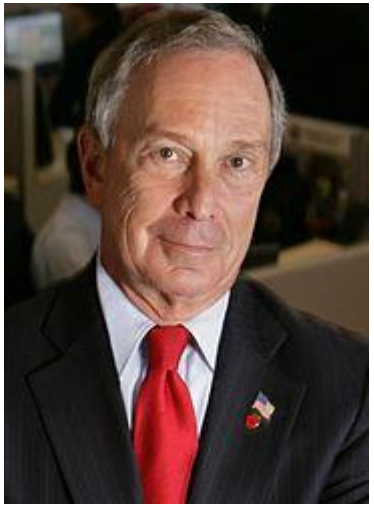
MASARYK UNIVERSITY
Czech Republic
AMathNet
síť pro transfer znalostí v aplikované matematice
esf evropský sociální fond v ČR
EVROPSKÁ UNIE
MINISTERSTVO ŠKOLSTVÍ, MLÁDEŽE A TĚLOVÝCHOVY
OP Vzdělávání pro konkurenceschopnost
INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Terminál Bloomberg

Martin Řezáč, Ondřej Pokora

Úvod



- In 1981, Michael Bloomberg was fired from Salomon Brothers and was given a $10 million severance package.
- Using this money, Bloomberg went on to set up a company named Innovative Market Systems
- In 1986, the company was renamed Bloomberg L.P.
- Bloomberg has since grown to be the most-used and arguably the best financial information platform
- Michael Bloomberg came to be the 10th richest person in the United States and NYC mayor from 2002 to 2013.

Úvod

Bloomberg is also a comprenhensive, intuitive news platform, with:

- 2000 journalists + 6000 news contributors
- customization
- Search filters
- Archives
- Alerts
- etc

  - a subscription is around US$1500 per month, depending on status and included package
  - 30,146 functions
  - 300 000 subscribers

... and growing

Úvod

• Terminál Bloomberg je počítačový systém poskytovaný firmou Bloomberg L.P., který umožňuje profesionálům v oblasti financí a dalších průmyslových odvětvích přístup k profesionálním službám Bloomberg. Jejich prostřednictvím mohou uživatelé sledovat a analyzovat data z finančních trhů v reálném čase (přístup je i k historickým datům).

Úvod

- Systém také poskytuje zprávy, cenové nabídky a zasílání zpráv přes své proprietární zabezpečené sítě. Většina velkých finančních firem má předplatné na profesionální služby Bloomberg. V květnu 2010 využívalo terminál Bloomberg 315,000 zákazníků/ uživatelů po celém světě .

Úvod

• Všechny terminály Bloomberg jsou pronajaty ve dvouletých cyklech (tříleté smlouvy byly možné na přelomu tisíciletí).

• Většina Bloomberg sestav má mezi dvěma a šesti displeji.

Přihlášení

- Přihlášení do systému:

  login: xxxx

  heslo: xxxx

- Přihlášení do Bloombergu: stisknout červené tlačítko Default:

  login: xxxx

  heslo: xxxx

Klávesnice

HELPFUL KEYS:

Esc CANCEL — Exits the current function and cancels the current activity on the screen.

HELP — Connects to function Help Pages (online user guides) as well as the Bloomberg Helpdesk.

Enter GO — Executes a typed command. Also known as the <GO> key.

SEARCH — Enables keyword search of the entire Bloomberg database.

END MENU

» Navigates from any function back to a menu of related functions, then back through the menu hierarchy to the Home menu.

» Closes pop-ups.

F8 EQUITY

The yellow market sector keys enable you to:

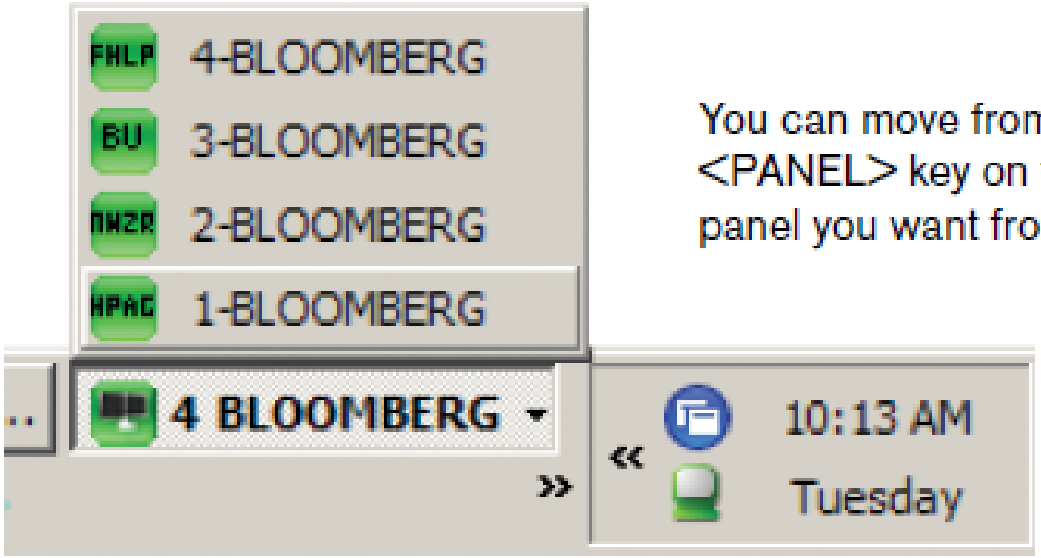
» Load securities
Example: IBM US <EQUITY><GO>

» Access market sector menus
Example: <CORP><GO>

Panely

When you first log in to Bloomberg, up to four Bloomberg Panels appear. The panels are independent workspaces that enable you to multi-task within the Bloomberg system.

You can move from one panel to another using the blue <PANEL> key on the keyboard or by clicking on the specific panel you want from the Windows taskbar (see below).



The four Bloomberg Panels enable you to work with multiple functions simultaneously. As shown below, each panel is divided into four main sections:

Panely

A. Toolbar
B. Command Line
C. Function Area
D. Information Panel
(HELP) for explanation.
CurncyN
SEE DEBT MATURITIES BY RANK IN CAPITAL STRUCTURE.
DDIS RANK

Panely

A. Toolbar: The left side of the toolbar includes the menu tab and a drop-down list of recently loaded securities, with the current loaded security visible. The right side features icons to help you perform key tasks, including exporting data, viewing favorite places and securities, accessing Help and adjusting your defaults and display.

B. Command Line: Here you enter commands for functions and securities. You can also perform a keyword search for securities and functions from the command line. This Autocomplete feature makes the Bloomberg Terminal entirely discoverable from the command line.

C. Function Area: Here you will find the actual function content displayed.

D. Information Panel: This field highlights new or enhanced Bloomberg functionality typically, but not always, related to the function that is running.

Základní menu

Základní menu

- Do základního menu se dostaneme klinutím na

, které zároveň funguje i jako tlačítko „o úroveň výš“
- Oranžové šipky

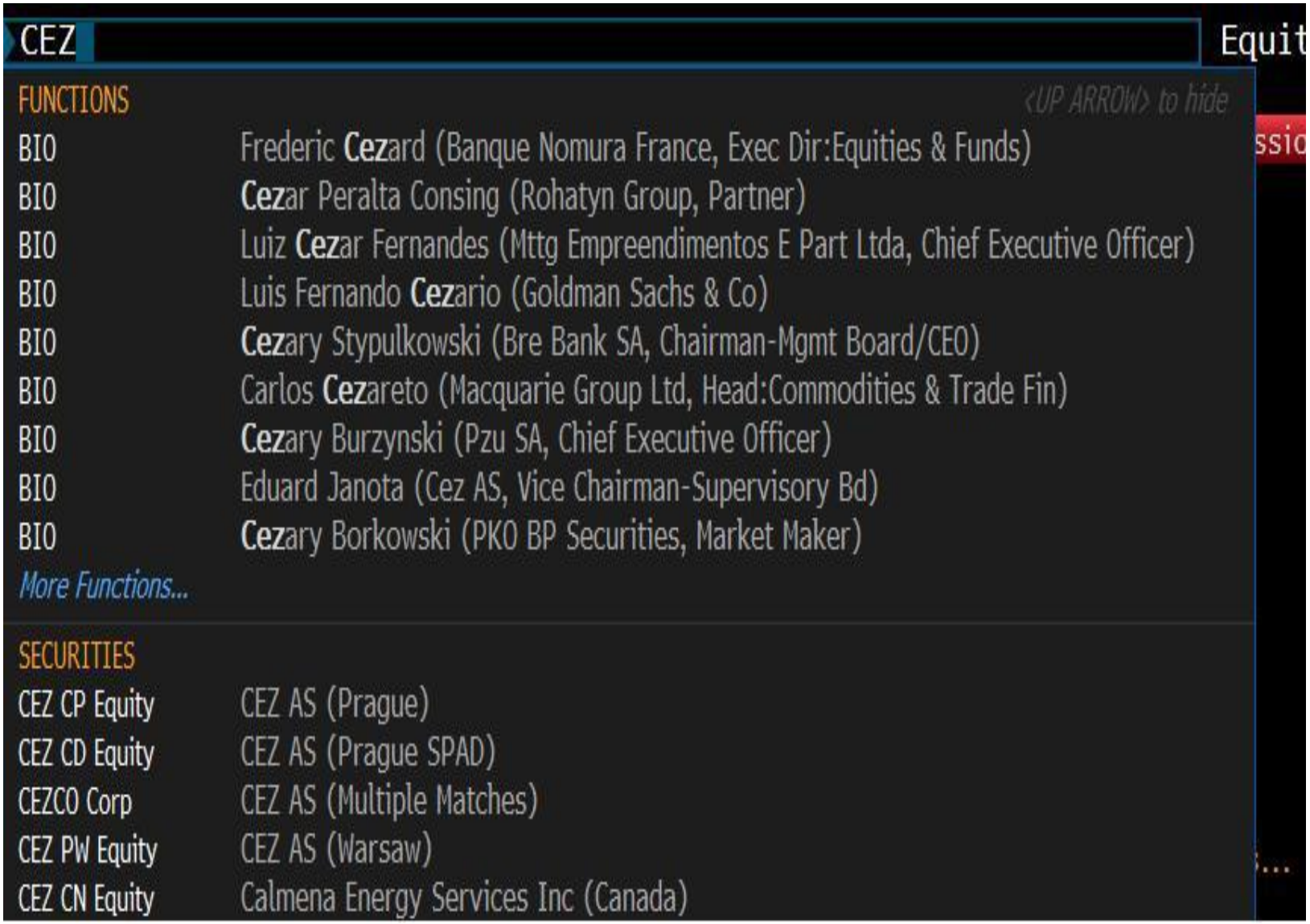
  nefungují jako šipky v internetovém prohlížeči. Slouží na rychlý přístup k posledně zobrazovaným titulům(securities)

Základní menu

- Příkazový řádek

- po zadání (přibližného) klíčového slova, bloomberg nabídne související funkce a související „securities“
- např. zadáme „CEZ“, bloomberg nabídne příkazy obsahující toto heslo a cenné papíry s tímto heslem v názvu.

Příkazový řádek

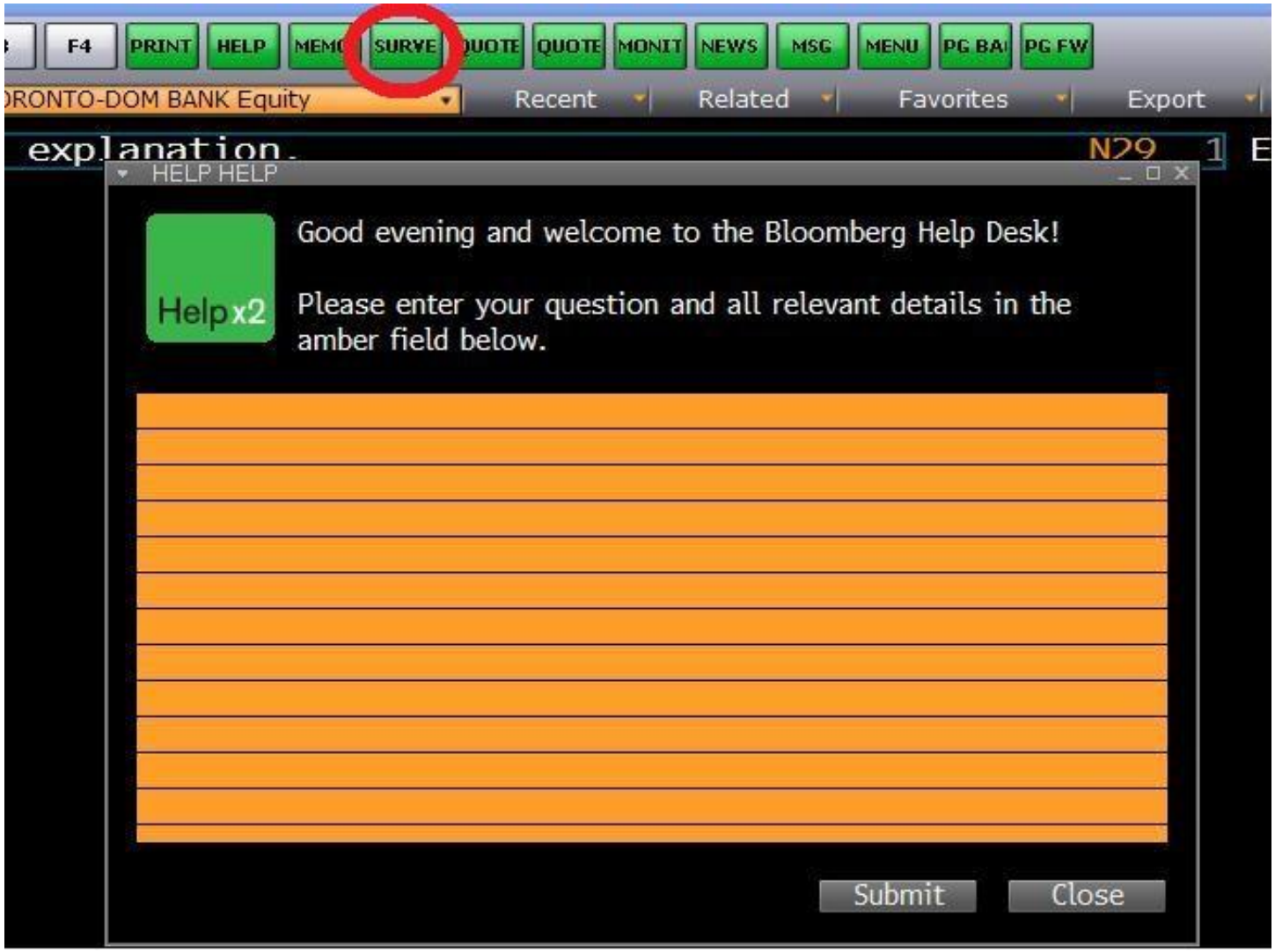


Příkazový řádek

- Rozkliknutím „*More Functions…*“ dostaneme nabídku všech funkcí souvisejících s daným heslem.
- To samé u securities
- Pomocí

se dostaneme na online chat(Help desk) s operátorem (anglicky mluvící, ochotný spojit se i telefonicky)

Help desk


F4
PRINT
HELP
SURVE
QUOTE
QUOTE
MONIT
NEWS
MSG
MENU
PG BA
PG FW
RONTO-DOM BANK Equity
Recent
Related
Favorites
Export
explanation.
N29
HELP HELP
Good evening and welcome to the Bloomberg Help Desk!
Help x2
Please enter your question and all relevant details in the amber field below.
Submit
Close

