply the analytics that will identify the strategies that will maximize your return or profit.

CTG
The contract Series Graph illustrates latest price and open interest levels versus the previous close for a contract series, so that you can gauge market sentiment, supply and demand, and identify a changing market environment that will enhance your returns and profits.

CTGH
Graphically review the evolution of contract series prices by displaying four different dates. Compare historical future movements against cash to identify trends and opposing perceptions where returns and profits can potentially be maximized.

DLV
Knowing the order of cheapest to deliver securities will enable to quickly implement the most profitable of basis trades and maximize your returns.

OEM & OTM
Quickly locate options by exchange or type. Create your own customized monitors so that you can identify the most profitable of trade or arbitrage opportunities.

OMON
Create your own custom options monitor to present the information that you need to see, when you need to see it, so that you can select the most appropriate contract to meet your objectives.

OV
Independently value your over-the-counter options so that you ensure that you pay a fair price, and that the characteristics meet your parameters.

HIVG & TRMS

Track both historical and implied volatilities so that you can time your buy and sell decisions as well as confirm that your options are priced fairly so that you meet your objectives.

FYH Determine the number of futures contracts required to hedge a cash position so that you can maintain your market exposure levels and manage profits and losses.

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<u>Repo Analysis</u>

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<u>DATA</u>
BTMM
Use BTMM<GO> to access a one-stop shop for all money market and treasury-based rates and prices. The button marked "Change Country" can be used to get rates from different countries.

MRKT
Use MRKT<GO><PAGE FWD>11<GO> to see repo rates from different counterparties.

<u>CALCULATORS</u>
FPA
FPA<GO> will price up a repo giving you the forward price and cashflows if you input the start date, nominal amount and repo rate. Alternatively if you need an implied or break-even repo rate then type in the forward price. This is also the ideal function if you need to price up a bond with a delayed settlement date such as selling a US Treasury to match the settlement date of a Eurobond.

BSR
BSR takes the repo a couple of steps further with the ability to see how the repo cashflows are adjusted when the repo goes over a coupon date. You can also set the cash value of the repo and have the nominal amount of the collateral calculated for you, invaluable when your client asks you to calculate the amount of collateral required for a specified loan amount.

YAS
Staying with forward prices, YAS<GO> will give you the chance to calculate a forward price whilst being able to simultaneously check out the bond's value by spreading it to the risk-free and swap curves.

<u>FURTHER USES OF REPO</u>
COC
Repo plays a part in determining the cost of owning a bond. Whilst you are waiting for the market to move, you need to know how much a bond either costs to own or how much it makes for you. Cost-of-Carry via COC<GO> gives you the answer to that question. By comparing the income from the bond (converted to a money-market return

and called "REPO EQUIV" in the COC screen) with the cost of financing ("REPO RATE") you can calculate how much the bond will earn/cost and a breakeven price/yield.

BAR
Use BAR<GO> to calculate your breakeven spread for a bond switch like a curve extension trade where you sell a bond with a short maturity and buy a bond with a longer maturity. Using repo rates in this kind of trade gives you the true spread that you need for the trade to break-even especially if the bond you are selling has a very low repo rate.

Derivatives, Convertibles and Asset Swaps

CBMU
Use the Bloomberg Convertible Bond Main Menu to access all Convertible bond functionality. From Searching for convertibles to their final valuation, the applications located on the menu will bring you from beginning to end in identifying the most profitable opportunities.

NI EQL
Bloomberg's specific news category for equity linked news will keep you informed of new deals, research reports, and news pertaining to the equity linked markets so that you make the most well-informed, and profitable, business decisions.

CNVG
Graph a selected convertible corporate bond's price, the underlying stock's price, points, percent premium, parity, and the bond's yield. CNVG allows you to compare the current premium with historical levels so that you can understand the bond versus equity relationship and lower than usual premiums and cheap convertibles.

CVS
Compare historical bond prices relative to historical equity prices so that you can determine if a convertible is priced fairly, relative to historical observations. Historical, or empirical, deltas are provided for multiple periods in the lower portion of the graph.