Prostředí bloombergu

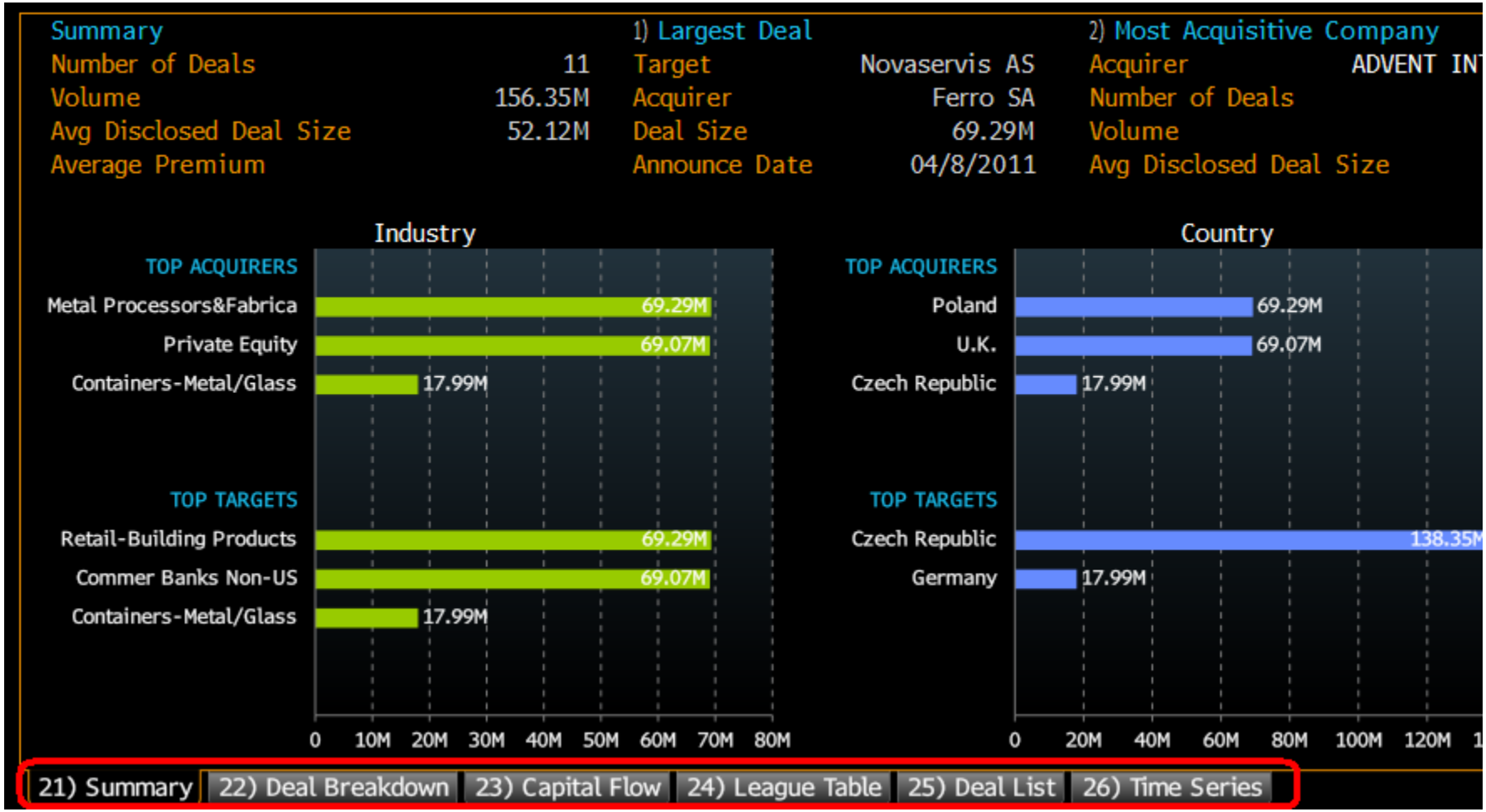
- Oranžové pole – můžeme vepisovat hodnoty
- Červené pole – nabízené funkce, - můžeme s daným výsledkem hledání dál pracovat
- Šedé pole – filtry, např. u vyhledávání zpráv a článků, možnost filtrovat podle odvětví, osoby apod.

Prostředí bloombergu podle barev

Prostředí bloombergu

- Při vyhledávaní určitých typů dat(např. fúze) zobrazí bloomberg ve spodní/horní části obrazovky záložky, které obsahují další informace k vyhledávané problematice a se kterými může uživatel dál pracovat.

Prostředí bloombergu



mnemonics

- Bloomberg používá tzv. mnemonics -
- každá funkce, příkaz, titul… má svoji zkratku
- např. ČEZ - CEZ CP Equity
- zavírací cena(last price) – px last
- apod.
- zkratky není potřebné znát, bloomberg je často intuitivně nabídne při vyhledávaní

Vyhledávaní dat, správ, článku

- Nejjednodušší je vyhledávání zadáním klíčového slova do příkazového řádku
- druhá možnost je proklikat se přes položky základního menu.

  - ekonomická data například v oblasti „Market sector“

  - správy a články např. v „Other services“ – News & Research

Vyhledávání dat, zpráv, článků

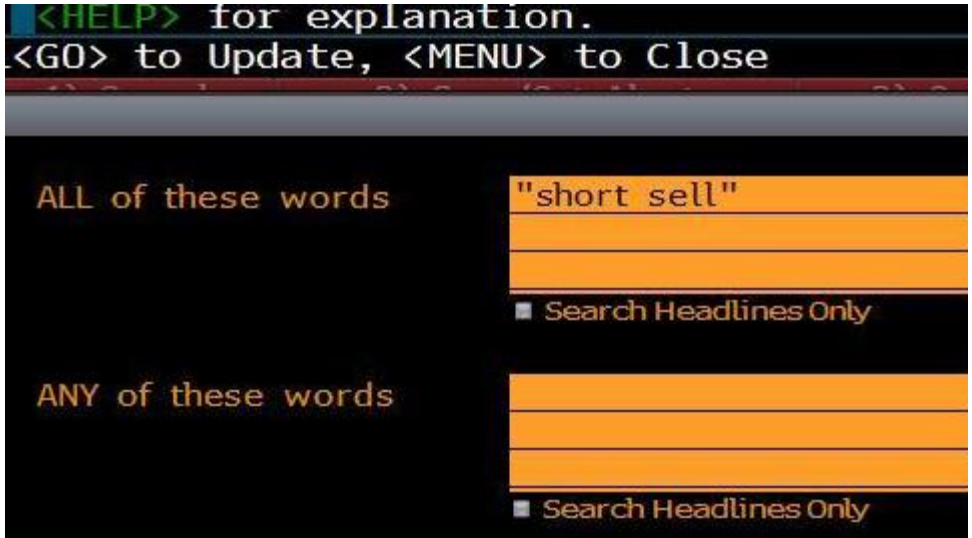
Příklad hledání dat

- Např. chceme získat vývoj kurzu akcií ČEZ
- do příkazového řádku zadáme „cez“ a vybereme z nabízených možností
- dále můžeme vybrat z nabídky menu-např. DES (Description) a kliknout na „Price Chart“ – vykreslení grafu kurzu akcií

1-BLOOMBERG
GO
F1
F2
F3
F4
PRINT
HELP
MEMO
SURVE
QUOTE
QUOTE
MONIT
NEWS
MSG
MENU
PG BA
PG FW
CEZ AS Equity
Recent
Related
Favorites
Export
CEZ CP CZK ↑ 897.9 -2.1 K K 897/898 K 264x15000
DELAY 13:06 Vol 507,749 Op 898.4 S Hi 906 K Lo 886.3 K Fix 900.1 Prev 900
CEZ CP EQUITY
Save Chart
Hide
GP - Line Chart
Range 06/14/10 - 06/14/11
Upper Trade Line
Mov. Avgs
Currency
Period Daily
Lower Volume
Mov. Avg 15
Chart
View
Period/Range
Track
Annotate
News
Zoom
Studies
Last Price 897.90
High on 05/13/11 961.00
Average 842.90
Low on 11/22/10 741.50
Volume 0.508m
SMAVG Volume Histogram(15) 0.736m
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May

Vyhledávání dat, zpráv, článků

- příklad cesty vyhledávání článků podle klíčových slov
- příkaz RSE/RES nebo NSE – advanced search – keywords – zadat např.“short sell“- update - search



vyhledávání makroekonomických dat

- příkazový řádek- zadat např. „GDP“,“price index“... apod. a pak vybrat požadovanou funkci z těch, které bloomberg nabídne
- pak změnit parametry ve funkci – stát, období, periodicita apod.
- můžeme též zadat např. „economic data“ nebo „economic statistic“

vyhledávání makroekonomických dat

- druhá možnost je proklikat se přes základní menu, takže např. v základním menu vybereme 1)Goverment bonds... -> 8) Economic Data/Analysis -> 1)Economic statistics

Performing analysis

NAVIGATING FUNCTIONS

Bloomberg functions use common screen elements that work in similar ways. Once you learn about these elements, you can use any function.

Menu Bar

The red bar at the top of each function includes the function's title at the right and provides drop-down menus and buttons to help you perform key tasks. It may also contain a page number indicator.

Amber-Colored Fields

Amber fields indicate areas on the screen that you can change. Amber-colored fields represent editable form elements, text and data input areas and drop-down lists.

Performing analysis

Clickable Areas

Moving your cursor over a clickable area of the screen shows one of three types of indicators:

» **A White Outline Box:** Indicates most clickable items, including entries in lists, menus and tables.

» **Numbered Information:** Numbers indicate a topical link, enabling quick access to a related page by either clicking the line or entering the number and clicking <GO>.

» **Highlighting:** Indicates clickable buttons and tabs.

Keyboard Navigation

Typing in the number next to a function allows you to quickly navigate any function using only your keyboard. Many clickable onscreen options are labeled with a Number <GO>.

Performing analysis

STOCK/COMPANY SCREENING

The Equity Screening (EQS) function enables you to perform sophisticated searches for equity securities. There are many levels of criteria you can use in your search.

The following is a quick-start overview for using EQS.

Step 1

» Enter **EQS <GO>.**

The Equity Screening screen appears.

Performing analysis

Step 3

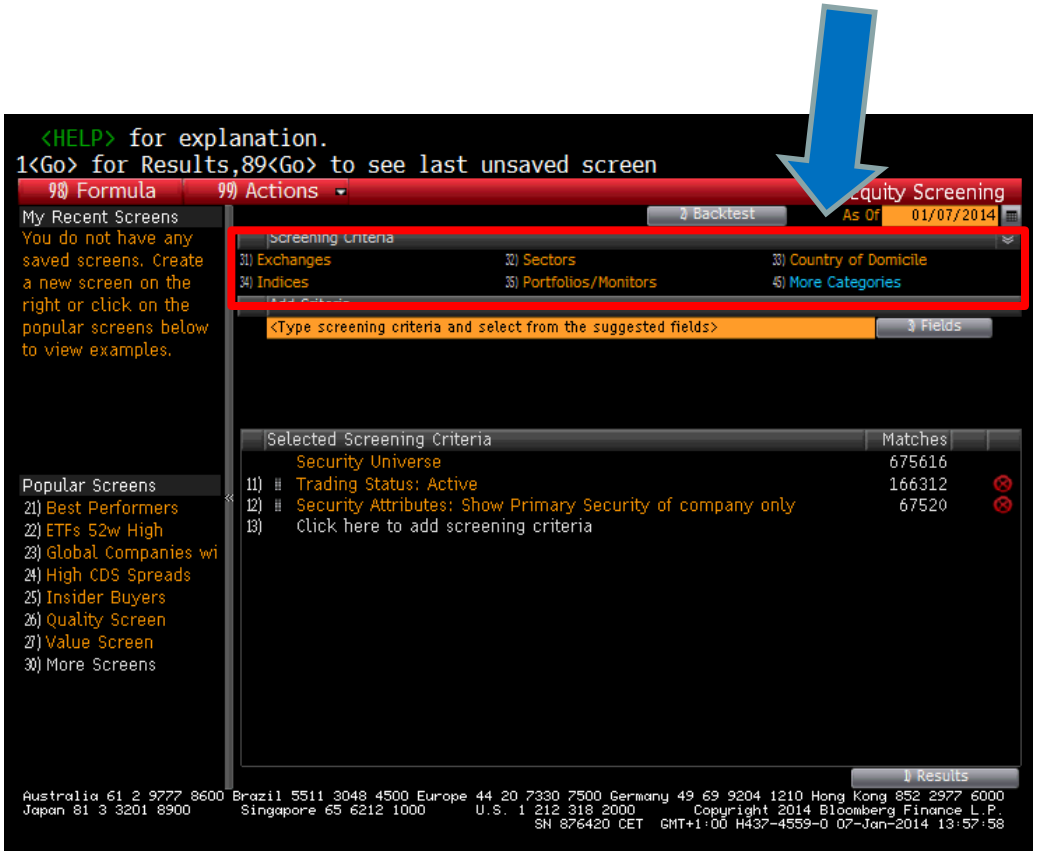
» Use the Universe Criteria section to define preliminary search criteria.

a. Click a category. A window appears with options for the selected category.

b. Drag and drop the appropriate criterion from the window so that it appears in the Included Options or Excluded Options section of the window.

c. Click the **Update** button.

The criterion for the category is saved, and the window closes. The Selected Screening Criteria section at the bottom of the tab updates with your selected criterion and count of company matches.



Performing analysis

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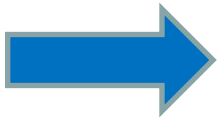


Performing analysis

Step 4

» Use the Add Criteria section to refine the search with more data-driven criteria, such as industry classifications, fundamentals and ratios.

a. Click the **Fields** button.

The Browse Fields window appears with a list of all of the available search criteria fields.

b. Use the category tree or Search field at the left of the window to identify the specific criteria field for which you want to set conditions, then click the **Select** button.

The Add Criteria section of the Build/Edit Screen tab updates with the name of the selected criterion field and additional fields that allow you to set a condition(s) for the selected criterion.

c. Enter the appropriate condition(s), then press **<GO>**.

The Selected Screening Criteria section of the screen updates with your selected criterion.

Performing analysis

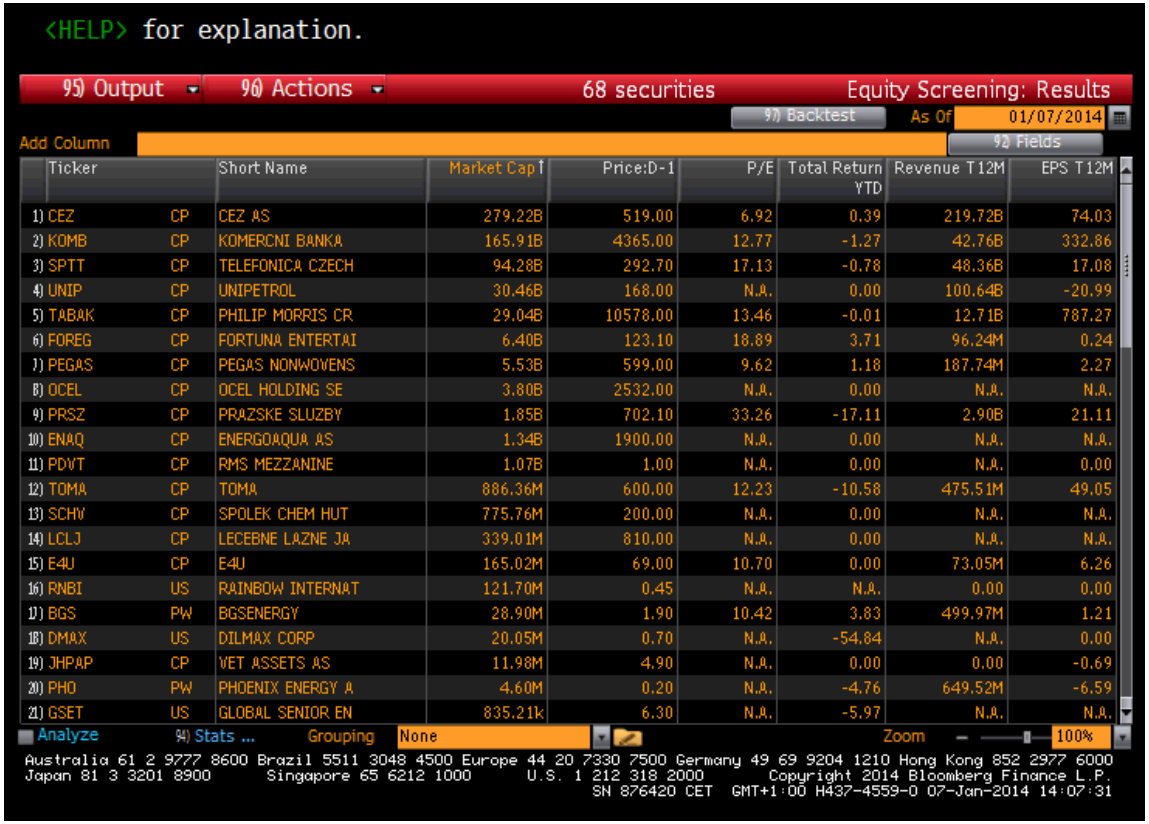
Step 5

» Once you have selected all the criteria for the search, click the **Results** button.

The list of companies (equities) matching your search criteria appears.

Optional: To explore further options such as saving the search or exporting the results to Excel, click the red **Output and Actions** toolbar buttons on the results page.

Note: To access a complete guide to using EQS, press the green **<HELP>** key once from within the EQS function.



Performing analysis

ANALYZING A COMPANY

Step 1

» Load the company you want to analyze.

Example: Enter **F US <EQUITY> <GO>.**

The company appears in the panel's toolbar as the loaded security.

Performing analysis

Step 2

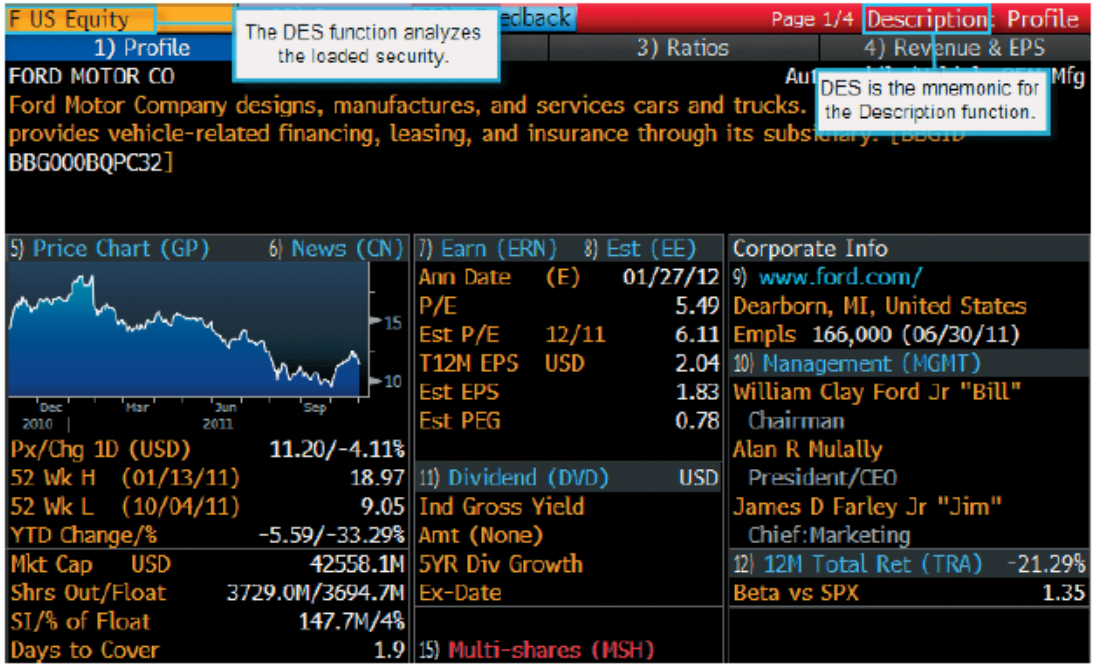
» Run the analysis function on the loaded security in one of the following ways:

» Click on a category or function from the menu window—or type the mnemonic in the command field—to explore the full range of analysis options.

» Enter the mnemonic for the specific function you want to run, then press **<GO>.**

The analysis function runs on the loaded security.

Example: Enter **DES <GO>.**



Note: Once you load a security, you can run any number of functions to analyze that security without having to re-enter the security

Performing analysis

Mnemonics for popular company analysis functions include:

DES: Company Description and Overview

CN: Company News

HP: Historical Price Table

GP: Historical Price Chart

GIP: Intraday Price Chart

DVD: Dividend Information

ERN: Earnings Summary

FA: Fundamentals and Financial Statements

RG: Total Return Comparison

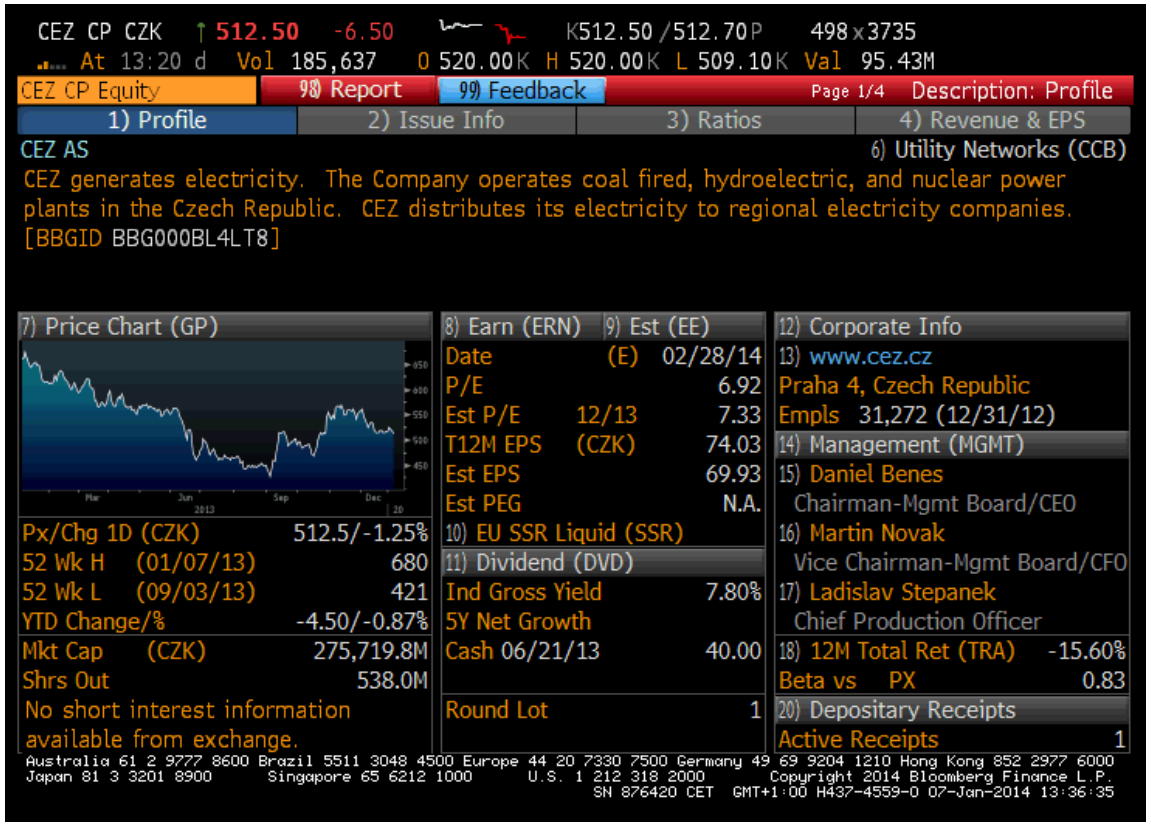
RELS: Capital Structure (including bonds and CDS spreads)

G: Technical Analysis and/or Multi-Security Charts

Note: To access a function's Help Page (a comprehensive user guide), press the **<HELP>** key once.

For cheatsheets that provide lists of popular analysis functions for specific security types, enter **BU <GO>**, then click the Access Training Documents link.

Performing analysis



Vybereme si opět akcie ČEZu, zvolíme DES a klikneme na Price Chart.

Performing analysis - Events

- Klikneme na Event a vybereme kategorii(e), které nás zajímají.
- Po najetí myší na zvolenou událost se zobrazí popis události (**červeně** jsou špatné zprávy, **zeleně** dobré)

Performing analysis

- Klikneme na Security/Study a zvolíme „studii“ (např. zobrazení klouzavého průměru (MA) ceny cenného papíru).

Performing analysis

- Klikneme na Report…vytvoří se pdf report, který si lze uložit pro další použití.

Performing analysis - Report

Bloomberg

CEZ CP Equity

CEZ AS (Utility Networks)

CEZ generates electricity. The Company operates coal fired, hydroelectric, and nuclear power plants in the Czech Republic. CEZ distributes its electricity to regional electricity companies. [BBGID BBG000BL4LT8]

Earnings & Estimates

Next Announcement Date	02/28/14
P/E CZK	6.92
Est P/E 12/13	7.33
T12M EPS	74.03
Est EPS	69.93
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Market Data

Corporate Info

Duhova 2 / 1444	www.cez.cz
140 53 Praha 4	T: 420-2-7113-1111
Czech Republic	Employees 31,272 (12/31/12)
Chairman-Mgmt Board/CEO	Daniel Benes
Vice Chairman-Mgmt Board/CFO	Martin Novak
Chief Production Officer	Ladislav Stepanek

Px/Chg 1D (CZK)	512.5/-1.25%
52 Wk H (01/07/13)	680
52 Wk L (09/03/13)	421
YTD Change/%	-4.50/-0.87%
Mkt Cap CZK	275,719.8M
Shrs Out	538.0M
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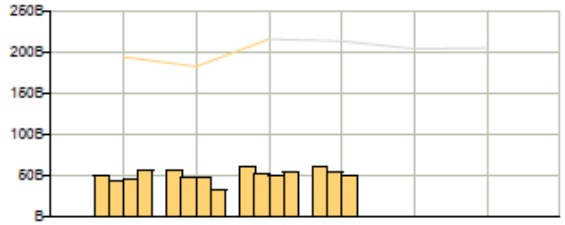
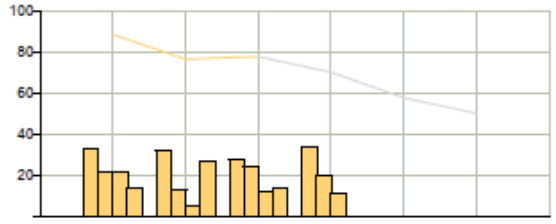
Revenue



	2010	2011	2012	2013	2014	2015
FY	193.46B	181.79B	215.10B	212.64B	203.31B	204.41B
Q1	49.60B	56.81B	60.79B	59.98B	--	--
Q2	43.68B	46.75B	52.23B	53.13B	--	--
Q3	44.67B	46.77B	49.45B	48.81B	--	--
Q4	55.51B	31.47B	52.62B	--	--	--

Earnings Per Share



	2010	2011	2012	2013	2014	2015
FY	88.34	76.32	77.57	69.93	57.50	49.97
Q1	32.74	32.33	27.75	33.34	--	--
Q2	21.01	12.62	24.08	20.19	--	--
Q3	21.03	4.65	12.38	11.15	--	--
Q4	13.57	26.72	13.35	--	--	--

Performing analysis

Examples:

SPX <INDEX> <GO> S&P 500 index

USURTOT <INDEX> <GO> Index tracking the US Unemployment Rate

EUR <CURNCY> <GO> Euro spot

F 12 5/15/15 <CORP> <GO> Ford Motor Credit bond, 12% coupon, matures May 15, 2015

CL1 <CMDTY> <GO> Front-month NYMEX-traded sweet crude oil futures contract

» Run the analysis function on the loaded security in one of the following ways:

» Click on a **category** or **function** from the menu to explore the full range of analysis options.

» Enter the mnemonic for the function you want to run, then press **<GO>.**

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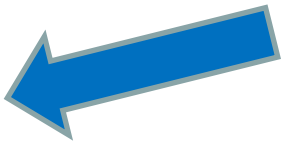
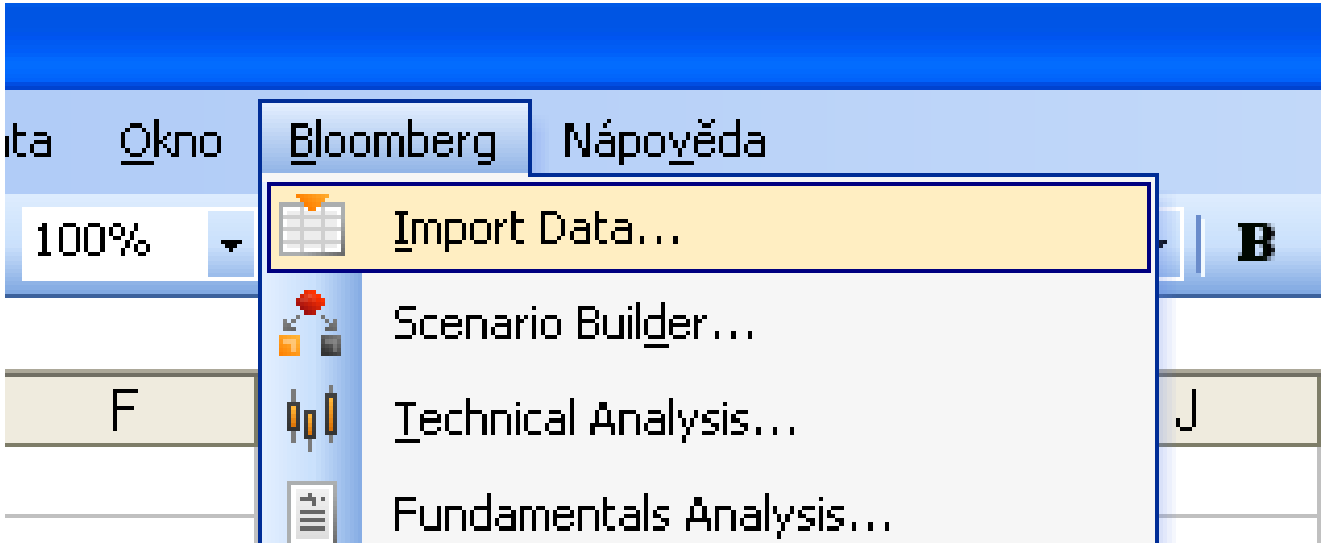


Stahování dat – přímo

- přímá cesta: najdeme si v bloombergu graf (pokud nemáme odkaz na graf přímo v nabídce menu, tak lze odkaz na něj někdy zobrazit např. levým/pravým tlačítkem myši – příkaz GPO) příslušné veličiny (např. historický vývoj kurzů akcií) – zvolíme požadovaný časový interval(oranžové pole) - klikneme na graf pravým tlačítkem a vybereme možnost „Copy data to clipboard“ – následně je můžeme vložit např. do Excelu

Stahování dat – přes excel

- V MS Excel lze využít doplňku (Add-in/API) pro propojení MS Excel a terminálu Bloomberg. Detaily viz např. http://www.bloomberg.com/professional/systems-support/downloads/, http://library.nd.edu/eresources/guides/bloomberg/ExcelAddIn.pdf
- V Excelu vybereme záložku bloomberg a následně „Import data“