OVCV
Compute fair values of your buy or sell candidates to ensure that your bond is priced fairly or to spot potential arbitrage opportunities. The Bloomberg Convertible Bond Valuation model provides all of the detailed information that you need, from duration and Greeks to component values. Run multiple scenarios varying volatility and credit spread.

TRMS
Confirm that your implied volatility inputs are reasonable according to the current term structure of implied volatilities and compare to historical volatilities so that you can more accurately value convertibles and identify profitable investment or hedged strategies.

ASW
Determine relative spread over LIBOR for the fixed income value of your convertible, so that you can determine relative value, compare across asset classes, or model the asset swap that will eliminate interest rate exposure.

PPCR

Create your own private placements or structure new deals that can be distributed throughout the firm or sent to other Bloomberg users so that you can insure that a deal is valued properly or communicate with your customers.

CDSD

Select global default settings for par CDS spread curves; search for CDS tickers by currency, sector, debt type or name; choose your pricing source defaults and user-defined curves so that you can determine the CDS spreads you want to drive all your monitors and analytics.

SWDF

Use SWDF to set up your preferred interest rate swap contributors and swap curve defaults. You can also choose the CDS model you want to use as a default for evaluating your credit default swaps so that you can speed up the evaluation process.

ASW

Calculate the asset swap spread and z-spread on a bond so that you can estimate theoretical CDS levels and determine the basis.

CDSW

CDSW gives you a choice between two state-of-the-art CDS valuation models: the JP Morgan model and the Modified Hull-White model. Combine your chosen price contributors with your preferred CDS model so you can accurately mark-to-market your CDS deals.

Money Markets

MMR/BTMM

Use these functions to monitor current money market rates. Use MMR to display a menu of global money market rate monitors. Use BTMM to monitor all major rates/securities and economic releases for a selected country.

FED/FOMC

Use these functions in order to gain insight into the impact of and the motive behind monetary policy changes. Use FOMC to display announcements and policy changes carried out by the Federal Open Market Committee (FOMC). Use FED to display a calendar of Federal Reserve and other economic releases for a selected country or region.

MMCV

Use MMCV to display money market yield curves that you can use as benchmarks or relative value comparisons both on a current and historical basis. You will be able to analyze investment performance across multiple markets and currencies.

MCUR
Use MCUR to find an interpolated point on an MMCV curve in real-time so that you can ensure the correct rate for the maturity you are using.

GA1/GA2
Use these functions to calculate the break-even point at which one money market investment would be selected over another given your outlook on rates.

FWCV
Use FWCV to analyze projected forward rates for fair market curves, interest rate swap curves, and government curves for three future dates. Use this function in order to calculate forward rates for any future date that you specify.

PGM
Use PGM in order to look up and create money market programs. You can use this function to create a security and determine how it will perform under various interest rate environments.

Structured Finance Analytics

HSST
Track key housing economic statistics to gain a better perspective of what may happen within the Mortgage backed securities market. View trends in application volume and delinquencies.

BMMI
Allows you to determine trends in collateral performance for the Mortgage and Asset backed universe. Tracks relevant prepayment statistics, provides monthly commentary, and provides collateral prepayment projections.

CPH
View trends in historical prepayments by breaking out collateral by agency, coupon, age or production year.

CLC
View important collateral information on either MBS or CMO securities so that you can determine prepayment risk based on credit scores, property purpose, loan purpose or other characteristics.

SPA
Displays the related bonds in a structured product to the security you are analyzing so that you can determine cash flows and priorities within the deal's structure.

VALL

Displays a table of dealer prepayment assumptions for a mortgage-backed security's collateral over an interest rate range so that you have a variety of scenarios to measure risk.

PVG

Displays a chart of the output of the prepayment vector models available on Bloomberg so that you can see the alternative models to using straight-line historical or dealer assumptions.

DV

Create and incorporate a prepayment or loss vector based on your views of prepayment and loss scenarios so that you can accurately value structured product securities.

YT

Accurately value a mortgage or structured product security over multiple assumptions regarding price, prepayment, yields, or spread.