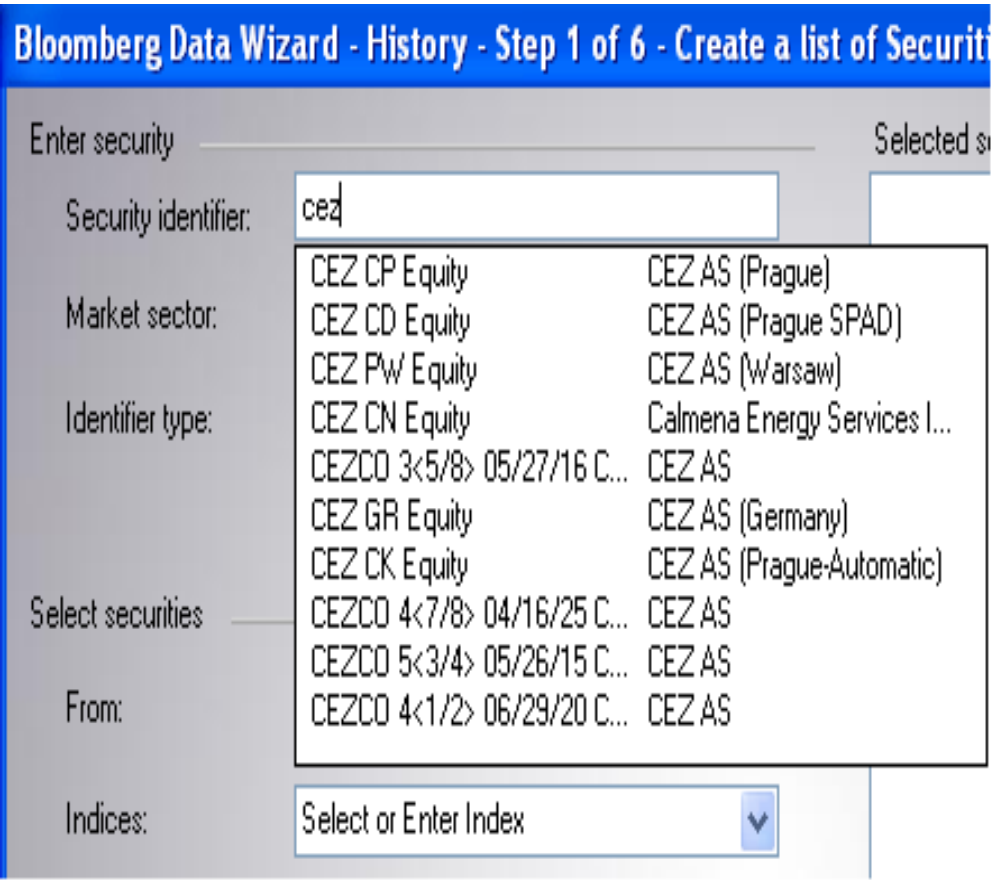
Stahování dat – přes Excel

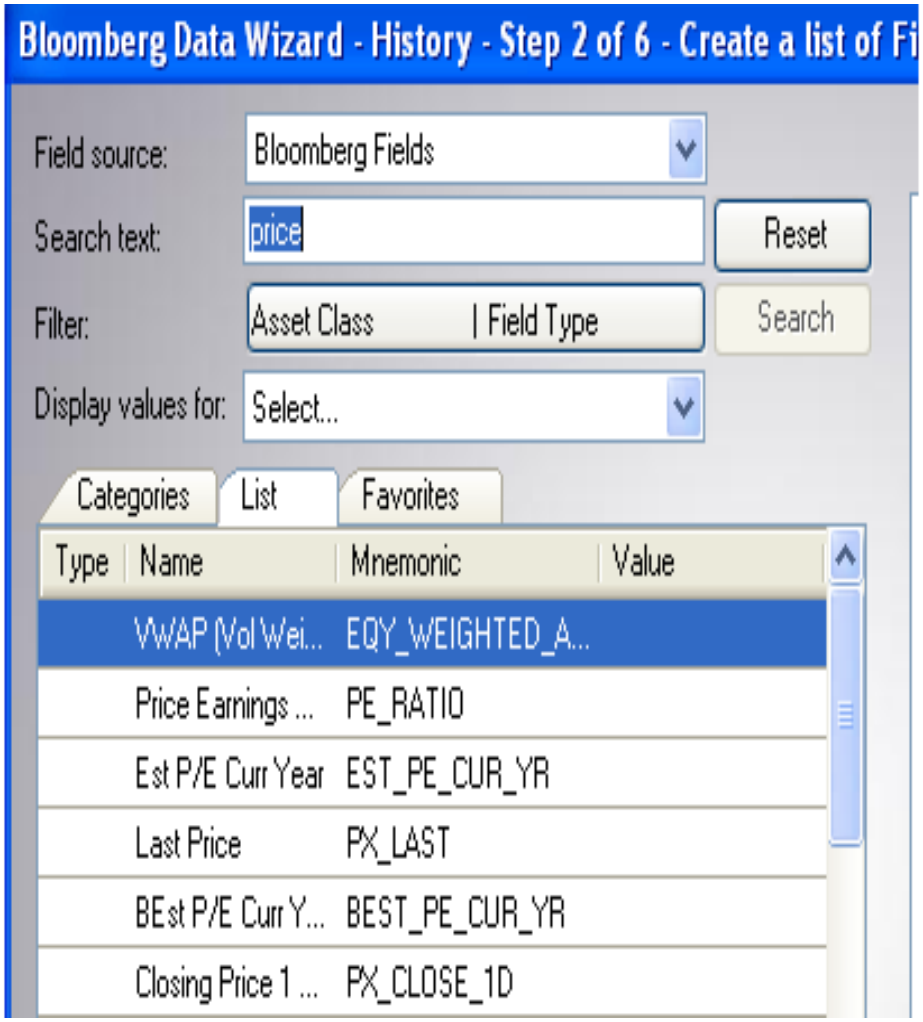
- vybereme požadovanou oblast dat(historical, intraday…)
- následně pomocí průvodce v krocích vybereme požadované „securities“

Stahování dat – přes Excel

- v dalších krocích: vybereme „fields“ (oblasti dat: zavírací ceny, dividendy,…) daných CP
- pokud chceme např. vybrat zavírací cenu, zadáme do pole fields heslo price, stiskneme search(nebo go) a z nabídky vybereme např. last price
- v šedém poli pod nabídkou se zobrazí popis funkce, která je právě označená
- časový interval, periodicitu a podobně…
- u zobrazeného výsledku případně upravíme v Excelu **formát buněk**

Stahování dat – přes Excel





Instruktážní videa

- zadáním příkazu „BESS“ se dostaneme k několik instruktážním videím, které však není možné stáhnout
- je možné stáhnout jejich přepis

Nápověda(související)

- stlačením tlačítka HELP se zobrazí nápověda k aktuálně použité funkci
- často kladené otázky k dané funkci.
- metodologie výpočtu apod..

Equity Idea Generation & Portfolio Functions

MA <GO>
Displays current and historical merger and acquisition (M&A) details for public & private transactions.
(click on mergers and Acquisitions Search)

LEAG <GO>
List underwriter/legal adviser ranking.

ECDR <GO>
Monitor initial public offerings and secondary equity offerings to analyze how to raise capital and gauge market receptiveness.

ECO <GO>
Display, customize and manage multiple economic calendars by region/country/event on a historical, current or upcoming basis.

ECST <GO>
Display current and historical economic statistics for selected nations.

BBEA <GO>
Displays a menu for earning analysis related news. Find earnings surprises and trends from selected countries.

N <GO>
The front page for all news options.

BBSA <GO>
A search for analyst research including recommendations, rating changes.

WEI <GO>
Compare regional indices against one another and determine current and historical levels.

WPE <GO>
Displays price/earnings ratios and dividend yields of benchmark equity indices from around the world.

MOST <GO>
Displays the day's most active stocks by volume, the leading advancers and decliners by percentage or net/gain loss, and stocks with the most value traded.

MOV <GO>
Analyze stocks that drive movement of a selected index to determine which stocks are under or over-performing compared to the index.

EMI <GO>
Monitor current market information in global equity markets.

SPX <INDEX> GRR
GRR ranks returns of all industry groups in a selected index during a specific time. Substitute the index symbol SPX with any index you wish to dissect.

PRTU <GO>
Displays a list of portfolios that you have created and shared portfolios.

PFST <GO>
Update, create, or delete a portfolio.

PLST <GO>
Display a list of your portfolios

RVP <GO>
Perform a customized peer group analysis to benchmark the company's performance against industry. After choosing the portfolio or equity or index, type RVP at the cursor and hit <GO>

QSRC <GO> or EQS <GO>
Screen for equity based on variety of criteria.

Shortcut mnemonic for accessing main page of a security directly

MSFT US <EQUITY> <GO>

Fundamental & Technical Analysis

Choose a company or security first and then type these functions

Shortcut Example: MSFT US <EQUITY> FA <GO>

BR <GO> Search and display research reports, news stories and multimedia. **EVTS <GO>** Display corporate events information for a variety of companies. Use for earning announcements. **EE <GO>** Display Bloomberg's earnings projections, and third party projections. **EM <GO>** Compare reported data items with future estimates in an easy format. **GUID <GO>** Evaluate a company's own estimates in one comprehensive view. **RV <GO>** Perform customized peer group analysis to benchmark a company's performance or capital structure against the industry.	**FDO <GO>** Display calculations and definitions for a company's fundamental information. **FA <GO>** Evaluate a company's financials in one comprehensive and customizable view that is easier to chart and analyze. **CH <GO>** Use CH to display the financial history for a specific company. **BQ <GO>** Display a composite overview of key price and trade data, fundamental information, and news for a selected equity. **CF <GO>** Search for corporate filings by basic and advanced search criteria. **DVD <GO>** Display information about a selected security's dividend/split history.	**FINL <GO>** Displays information on analytics, documentation and training related to equity fundamentals product. **GPO <GO>** Bar Chart - Graph high, low, open, and closing historical prices and two moving averages for a selected security. **GPC <GO>** Candle Chart - Graph high, low, open, and closing historical prices and two moving averages for a selected security. **CNDL <GO>** Candlestick graph of historical prices and pattern formations for a selected security. **GEG <GO>** Display a menu of sample graph worksheets **G <GO>** Create and maintain customized technical charts for specific securities.

Fixed Income Idea Generation & Credit Analysis

TOP <GO>
Display top Bloomberg news headlines for stories from market sectors around the world.

FOMC <GO>
Display announcements and policy changes carried out by the Federal Open Market Committee (FOMC).

NIM <GO>
Monitor new bond and equity offerings and analyze how to raise capital in the market place.

SRCH <GO>
Search Bloomberg's fixed income database so that you can find bonds that best meets your investment needs.

CDSD <GO>
Set up curve preferences for par credit default swap spread curves.

ECO <GO>
Display, customize and manage multiple economic calendars by region/country/event on historical, current or upcoming basis.

<GOVT> <GO>
The yellow sector key that takes you to the main menu of all government security functions.

YCRV <GO>
Display bond, money market, swap, municipal fair market, or corporate fair market yield curves that you can use for relative value comparisons on both a current and historical basis.

FWCV <GO>
Analyze projected forward rates for fair market curves, interest rate swap curves, and government curves.

NI CRA <GO>
Search and display news stories, research reports, and multimedia presentations on corporate and country debt ratings.

NI DRA <GO>
Search and display news stories, research reports, and multimedia presentations on bond and loan ratings.

RATC <GO>
Display a list of current and historical credit ratings for various issuers.

RELS <GO>
Overview of a company's capital structure including detailed company description.

CF <GO>
Search for corporate filings by basic and advanced search criteria.

DDIS <GO>
Display maturity distribution of outstanding debt and loans for a selected issuer.

WCDS <GO>
Monitor current values and changes to credit default swap spreads and compare issuers' historical spreads or term structure of interest rates.

Funkce,…

- MAIN – Main Menu
- NRG – Bloomberg Energy service
- FXIP – Foreign Exchange platform
- IRSM – Interest Rates & Credit Derivatives menu
- BLAW – Bloomberg Law
- BINS – Bloomberg Insurance
- BEE – Bloomberg Earnings Estimates
- HYM – High Yield Menu
- MA – Mergers & Acquisitions
- FUND – Funds & Holdings
- LOAN – Syndicated Bank Loan Menu
- EMKT – Emerging Markets
- ET – Electronic Trading
- OMS – Order Management System
- DATA – Data services

Main Menus

Funkce,…

- N – Main Bloomberg News Menu
- **NSE** – News Search Engine
- **READ** – Most read News
- NRR – News Readership Rankings
- **TOP** – Today's TOP Headlines
- CPNY – Display the company news main menu
- RSE – Research search engine
- ECO – Economic releases by country
- ECFC – Display economic forecasts/indicators
- ECST – Find world economic statistics
- STAT – Bloomberg Global View
- OUTL – Economic surveys
- WWEB – Top web news
- ECOW – Display an economic data watch
- LEAD – Display economic activity trends
- LIVE – Live broadcasts & Interviews
- NRC – Search for other news wires by name or language
- *CN – Company news and research
- NLRT – Display and create news searches/alerts
- BBSE – Menu of worldwide economic news
- FOMC – Access FOMC announcements

News

Funkce,…

- NI function
- NI EII – Review economic instant insight
- NI FED – Find news on the Federal Research Board
- NI CBW – Worldwide Central Bank Watch news
- NI HOT – Find hot global news
- NI STK – Find global stock market news
- NT FRX – Foreign exchange news
- NI DAYAHEAD – View day ahead summaries
- NI WRAP – Market & industry wraps headlines
- NI BONTOP – View scrolling TOP Bond news
- NI CMDTOP – View top commodities stories
- NI RELS – Press releases

News Function – NI

Funkce,…

- ECST – Find world economic statistics
- ECOR – Access a menu of US economic statistics
- ECMX – Compare global economic indicators
- STAT – Bloomberg Global View
- WECO – Economic releases by country
- ECO – Economic releases by country
- ECOW – Display an economic data watch

- CTRB – Search for Bloomberg contributors
- EIU – Economist Intelligence Unit overviews
- IMF – International Monetary Fund statistics
- OECD – Access a menu of OECD indicators
- RSE – Research search engine

Economic Statistics

Funkce,…

- OUTL – Economic surveys
- *ECOS – Access economists' indicator estimates
- ECOC – Calendar of indicator release dates
- *ECRP – Economic impact
- ECFC – Display economic forecasts/indicators
- BPGC – Display Global Confidence survey results
- ESVY – Global Confidence survey
- BYFC – Interest rates yield forecasts

Economic Forecast

Funkce,…

- IM – Bond monitors by country
- MMR – find global money market rate monitor
- WEI – Monitor world equity indices
- WB – Display/Analyse/compare bond data
- YCRV – Perform yield curve analysis
- FWCV – Analyse projected forward rates
- MA – Display global M&A transactions
- NRG – Access a menu of energy functions
- CRR – Display commodity ranked returns

Broad Market Perspective

Funkce,…

- WB – World bonds benchmarks prices
- WBF – Monitor world bond futures
- WBI – Monitor inflation-linked bonds
- IRSM – Interest rate swaps and derivatives menu
- IRSB – Monitor global interest rate swap rates
- BYFC – Interest rates yield forecasts
- NIM – Monitor new bond and equity offerings
- SRCH – Create custom bond searches
- *DES – Display detailed issuer information
- *BQ – Bond quote screen
- *RATT – Display trends for credit ratings
- COMB – Comparable Bonds search
- *DDIS – Display outstanding debt and loans
- *WACC – Analyse weighted average cost of capital
- RATD – Access rating scales and definitions
- YCRV – Perform Yield curve analysis
- CRPR – Analyse an issuer's credit profile
- IRDD – Displays interest rate swap descriptions
- GGR – Find global generic government rates
- ID – Find security by identification numbers
- FMCI – Menu of world fair market indices
- MOSG – Display most active bonds

Fixed Income

Funkce,…

- WEI – Monitor world equity indices
- EMEQ – Monitor emerging markets indices
- WEIF – Monitor world equity index futures
- MOST – Display most active securities
- MOV – Display index movers
- MA – Research global M&A activity
- MMAP – Market Map by sector/regions of the world
- MEMB – Monitor equity index members/subgroups
- EQS – Equity search based on a variety of criteria
- GRR – Analyse/rank index industry group returns
- ESCO – Create stock scoring and ranking models
- HILO – Display 52-week high/low information
- LVI – Monitor equities with abnormal volumes
- EA – Display current earnings season results
- INSD – Insiders monitor
- SEI – Sustainability and environmental indices
- IMAP – Analyse price movements across industries

Equities
- Index
Sectors/Peer
Analysis

Funkce,…

- EE – View the earning estimates menu
- EVTS – Access transcripts of corporate events
- SURP – Earnings surprise analysis
- ANR – Analysts recommendations
- BDVD – Bloomberg dividend forecast
- *BBSA – Analyse positive and negative perspectives
- DVD – Access dividend/split information

Equities
- Earnings/
dividends/
recommendations

Funkce,…

- *FA – Fundamental Analysis
- *DES – Analyse a company's fundamentals and financials
- *RELS – Display all related securities
- *RV – Perform customised peer group analysis
- **MGF – Display and compare fundamental trends
- *CACS – Search for corporate actions
- RSKC – Display company risk
- *ECDR – Monitor IPO and secondary equity offerings
- *CN – Display security news and research
- MCN – Company-specific most-read news stories
- VCMP – Chart historical implied volatility
- *ECCG – Display Equity and CDS relationship
- PV – Peer fundamental ratio benchmarking
- *PVSP – Peer evaluation scatter
- *PVH – Chart historical trends
- BQ – Composite view of price, yield, and CDS spreads
- *PGEO – Company segmentation
- ALRT – Create limit prices alerts
- *PHDC – Customisable equity search on holdings
- CH – Display financial history

Equities - Company Analysis

Funkce,…

- OMON – Monitor real-time option prices
- *OSA – Option scenario analysis
- VCMP – Chart implied and historical volatility
- OVME – Multi-leg option valuation
- OSCH – Search for company stock options
- MOSO – Analyse the day's most active options
- OVI – Display increase in trade volume
- WSRC – Search for warrants based on your criteria

Derivative

Funkce,…

- G – Customise and organise your chart
- *GP – Line chart
- *GPO – Bar chart
- *GPC – Candlestick chart
- *GF – Graph fundamentals
- **MGR – Multiple security ratio graph
- GEG- Access a menu of sample technical charts
- *GIP – Graph intraday prices
- HS – Graph historical prices spread and ratio
- *GIPV – Intraday volume analysis
- ATEC – Technical patterns – global
- TDRS – Display securities that meet selected TD indicator conditions
- *GV – Chart historical volatility

Charting

Funkce,…

- FXIP – Bloomberg FX homepage
- FXFC – FX rate forecasts
- FXGN – Monitor major currency markets real time
- FRD – Calculate Forward exchange rates
- FXTF – Search for currency data and tickers
- OVML – Price FX options
- XOPT – Access the FX Options Menu
- FXFR – Monitor Spot/forward exchange rates
- WCRS – Rank best and worst performing currencies
- FE11 – Currency conversion calculator
- VOLC – Implied vs realised volatilities and FX rates
- BFIX – Display fixing rates
- WVOL - Customisable list of implied volatilities

Foreign Exchange

Funkce,…

- MMR – Find global money market rate monitors
- BTMM – Worldwide interest rates benchmarks
- WIR – Monitor interest rate futures
- CCRV – Interest rates futures curve
- FFIP – Display implied FED funds rate probability
- CBRT – Global central bank monetary policy rates
- WIRP – World interest rate implied probability
- TAYL – Taylor Rule model

Money Markets

- RE – Real Estate Menu
- TOP R – Top real estate news

Real Estate

Funkce,…

- IPCM – View the commodities main menu
- GLCO – global commodity prices & data
- NRG – Access a menu of energy functions
- CMDS – Monitor all major commodities
- CCRV – Analyse futures and OTC forward curves
- CPF – Price forecasts for commodity products
- ENST – Search international energy statistics
- SHIP – Bloomberg Shipping main menu
- CIX – Create customised indices
- CRR – Display commodity ranked returns
- GCIN – Display/track global commodity indices
- CFTC – Display Commitment of Traders Reports
- ILBA – Inflation Indicator

Commodities

Funkce,…

- FUND – Menu for analysing funds and portfolios
- HFND – Access a menu of hedge fund functions
- FLNG – Search for 13F filings
- FL – Fund name lookup
- FSRC – Generate a custom fund search
- FPC – Compare fund returns over time
- HFA – Historical risk/return behaviour of a fund
- FREP – Generate a fund report
- EXTF – Access an exchange traded funds menu
- HDS – Search for institutional and insider holders
- FSRC – Score and rank funds

Funds

Funkce,…

- BPOR – Portfolio functions main menu
- BBU – Upload your portfolios
- PRTU – Manage portfolios
- PBEN – Set up and maintain benchmarks
- PREP – Obtain a distribution/breakdown of your portfolio
- PRT – Equity portfolio real time monitor
- BBAT – Bloomberg performance attribution
- TRK – Stress tests
- NPH – News & research headlines
- MRR – 10 best and worst equities in a portfolio
- HFA P – Historical portfolio performance analysis
- ALRT – Create portfolio alerts
- CACT – Corporate action calendar
- EVTS – Event calendar for a portfolio
- HPA – Historical portfolio analysis
- BRSK – Display portfolio risk views
- LRSK – Determine portfolio liquidity risk
- PSD – Portfolio slice & dice

Portfolios

Funkce,…

- YA – Calculate yield analysis
- YTC – Calculate yield to call
- SF – Sinking fund analysis
- HZ2 – Analyse municipal total returns horizons
- FTAX – Federal taxation calculator
- QTAX – Municipals prices used to calculate taxes
- PICK – Post/monitor primary/secondary municipal bond offerings/trades
- NIRM – Compare municipal new issue yields

Municipals

Funkce,…

- STNT – Structured products main menu
- SND – Structured products definitions
- OVSN – Price Equity structured notes
- SWPM – Interest rates structured products pricer
- OVML – Multileg option valuation
- SRCH – Structured products search engine

Structured Products

Funkce,…

- Charts Overview
  - GRAPH – Charts main menu
  - GEDU – Charts education
  - CHART – Chart stories
- Chart News and Seminars
  - NI TA – All technical analysis news
  - NI BLPTECSTRT – Bloomberg technical strategy
  - NI BLPHRTUPD – Chart updates
  - TDEF – Set default parameters
- Charts – Historical
  - GP – Graph historical prices
  - GPO – Historical price chart
  - GPC – Candle Chart
  - GPL – Logarithmic chart
  - PFP – Graph a point and figure chart
- Charts – Intraday
  - GIP – Tick chart
  - GIPS – Scrunch chart
  - GIPT – Scrolling tick chart with B/A and volume
  - GIPW – Sliding window chart
  - IGPC – Intraday candle chart
  - IGPO – Intraday bar chart
  - ISGP – Graph 30 days of intraday spreads or ratios
  - MGIP – Graph intraday ticks for multiple securities

Technical Analysis 1

Funkce,…

- Technical Indicators – Historical
  - IRSI – Intraday Relative Strength Index
  - MACD – Moving Average Convergence/Divergence
  - TAS – Stochastics
  - DMI – Directional Movement Index
  - ROC – Rate of Change
  - CMCI – Commodity Channel Index
  - WLPR – Williams %R Graph
  - BOLL – Bollinger Bands
  - GO – Ichimoku Cloud
  - GPF – Fibonacci lines
  - PTPS – Stop-and-reversal (SAR) trading points
  - MAE – Moving average envelops
  - GM – Graph prices and money flow
  - CHKO – Display the Chaikin Oscillator
  - **GPCA** – Graph historical corporate actions
  - CNDL – Candle patterns
  - KAOS – Hurst Exponent
  - MCCL – McClellan Oscillator
  - OBV – On-balance volume
  - PIVG – Pivot points graph

Technical Analysis 2

Funkce,…

- Technical Indicators – Intraday
  - IRSI – Intraday Relative Strength Index
  - IMAC – Intraday MACD
  - ITAS – Intraday Stochastic
  - IDMI – Intraday Directional Movement Index
  - IROC – Intraday Rate of Change
  - ICCI – Intraday Commodity Channel Index
  - IWLP – Intraday Williams %R
  - IBOL – Intraday Bollinger Bands
  - IGOC – Intraday graph
  - IGPF – Intraday prices and Fibonacci lines
  - IPTS – Intraday parabolic system chart
  - IMAE – Intraday moving average envelopes
  - GIM – Intraday money flow chart

Technical Analysis 3

Funkce,…

- Advanced Charts
  - G – Create and maintain customised charts
  - GEG – Access a menu of sample technical charts
  - VAT – Analyse volume patterns
  - IGPV – Graph intraday price and VWAP
  - VBAR – Trade volume graph
  - VAP – Graph volume at price bar chart
  - VWAP – Snapshot of VWAP analysis
  - MKTP – Market picture chart
  - ECCG – Graph equity and credit default swap volatility
  - GP E – Events Chart
  - GPMR – View most read news stories
  - SI – Monthly CEF short interest information
  - SEAG – Seasonality price graph
- Spread/Ratio Charts
  - HS – Graph historical price spread and ratio
  - HSN – Normalised spread
  - HSE – Graph spread of two securities
  - HSP – Graph the spread
  - SGP – Graph price spread/ratio for two securities
  - SGIP – Intraday spread graph
  - ISGP – Intraday spread graph (30 days)
  - GR – Graph price, P/E, or yield ratios
  - GRET – Graph historical P/E ratios
  - MGR – Security ratios to a base index

Technical Analysis 4

Funkce,…

- Volatility
  - GV – CDS vs equity volatility graph
  - HVG – Graph historical price/yield volatility
  - VCMP – Chart historical implied volatility
  - HIVG – Graph historical/implied volatility on commodities
  - SKEW – Graph volatility skews
- Quantitative Analysis
  - CORR – Create up to 20 correlation matrices
  - PC – find equity correlation with peers
  - RVG – Chart a company's key financial metrics
  - RVC – Display/analyse scatter data
  - RVH – Display/analyse distribution data
  - HRA – Determine linear regression sensitivity
  - MRA – Create up to 20 regression matrices
  - BETA – Analyse historical beta
  - TRA – Calculate total return for a stock
  - COMP – Compare multiple security returns
  - MRR – 10 best and worst performing stocks of an index
  - IRR – Historical index ranked returns reports
  - MMAP – Market map by sector/regions of the world
  - CIX – Create/graph custom index expression
  - PIV – Pivot calculator
  - BTST – Calculate profit and loss (P&L)

Technical Analysis 5

Funkce,…

- Fundamental Charts
  - GFV – Graph/compare fundamentals, estimates, and ratios
  - GF – Graph fundamentals
  - MGF – Compare fundamental trends
  - EEG – chart equity price movements
  - GE – Graph historical price and market ratios
  - RG – Graph/compare historical equity returns
  - PEBD – P/E bands/valuation
  - SURP – Earnings surprise
- Screening Tools
  - IMAP – Analyse price movements across industries
  - ALRT – Price and technical alerts
  - EQS – Search for equity securities
  - ATEC – Technical patterns – global
  - CTEC – Technical patterns – single name
  - LTEC – Technical patterns – custom list

Technical Analysis 6

Funkce,…

- DAPI – Bloomberg desktop API for excel
- FLDS – Identify which calcrt fields to use
- MBBG – Bloomberg's Excel spreadsheets library
- LAB – View the Quantitative main menu

Excel

- G – Create customer chart templates
- MRA – Create multiple regression matrices
- CORR – Create correlation matrices
- CIX – Create a custom index expression
- MGF – Display and compare fundamental trends
- MGIP – Graph intraday ticks for multiple securities

Multiple Security Analytics

Funkce,…

- CCRU – Credit crunch overview
- SSR – Short selling restricted
- WDCI – Writedowns & credit loss vs capital raised
- WWCC – View the worldwide credit crunch menu
- BANK – Monitor bank prices and CDS rates

Special Topic – Credit Crunch

Funkce,…

- Economic Data and News
  - WECO – Customisable Calendar of Economic Data Releases
  - ECOS – Economists estimates
  - NSE – News search engine
  - RSE – Research search engine
  - NNPH – Search and display news on selected portfolios
  - NPHD – Streaming news on portfolios
- Bond and Structured Notes Analysis
  - CBS – Compare bonds on same sector
  - DDIS – Outstanding Debt and Loans
  - YAS – Yield and spread analysis
  - SWPM – Interest Rate Derivatives and structured notes pricing and analysis
  - SND – Structured Notes list and definitions
  - YASN – Structured Notes direct pricing
  - SRCH – Bond and Structured Notes search
  - NIM – New issue Monitor
- Currency and Commodities Derivatives
  - CBS – Compare bonds on same sector
  - FXIP – FX Information Platform
  - FRD – FX forwards
  - NDF – Non deliverable currencies
  - OVDV – FX and Commodities Volatilities
  - OVML – FX and Commodities Option
  - OVRA – FX portfolio analysis and scenarios

Special Topic – Resources for Wealth Management 1

Funkce,…

- Equity analysis and Idea generation tools
  - EE – Earnings Estimate Menu
  - EVTS – Access Transcript of Corporate Events
  - SURP – Earnings Surprise Analysis
  - ANR – Analysts Recommendations
- Build Your Basket
  - MOV/MRR – Index Movers/Member Ranked Returns
  - MMAP – Fundamental Analysis against peer companies
  - PV – Fundamental Analysis against peer companies
  - EQS – Search for securities
  - ESCO – Build your own scoring model
  - CXEV – Credit and equity monitor
  - ECCG – Equity and credit comparison graph
- Funds Search, analysis and reports
  - FL – Fund search engine
  - HFA – Compare the historical performance of your fund with a benchmark
  - FREP – Create fund report in PDF format
  - MHD – Mutual Fund holding
  - HLDS – Portfolio information for mutual funds
  - FSRC – Fund search
  - FSCO – Fund scoring

Special Topic – Resources for Wealth Management 2

Funkce,…

- Volatility Analysis
  - OMON – Real time listed option prices and implied volatilities
  - SKEW – Analyse market smile and time structure
  - HVT – Historical volatilities Calculator
  - GV – Graph and compare implied and historical volatilities
  - BDVD – Dividend history and estimates
  - BDVS – Dividend estimates methodology
- Dividend Forecasts
  - DVD – Analysis of historical dividends
  - BDVD – Dividend history and estimates
  - BDVS – Dividend estimates methodology
- Equity Derivatives pricing and risk analysis
  - OV/OVX – Vanilla and exotic single leg option pricing
  - OVME NEW – Equity options and options strategies multi-leg pricing and risk analysis function
  - OSA – Option strategies analysis and scenarios

Special Topic – Resources for Wealth Management 3

Funkce,…

- Pricing of Certificates and Warrants
  - OVME – Price common certificates and Warrants
  - Certificates Types
    - Bonus certificates
    - Outperformance certificates
    - Twin win certificates
    - Discount certificate
    - Barrier discount certificate
    - Capped bonus certificate
- Equity Linked Structured Notes (ELSN)
  - OVSN – Price ELSN
  - Payoff covered
    - Capital protected on single underlying
    - Capital protected on baskets
    - Autocallables
    - Reverse Convertibles
    - Himalayan
    - Best/Worst of Basket
    - Bull & Bear (Twin Win)
    - Altiplano
    - Knock-in/Knock-out
  - IDOC HOVSN – Comprehensive documentation on how to structure and price different types of equity linked notes

Special Topic – Resources for Wealth Management 4

Funkce,…

- Portfolio Creation, Upload and Distribution
  - PRTU – Create and manage your portfolios
  - PLST – Portfolio List
  - BBU – Upload portfolio history from Excel
  - PDIS – Distribute your portfolio with other users
- Equity Portfolio Real Time Return and Performance Attribution
  - CLIENT – Return and Performance Attribution analysis
  - PRT – Real time portfolio performance
  - BBAT – Bloomberg Performance Attribution
  - PREP – Flexible Portfolio Reporting
  - CACT – Corporate Action Calendar
  - RATC – Ratings changes revisions
  - PSD – Portfolio slice and dice
  - HFA – Analyse historical performance of portfolios (History need to be uploaded with BBU)
    - Total Return Analysis
    - Absolute and Relative Performance
    - Tracking Error
    - Seasonality
  - VAR – Historical, Montecarlo and Parametric Value at Risk
  - WRST – Portfolio stress Test
  - TRK – Tracking Error

Special Topic – Resources for Wealth Management 5

Technická analýza

There are two principles of analysis used to forecast price movements in the financial markets -- *fundamental analysis and technical analysis.*

Fundamental analysis, depending on the market being analyzed, can deal with economic factors that focus mainly on supply and demand (commodities) or valuing a company based upon its financial strength (equities).