WALG

Allows you to graph the weighted average life and principal payments of a MBS or ABS security under a variety of prepayment scenarios to gauge extension and curtailment risk.

OAS1

Determine the cost/value of the prepayment and structuring optionality in a MBS, CMO or ABS security.

High Yield / Syndicated Loans / Distressed Research

HYM / LOAN

High Yield & Syndicated Loans Main Menus – Use the Main Market Sector menus to find Current Market News, Yield Curve and Pricing Data, Calculators, New Issue Information, and Third Party Contributor Pages.

NIM

Monitor the High Yield Debt and Syndicated Loan primary markets; from recently completed transactions to proposed deals and new issue commentary so that you can see what is selling, find securities that fit your needs and assist in determining relative value.

SRCH/LSRC/QSRC

Search the Bloomberg Databases of Active Fixed Income Securities, Syndicated Loans and Equity securities to find Issues, which meet your investment criteria with respect to Industry, Structure, Maturity, Ratings and Issuance information. You can save multiple searches for each with each search representing a different combination of multiple search criteria. Each of the respective searches includes 'Fast Search' templates, which allow you to search, based on the most common criteria.

RATC
Company Credit Rating Revisions Monitor allows you to quickly scan the credit markets to search for recent ratings changes. You can create up to twenty customized search templates based on criteria such as debt program type, rating agency, Credit Quality (e.g. High Grade vs. High Yield), Industry Sector, Country of Issuance as well as the type of change (e.g. Upgrade / Downgrade).

FMCI
Access Fair Market Yields for a given sector and credit rating so that you can determine the relative richness/cheapness of a sector and develop an opinion on spreads useful in generating trade ideas. You can use these indices to study the history of Fair Market Curve (FMC <GO>) term points and make determinations of the historical richness/cheapness of a sector individually as well as across market/ratings sectors.

RELS
Use the related Securities Function to see an overview of a company's business, management, corporate structure, capital structure and product lines so that you can decide whether the company represents an investment opportunity and warrants further credit analysis.

ISSD
Obtain a quick overview of a company's capital structure, cash flow and interest coverage ratios along with a brief business description and links to other key Bloomberg functions that can used to develop a fundamental credit opinion and make relative value decisions

DDIS/DLIS
Quickly scan all of an issuer's outstanding public debt as well as Syndicated Bank Loans. You can refine your search to only include the maturity and coupon as well as Facility and Purpose types so that you can isolate bonds/loans that best match your specific investment criteria.

CRPR
Displays all of the long and short-term credit ratings for an issuer's debt programs as well as on an individual issue. CRPR also gives you access to historical ratings data so that you can follow a given issuers credit migration and use this to refine your determinations of future credit quality

YAS/YTC
Calculate yield/price relationships, sensitivity measures and cash flow analysis for selected securities so that you can determine the security's relative value and appropriateness for your investment strategy.

Municipal Bonds

MBIX

MBIX provides you with a quick snapshot for the leading Municipal Market indicators. Get numbers on supply in the primary and secondary market, Bond Buyer indices, VRDN indices and more.

NIRM

Use NIRM to compare the yields of new issue municipal securities and review historical, current, and future market trends.

FMC

Bloomberg builds and maintains yield curves on over 90 municipal sectors so you can determine which sectors have become rich or cheap versus other sectors.

PICK

The PICK list provides you with real-time access to the latest offerings and customizable search capabilities so that you can find bonds that meet your criteria.

SRC

Set up customized searches to find the bonds that meet specified parameters. Bloomberg's extensive database can be searched quickly and easily so you can find the perfect bond for your own or your client's portfolio. Customize and easily manipulate the output by copying the search results to Excel.

ISPD

Use a securities historic issue price to determine a fair value today. ISPD will give you the spread to Bloomberg's option free AAA GO curve at issue so you can use the same spread to calculate the current value of the bond.

MSRB

Use MSRB to display transaction reports from the Municipal Securities Rulemaking Board (MSRB). The Bloomberg provides easy to use searches to filter through the transaction report so you can find prices that help you determine the current market value of a municipal bond.

DEAL

Share real time information on municipal new issues to ensure all parties involved have the most current information.