Fundamental analysis helps to determine **what to buy or sell. Technical** analysis is solely the study of market, or price action through the use of graphs and charts. Technical analysis helps to determine **when to buy and** sell.

Technická analýza

Technical analysis has been used for thousands of years and can be applied to any market, an advantage over fundamental analysis. Most advocates of technical analysis, also called *technicians, believe it is very* likely for an investor to overlook some piece of fundamental information that could substantially affect the market. This fact, the technician believes, discourages the sole use of fundamental analysis. Technicians believe that the study of market action will tell all; that each and every fundamental aspect will be revealed through market action. Market action includes three principal sources of information available to the technician -- *price, volume, and open interest. Technical analysis is based upon three main premises; 1) Market* action discounts everything; 2) Prices move in trends; and 3) History repeats itself.

	Historical	Intraday
Bar Charts	GPO	IGPO
Candle Charts	GPC	IGPC
Bollinger Bands	BOLL	IBOL
Candlestick Patterns	CNDL	
Chaikin Oscillator	CHKO	
Commodity Channel Index	CMCI	ICCI
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General Overview Chart (Ichimoku)	GOC	
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McClellan Oscillator	MCCL	
Money Flows	GM	GIM
Moving Average Conv./Divergence	MACD	IMAC
Moving Average Envelopes	MAE	IMAE
Moving Average Chart	GP2	
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Parabolic Systems	PTPS	IPTS
Pivot Technique	PIVG	PIV
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Rate of Change	ROC	IROC
Relative Strength Index	RSI	IRSI
Stochastics	TAS	ITAS
Trading Envelopes	TE	ITE
Williams %R	WLPR	
Graph Worksheets	G	G

BAR CHARTS

Ticker Symbol <Sector Key>GPO or IGPO<Go>

BENEFIT: Provides a price chart using the open, high, low and close information for the selected market along with the ability to include moving averages, volume, value traded and open interest. Shown in bar formation.

INTERPRETATION: Each vertical bar represents one period of price activity from the chosen periodicity. Values can be based upon, daily, weekly, monthly, quarterly or yearly data for historical charts and minute intervals for intraday charts. On a daily chart, the vertical bar represents one day's trading range whereby the top of the bar represents the market's high price of the day and the bottom of the bar represents the low. The left hash mark on the vertical bar indicates the opening price and the right hash mark on the bar indicates the closing price.
By including open, high, low and close information, bar charts allow for more detailed analysis than standard line charts. The chart also provides the option of displaying volume, value traded, and open interest if applicable. These options are listed on the top left-hand corner of the chart. Moving averages can also be displayed on the chart for prices, volume, value traded, and open interest. Enter the values immediately above the chart or save them in the technical defaults section, TDEF<Go>.

CANDLE CHARTS

Ticker Symbol <Sector Key>GPC or IGPC<Go>

BENEFIT: Provides a price chart using the open, high, low and close information for the selected market along with the ability to include moving averages, volume, value traded and open interest. Shown in candle formation.

INTERPRETATION: Each candlestick represents one period of price activity from the chosen periodicity. Values can be based upon, daily, weekly, monthly, quarterly or yearly data for historical charts and minute intervals for intraday charts. For a daily chart, the candlestick represents one day's trading range and is displayed as *open* or *closed*. An *open candlestick* is represents a higher close than open and is shown without color. A *closed candlestick* represents a lower close than open and is shown colored, usually blue. Each candlestick drawn consists of two components: the *real body* and the *shadows.* The *real body* is the thick part of the candlestick that represents the open and the close. The thin lines above and below the real body are the *shadows*. These shadows represent the session's price extremes. The shadow above the real body is called the *upper shadow*, which measures the high of the session. The shadow below the real body is called the *lower shadow* that measures the low of the session. (See CNDL<Go> for more on candlestick analysis) By including open, high, low and close information, candle charts allow for more detailed analysis than standard line charts. The chart also provides the option of displaying volume, value traded, and open interest if applicable. These options are listed on the top left-hand corner of the chart. Moving averages can also be displayed on the chart for prices, volume, value traded, and open interest. Enter the values immediately above the chart or save them in the technical defaults section, TDEF<Go>.

BOLLINGER BANDS

Ticker symbol<Sector Key>BOLL or IBOL<Go>

BENEFIT: Gauges trading activity through the use of trading bands. The bands that are drawn are used to identify support and resistance levels which can assist in trading decisions.

INTERPRETATION: Created by John Bollinger, Bollinger Bands are a modification of trading bands, or Moving Average Envelopes (MAE). Traditionally, trading bands were drawn at fixed percentage intervals around a moving average. Bollinger Bands, however, are plotted (*X*) standard deviations around a moving average. Since standard deviation is a measure of volatility, the bands are self-adjusting; they widen when volatility increases and contract when volatility decreases. As with envelopes, the basic interpretation of Bollinger Bands is that prices tend to stay within the upper and lower bands. According to John Bollinger: 1) Sharp price changes tend to occur after the bands tighten, as volatility lessens. 2) When prices move outside the bands, a continuation of the current trend is implied. 3) Bottoms and tops made outside the bands followed by bottoms and tops made inside the bands call for reversals in the trend. A move that originates at one band tends to go all the way to the other band. This observation is useful when projecting price targets. Bollinger Bands are typically drawn two standard deviations from a 20-day simple moving average for intermediate-term analysis, 10 days for short term with 1.5 standard deviations, and 50 for long-term studies with 2.5 standard deviations. The *Bandwidth* is presented just below the price chart. The band width formula is: (top band value - bottom band value) / (*n*) day arithmetic moving average x 100). This is a representation of the volatility in the security.

BOLLINGER BANDS CONT'D

As the Band Width rises, volatility is increasing. As the Band Width tightens, volatility in the security's price is declining.
The *%b* section of the graph helps to identify when securities reach near-term support and resistance. The %b formula is: (the security's closing price - bottom band value) - (top band value - bottom band value).

WHEN ACTION MAY BE SUGGESTED: Like most technical indicators, Bollinger Bands have several methods of interpretation given current market conditions. In trading ranges, the location of price bars determines the strength of the current phase. Prices within the upper band signify strength while price within the lower band signals weakness. Direction of price within the band also identifies convergence and divergence with the current trend -- rising price within the lower band and falling price within the upper band signal divergence while rising within the upper band and falling within the lower band signal convergence. The lower, middle and upper bands represent support/resistance when positioned horizontally. Reversal off any band implies that price will return to the last band crossed or touched.
Price breakouts and directional momentum are signaled when price penetrates through the middle band; crossing from below center to above indicates an uptrend increase in strength while crossing from above center to below indicates a downtrend increase in weakness. If the direction of the upper band rises in response to approaching price, one can expect a series of upward prices, each riding higher along the top band. This is an uptrend in progress and is termed "climbing the ladder". Conversely, if the angle of the lower band falls in response to approaching price, once can expect a series of downward prices, each pushing lower along the bottom band. This is a downtrend in progress and is termed "the slippery slope".

CANDLESTICK PATTERNS

Ticker Symbol <Sector Key>CNDL<Go>

BENEFIT: Candlestick charting uses open, high, low, and closing prices to provide additional insight into the market supply and demand balances. CNDL identifies many common candlestick patterns that can aid in trading decisions.

INTERPRETATION: Although Candlestick charts have been steadily gaining acceptance here in the United States, their history of use dates back centuries in the Far East, most notably Japan. On the surface, a Candlestick chart is constructed using the same trading data as a bar chart -- they both provide the open, high, low, and closing prices for the selected security. Each candlestick drawn consists of two components: the *real body* and the *shadows.*

The *real body* is the thick part of the candlestick between the open and the close. If the security closed higher than the open, it will have a white, or "open" body. If the security closed lower than it opened, it will have a blue, or "closed" body. If the security opens and closes at the same price, the candle will not have a real body -- this is called a *Doji*. The thin lines above and below the real body are the *shadows*. These shadows represent the session's price extremes. The shadow above the real body is called the *upper shadow*, which measures the high of the session. The shadow below the real body is called the *lower shadow* that measures the low of the session. The Japanese consider the real body the essential price movement; the shadows are usually looked upon as irrelevant price fluctuations.

CANDLESTICK PATTERNS CONT'D

WHEN ACTION MAY BE SUGGESTED: Candlestick patterns are combinations of candlestick figures, from a single candle to as many as five candle figures. Although these patterns can be viewed to confirm bullish and bearish trends, most candle patterns signal trend reversals. In either case, it must be understood that these patterns do not exist in a vacuum. Rather, pattern development can only be properly appreciated when the short-term trend immediately preceding the pattern is known. This is crucial to the proper use of Candlestick analysis. Some of the candlestick patterns to look for which signal trend changes include "morning star", "evening star", "hammer", and "hanging man". For definitions of the different types of candlestick patterns, refer to the <Help> screen for CNDL.
Some special candlesticks to look for:

LONG DAY: A candlestick that has a long day is one in which there has been a big difference in opening and closing price compared with typical trading days in the previous five to ten days.

SHORT DAY: A candlestick that has a short day is one in which there has been a small difference in opening and closing price compared with typical trading days in the previous five to ten days.

MARUBOZU: A marubozu candlestick is one that exhibits no (or very little) upper or lower shadow. For a white candlestick this means that its open is equal to its low, and its close is equal to its high. For a black candlestick it means that its open is equal to its high, and its close is equal to its low.

SPINNING TOP: A spinning top is candlestick with a small real body and long upper and lower shadows.

DOJI: A doji is the most extreme case of a spinning top. It occurs when the real body exists as a line (when the day's open and close are the same). A long legged doji has long upper and lower shadows. A gravestone doji has a long upper shadow and no lower shadow. A dragonfly doji has no upper shadow and a long lower shadow. And a four-price doji has no upper or lower shadows (the open, high, low, and close are the same).

STAR: A star is a small real body that gaps above or below a long candlestick occurring the previous day.

UMBRELLA and INVERTED UMBRELLA: An umbrella is similar to a dragonfly doji: a small real body with no upper shadow and a long lower shadow. An inverted umbrella is similar to a gravestone doji: a small real body with a long upper shadow and no lower shadow.

CHAIKIN OSCILLATOR

Ticker Symbol <Sector Key>CHKO<Go>

BENEFIT: Shows if volume is "flowing into or out of a security." The Chaikin Oscillator can also signal divergences to help time optimal entry and exit points.

INTERPRETATION: The Chaikin Oscillator, developed by Marc Chaikin, is based on the assumption that volume and price normally rise and fall together. When this relationship changes, a possible change in the price trend may result.
The Chaikin Oscillator is calculated as follows:

Chaikin Oscillator = (3 day simple moving average of the ADL) - (10 day simple moving average of the ADL)
ADL = $\frac{[(\text{close} - \text{low}) - (\text{high} - \text{close})] * \text{Volume})}{(\text{high} - \text{low})}$ *Where ADL = Accumulation/Distribution line*

WHEN ACTION MAY BE SUGGESTED: There are two ways in which the Chaikin Oscillator is used. The most important signal to note is divergence between price on the oscillator: when prices reach a new high or low in a trend and the oscillator *fails to exceed* its previous extreme reading and then reverses direction.
A second way to use the oscillator is to note changes in direction. BUY signals are given when the price of the security is above its 14-day moving average, the Oscillator turns upwards and the value of the Oscillator is negative. SELL signals are given when the price of the security is below its 14-day moving average, the Oscillator turns downwards and the value of the Oscillator is positive.

COMMODITY CHANNEL INDEX

Ticker Symbol <Sector Key>CMCI or ICCI<Go>

BENEFIT: Identifies overbought/oversold conditions as well as possible divergences that can assist in identifying entry and exit points.

INTERPRETATION: The Commodity Channel Index (CCI), developed by Donald Lambert, measures the variation of a security's price from its statistical mean. High values show that prices are unusually high compared to average prices, whereas low values indicate that prices are unusually low. The CCI is a timing system that is best applied to securities that have cyclical or seasonal tendencies. CCI does not determine the length of cycles -- it is designed to detect when such cycles begin and end through the use of statistical analysis which incorporates a moving average and a divisor reflecting both the possible and actual trading ranges.

COMMODITY CHANNEL INDEX CONT'D

WHEN ACTION MAY BE SUGGESTED: Like many other oscillators, there are two basic methods of interpreting the Commodity Channel Index: identifying overbought/oversold areas and price/oscillator divergent signals. The CCI typically oscillates between $\pm$100. To use the CCI as an overbought/oversold indicator, readings above +100 imply an *overbought* condition, while readings below -100 imply an *oversold* condition. Signals are given when the oscillator enters either the overbought or oversold area and turns in the opposite direction.

A *divergence* occurs when the price of a security is making new highs/lows while the CCI is failing to surpass its previous highs/lows. This divergence such as this under certain market conditions may indicate a forthcoming change in trend.

GENERAL OVERVIEW CHART (Ichimoku)

Ticker Symbol <Sector Key>GOC<Go>

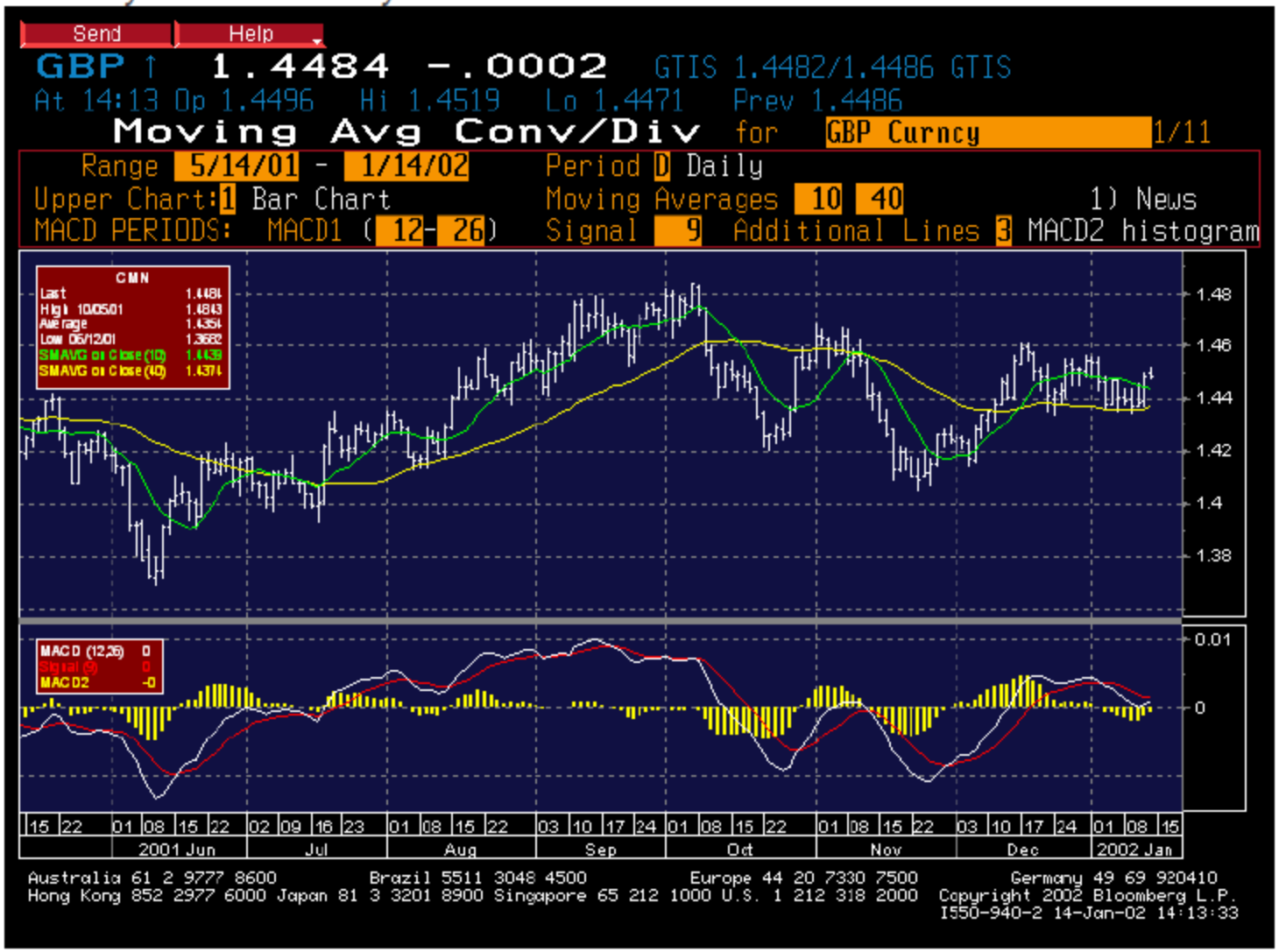
BENEFIT: Signals the trend and near-term support and resistance of a chosen market and is used to project future market trends.

INTERPRETATION: The General Overview Chart was developed by Goichi Hosoda and is commonly referred to as Ichimoku Charts. There are several critical pieces of information that are presented on the chart.
First, interaction of the Conversion line (pink) and the Base Line (yellow) provides clues about near-term changes in trend. (The Base Line itself also defines bullish or bearish market trends.) Second, the Lagging Span (Gray) offers perspective on the rate of change of price movement of the underlying stock. Finally, the Leading Span 1 Line (orange) and The Leading Span 2 Line (green) works together to give insights into near-term resistance or support of the price.
About the 5 lines that are displayed:

The Conversion Line - the average price level between the high and the low price for the past 9-day period. This is similar to a moving average, but daily prices are not used. The difference is that only high and low prices are used.
The Base Line - the average price level between the high and the low price for the past 26 days. This is designed to simplify the market strength.

MOVING AVERAGE CONVERGENCE/ DIVERGENCE

Ticker Symbol <Sector Key>MACD or IMAC<Go>



BENEFIT: Provides indications of the market's underlying trend. Theory suggests that when price is trending, it's expected from time to time, that speculative forces "test" the trend. By exponentially weighting price action, MACD can help to determine if it is just a short-term deviation from the trend or if it is a structural change in the trend.

INTERPRETATION: The MACD indicator, developed by Gerald Appel, is a trend following indicator that shows the relationship between two *exponential* moving averages of price. MACD plots the spread between a 12 and 26 period moving average and is shown in *white.* A 9-day ema of the MACD, called the "signal" line, is plotted on top of the MACD in *red.* Because the MACD is considered a trend following indicator, it proves most effective in wide-swinging or trending markets. MACD and moving averages are both examples of trend following, or "lagging" indicators.

WHEN ACTION MAY BE SUGGESTED: The three most popular ways to use the MACD are Crossovers, Divergences and Overbought/Oversold conditions.

Crossovers

The crossover interpretation involves the signal line that is used with the MACD and helps to determine the appropriate entry and exit point. The basic MACD trading rule is to sell when the MACD falls below its signal line and to buy when the MACD rises above its signal line.

Divergences

An indication that an end to the current trend may be near occurs when the MACD diverges from the security. A divergence occurs when the trend of a security's price doesn't agree with the trend of the MACD. A bearish divergence occurs when the MACD is making new lows while prices fail to reach new lows. A bullish divergence occurs when the MACD is making new highs while prices fail to reach new highs. When this occurs, prices usually change direction to confirm the trend of the MACD.

Overbought/Oversold Conditions

The MACD is also useful as an overbought/oversold indicator. When the shorter moving average pulls away dramatically from the longer moving average (i.e., the MACD rises), it is likely that the security price is overextending and will soon return to more realistic levels.

MACD2 (line or histogram)

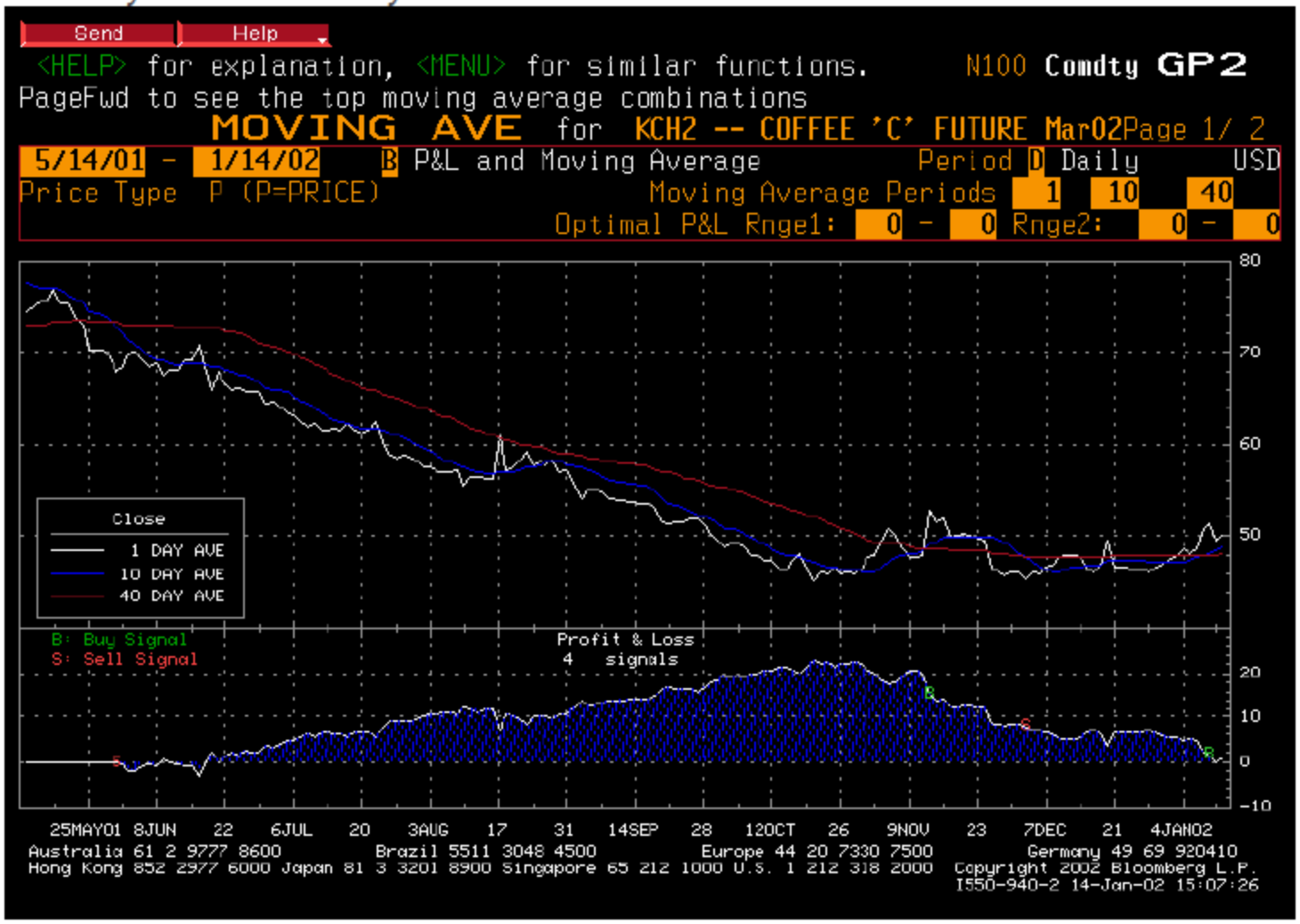
MACD2 is a third indicator value that can be viewed on the chart either as a line or a histogram. MACD2 shows the difference between the MACD and the Signal. High MACD2 values are seen when trends are moving strongly in one direction, either up or down. Falling and low MACD2 values are evidence of a weakening trend and possible crossovers. A popular use of MACD2 is as an “early-warning” strategy that entails closing out the current position when the MACD2 value begins the fall from its extreme point instead of waiting for the reverse crossover to occur.

Popular MACD settings

As indicated previously, MACD was introduced by Appel using a 12-day and 26-day price exponential moving average with a 9-day exponential moving average of the MACD (signal line). Other popular settings in the market include 8, 17, & 9 and 3, 6, & 9 respectively. The Bloomberg MACD defaults are 12, 26, & 9.

MOVING AVERAGE CHART

Ticker Symbol <Sector Key>GP2<Go>



BENEFIT: Identifies buy and sell signals using moving average crossovers as a trading indicator. It also can identify the historical optimal crossover combinations for a given security and time period.

INTERPRETATION: GP2 displays a graph of three moving averages for the selected security on the top section of the chart and a profit and loss section at the bottom. (Although there are three moving average lines that can be plotted on GP2, the profit and loss graph will only interpret the crossover signals between the 2nd and 3rd moving averages entered.) The P&L section illustrates the cumulative profit or loss based on the scenario that at the first signal given, 1 unit is bought or sold and at every subsequent signal 2 units are bought or sold. This results in maintaining a long or short position at all times. Buy signals are represented by a green "B"; sell signals are represented by a red "S". On the top left-hand portion of the GP2 chart is the optimal P&L range. It is designed to find the "best combination" of moving average crossovers for a specific security over a specific period of time. The "best combination" is defined as the combination that resulted in the highest net profit over the period of time entered on the chart. To use the optimal P&L Range, enter two sets of moving average periods under optimal P&L range 1 and range 2. GP2 will then try each combination of numbers from range 1 with numbers from range 2 until it finds the "best combination".

ON-BALANCE VOLUME

Ticker Symbol <Sector Key>OBV<Go>

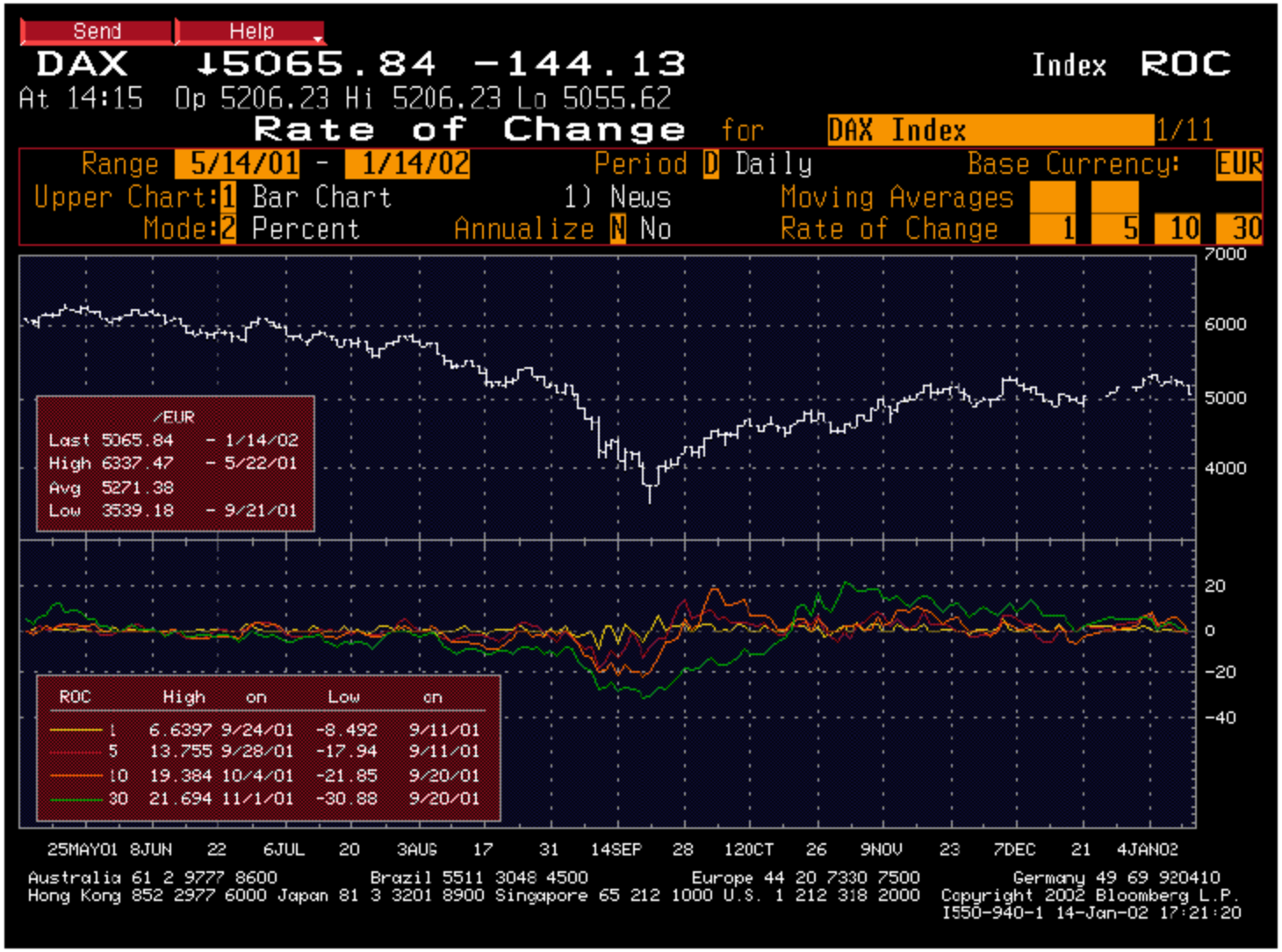
BENEFIT: Measures volume activity and identifies if it is “flowing into or out of a security." This can signal divergences than can be used as possible entry or exit points.

INTERPRETATION: On-balance volume, created by Joe Granville, is based on the theory that volume activity is directly proportional to the direction of true trend of a market’s price. High volume on days where the market closes higher is strong evidence of an uptrend versus low volume on those days when the market closes higher. Increased volume on the days when a market closes lower suggests a weak price action compared with a day when the market closes lower on thin volume. In theory, On-balance volume changes should precede price changes. The On-balance volume line is calculated in the following manner: If the market closes higher than the previous day’s close, then OBV will equal the previous day’s OBV, plus today’s volume. If the market closes lower than the previous day’s close, then OBV will equal the previous day’s OBV, minus today’s volume. If the market closes at the same price as the previous day’s close, then OBV will equal yesterday’s OBV. Once the OBV value is calculated each day, it is added or subtracted to the running OBV total. (The original OBV is the first day’s volume).

WHEN ACTION MAY BE SUGGESTED: When the OBV indicator is on a rising trend, it is generally a bullish sign, even when the market’s price may have declined slightly. When the OBV is falling, the indication is bearish even when the market may be in a short-term rally. The overall direction of line is the important factor, not the value of OBV. Historical observations suggest price ultimately follows OBV indicator when they diverge.

RATE OF CHANGE

Ticker Symbol <Sector Key>ROC or IROC<Go>



BENEFIT: Measures the pace at which a security's price is changing which can help to confirm trends and forewarn of market reversals.

INTERPRETATION: The basis for the Rate of Change Indicator comes from the two things that propel all markets: fear and greed. The Rate of Change indicator gives visual indication of these market moods by signaling when a market is beginning to change direction. The Rate of Change Indicator compares a security's price to the price *(n)* days previous.
The Rate of Change is calculated as follows:

> Rate of Change = ((Today's close - close (n) days previous) / close (n) days previous) * 100

As with many oscillators, the shorter the period used, the more sensitive the analysis. The ultimate goal is to identify timely trading signals by using a small values and eliminating false signals by comparing the signals with larger values. It is simply a matter of trying different numbers for (n) until you find those that best suit your trading needs.

WHEN ACTION MAY BE SUGGESTED: There are *three* general techniques that are used in conjunction with the Rate of Change Indicator.

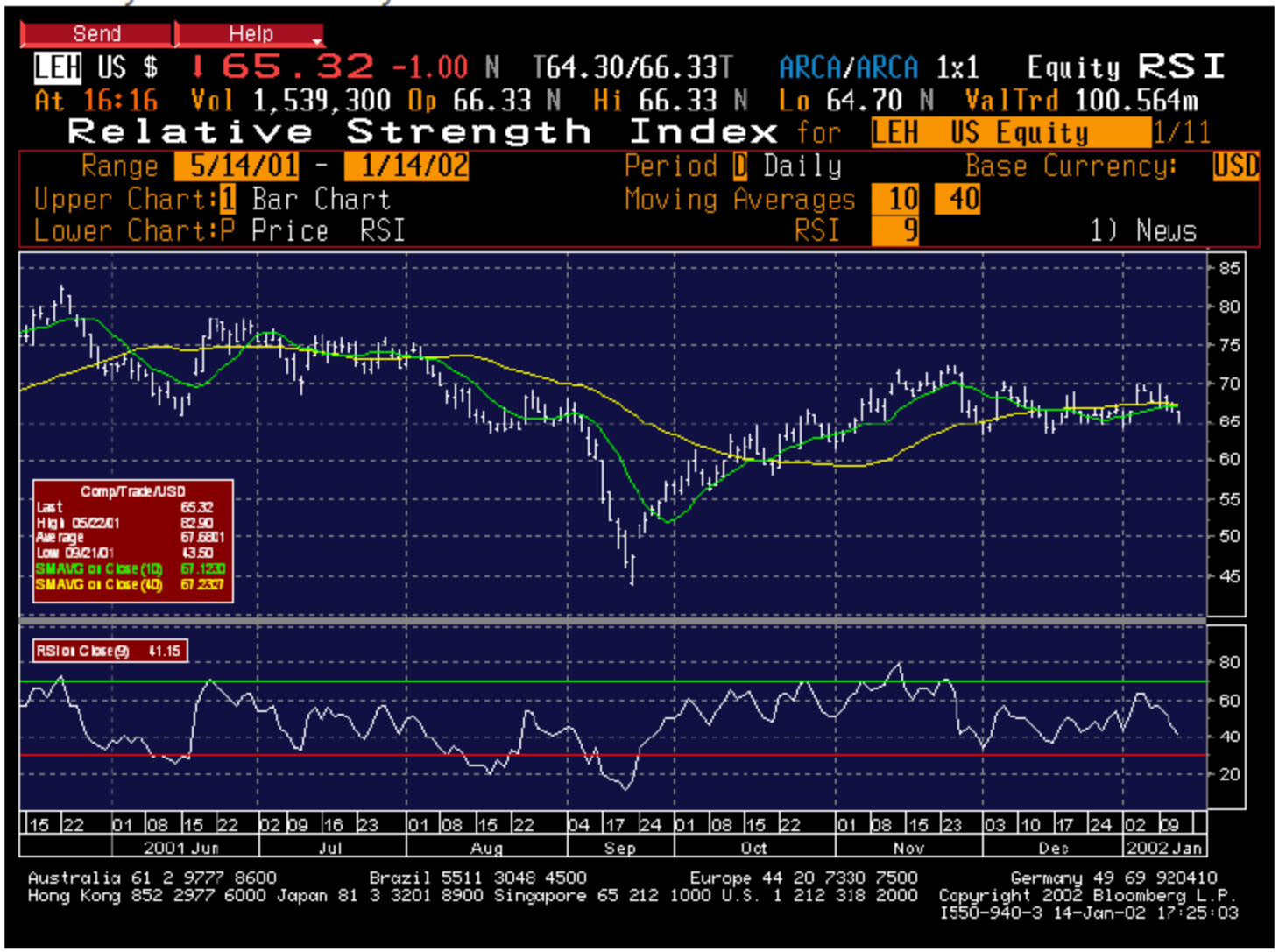
(A) Overall, when the Rate of Change Indicator is positive, it indicates that the security is increasing in price; a negative reading indicates that price is declining. If the Rate of Change crosses the zero point of the oscillator in the same direction as the overall trend of the market, it will generally indicate a more successful trade than when the midpoint crossing is in opposition to the trend.

(B) Another area where the Rate of Change can provide strong indications is when the price is forming new highs (lows) and the Rate of Change is not making a higher high (lower low) relative to its most recent peak (trough). This is known as a divergent signal and can often lead to a reversal of trend. This is considered to be most useful in a sideways, or non-trending, market.

(C) Another technique is to watch for the Rate of Change reaching a new extreme value. This may indicate a very overbought or oversold condition that may become a peak or a bottom for the market.

RELATIVE STRENGTH INDEX

Ticker Symbol <Sector Key>RSI or IRSI<Go>



BENEFIT: Measures the velocity of a security's price movements, hence identifying potential turning points. Prices are generally considered to be elastic in that they can move only so far from a mean price before retreating or accelerating. Rapid price increases result in overbought conditions and rapid price decreases result in oversold conditions, which if properly identified can assist in maximizing proper entry/exit decisions.

INTERPRETATION: The Relative Strength Index (RSI), an oscillator introduced by J. Welles Wilder, Jr., is in fact an internal strength indicator as it compares the price of a security relative to itself, not the relative strength of a security vs. a market. The indicator measures the relative strength of price gains on days that the security closes above the previous days close to price losses on days that the security closes below the previous days close.

The RSI is calculated by averaging up and down closes over a given period of time and inserting the result into the RSI formula, RSI = 100 - (100/(1+RS)). The result is plotted on a vertical scale of 0 to 100 and is used to demonstrate the inner strength of a price trend

WHEN ACTION MAY BE SUGGESTED: There are several possible interpretations for the Relative Strength Index, any of which can be very powerful depending on the market conditions and trading/investment approach. In his book, Wilder highlights five uses of the RSI: Tops and Bottoms, Chart Formations, Failure Swings, Support and Resistance, and Divergence.

Tops and Bottoms

The RSI overbought/oversold indications are 70 and 30 respectively. Buy signals are triggered when RSI is in an oversold area, below 30, potentially meaning that the security is about to reach its low for this trend, and sell signals are triggered when RSI is in an overbought area, above 70, potentially signaling a market top. It usually forms these tops and bottoms before the underlying market, which can signal an impending reversal.

Chart Formations

The RSI often forms chart patterns such as head and shoulders or triangles that may not be visible on the underlying price chart.

Failure Swings

Also known as support or resistance penetrations or breakouts, this is where the RSI fails to surpass a previous high or low and then surpasses its most recent peak or trough. The failure swing is considered a confirmation of the impending reversal and the strongest ones occur above 70 or below 30.

Support and Resistance

Levels of support and resistance are highlighted in the RSI many times before they can clearly be seen on the underlying price chart. Support/Resistance lines are drawn on the Index as they are drawn on a traditional price chart.

Divergences

Divergences occur when the price makes a new high (or low) that is not confirmed by a new high (or low) in the RSI. Prices usually correct and move in the direction of the RSI.

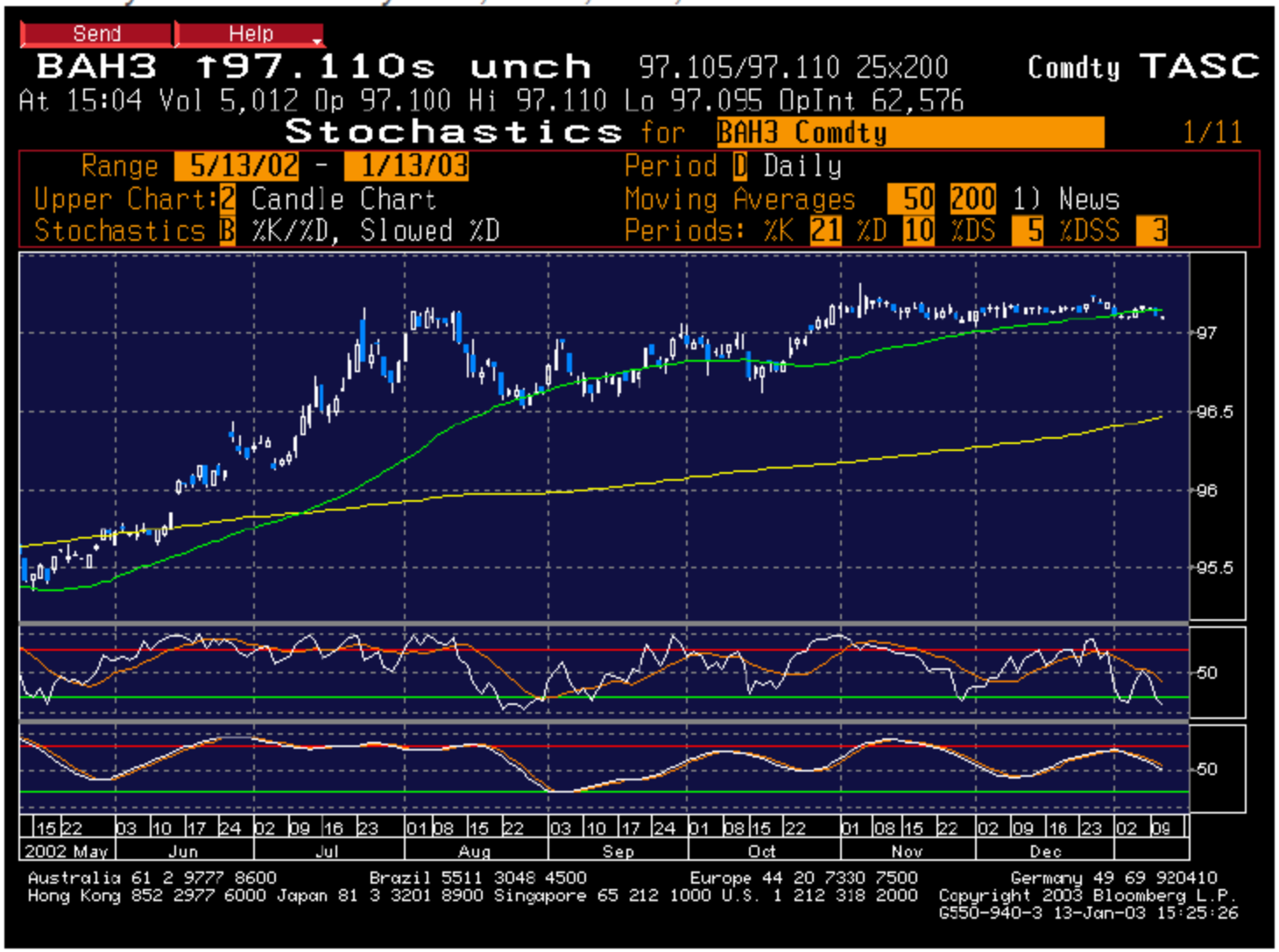
Another method of interpretation for the RSI that is used by many is to view it as a bullish or bearish signal when it crosses 50. When the RSI crosses above 50 it can be considered bullish, and when it crosses below 50 it can be considered bearish. The concept here is that markets that are overbought will quickly turn to oversold and vice versa.

Popular RSI settings

When Wilder introduced the RSI, he recommended using a 14-day RSI. Since then, 3-day, 9-day and 25-day RSI settings have also been used.

STOCHASTICS

Ticker Symbol <Sector Key>TAS, TASC, ITAS, or ITAC<Go>



BENEFIT: Measures price momentum to identify overbought/oversold conditions, which may assist in maximizing entry or exit decisions.

INTERPRETATION: The Stochastics oscillator, developed by Dr. George Lane, uses closing prices in comparison with highs and lows of current trading ranges to indicate the trend of price movements. The premise behind the indicator is that the market will close at the upper end of a given period's trading range when the price is trending upward and that it will close at the lower range during downtrends. Peaks of the oscillator are presumed to indicate overbought positions, while minimum values of the oscillator are presumed to indicate oversold positions.

The stochastics indicator is plotted as two lines, %K and %D. The range of the stochastics oscillator is between 0 and 100. There are two types of stochastics: fast stochastics and slow stochastics. % K and % D produce what is known as the *Fast Stochastics*, which many traders feel are too erratic. To smooth this extreme sensitivity to price movement, *Slow Stochastics* were created whereby the more sensitive % K line is dropped in favor of a smoothed % D-Slow and % D is replaced by the % DS-Slow line.

When calculating fast stochastics, the raw value of %K is the point at which the current price lies within the historical price range of its given period, and the value of %D is the moving average of %K over a given number of periods.

When calculating slow stochastics, the value of %K slow is the %D-period moving average of the point at which the current price lies within the historical price range of its given period (or raw %K), and the value of %D slow is the moving average of the %K slow over a given number of periods.

The actual calculations of the indicator are as follows:

% K = 100 [{C - L (n)} / {H (n) - L (n)}] where C is the current close, L (n) is the low of the (n) period, and H (n) is the high of the (n) day period.
% D = a moving average of % K for the specified period.
% D-Slow = a moving average of % D for the specified period.
% DS-Slow = a moving average of % D-Slow for the specified period.

WHEN ACTION MAY BE SUGGESTED: Stochastics can be used with several interpretations: among them are divergences, crossovers, and overbought/oversold breakouts.

Divergences

One interpretation (and the one Lane believes to be most important) is to look for divergences between the stochastic oscillator and the price. An overbought market occurs when the oscillator makes a series of lower highs while the price makes a series of higher highs. An oversold market occurs when the price makes a series of lower lows while the oscillator makes a series of higher lows. When a divergence occurs between an indicator and prices, the indicator typically provides the clue as to where prices will head.

Crossovers

A second interpretation is to receive signals based on a crossover of the two lines. When the %K line rises above the %D line it is considered bullish, and when the %K line falls below the %D line, it is considered bearish. You can eliminate some false signals by using only the signals that correspond to the direction of the intermediate- to long-term trends.

Overbought/oversold breakouts

A third interpretation is that a buy signal is generated when either line dips below and then rises above 20, and a bearish signal is generated when either line rises above and then dips below 80.